RESPONSE TO COMMENTS
NPDES GENERAL PERMIT AND FACT SHEET

OIL AND GAS EXPLORATION, DEVELOPMENT AND PRODUCTION FACILITIES LOCATED IN STATE AND FEDERAL WATERS IN COOK INLET

Permit Number AKG-31-5000

1. The prohibition on discharges of produced water and muds/cuttings from new production and development facilities is inconsistent with the Offshore and Coastal Oil and Gas effluent limitation guidelines (ELGs).

   Response: The Offshore and Coastal Oil and Gas ELGs establish technology-based standards and conditions for discharges of drilling fluids, drill cuttings, and produced water. The ELGs have specific requirements for Cook Inlet operators. EPA does not have the flexibility to set more stringent technology-based standards and conditions and cannot prohibit these discharges within Cook Inlet. See Fact Sheet at p. 24-25; 40 CFR Part 435. However, the final permit selectively authorizes these discharges – the discharge of drilling fluids and drill cuttings are only authorized for exploratory and existing facilities and existing facilities are the only facilities that are authorized to discharge produced water. While the permit does not authorize these discharges for New Sources, it does not preclude future authorization. New Source operators who need to discharge drilling fluids, drill cuttings or produced water must apply for an individual permit. In Offshore areas (territorial seas and federal waters), the permit also authorizes (with limitations) the discharge of non-aqueous based drilling fluids that adhere to drill cuttings.

2. Increased monitoring and regulation is unnecessary because studies over the past 40 years have shown no environmental degradation in Cook Inlet.

   Response: EPA has reviewed the environmental studies that have been conducted in Cook Inlet as well as the monitoring that has been done for the National Pollutant Discharge Elimination System (NPDES) general permits. However, one purpose of the monitoring requirements is to provide site-specific monitoring data that has not been collected in Cook Inlet. This information includes metals monitoring, environmental baseline monitoring for new exploration facilities, and ambient monitoring for discharges of produced water over 100,000 gallons per day (gpd). These studies are not redundant and would provide supplemental information that will be used to establish a more complete data set. The information is necessary to better characterize existing conditions and form a basis from which to determine whether changes to water quality are occurring as a result of oil and gas activities in Cook Inlet. The information will be used in part to support future permitting decisions.

Due to the gap in existing data, EPA does not agree with the statement that no environmental degradation has occurred in Cook Inlet. However, EPA acknowledges that significant degradation cannot be attributed to oil and gas activities at this time.

3. EPA should revert back to the 1,000 meter setback prohibition because the 4,000 meter prohibition is not supported by existing data, prohibits production in those areas, and infringes upon the State's authority to regulate state oil and gas lease sale areas.

Response: EPA based the 4,000 meter setback permit provision on critical habitat protection and the oil and gas operators' ability to employ alternate methods of waste disposal within the prohibited area. EPA received numerous comments, both for and against the setback permit provision, from oil and gas operators, trade organizations, state government agencies, non-government organizations and private citizens. After reviewing and evaluating all the proposed permit comments, EPA has retained the 4,000 meter setback provision in the final permit.

Commenters noted that, by including the provision, EPA is prohibiting production in the 4,000 meter setback area and is infringing on the state's authority to regulate state oil and gas lease sale areas. To clarify, EPA is not prohibiting drilling or production in the 4,000 meter setback area; EPA is only prohibiting the discharge of pollutants in this area. This provision extends the 1,000 meter setback provision set forth in the expired permit to 4,000 meters for the sensitive areas identified in Section I.C.3.b. of the permit. This requirement does not apply to the entire coastal zone. Consistent with the previous permit, oil and gas operators may choose to directionally drill from outside the 4,000 meter setback area or operate in the setback area without discharging by employing other waste management methods, such as injection. Additionally, the commenters provided no evidence that the 4,000 meter setback area would prevent any wells from being drilled in Cook Inlet. As such, EPA does not believe this requirement infringes on state authorities, restricts production, or places an unreasonable burden on oil and gas operators in Cook Inlet.

Commenters also noted that the expansion of the setback area from 1,000 meters to 4,000 meters is not supported by existing data, is not necessary to protect critical habitat areas. Commenters felt that the 1,000 meter setback was adequately protective. Although there was a requirement to conduct monitoring between 1,000 meters and 4,000 meters of sensitive areas in the expired permit, data was not collected because no exploration or development activities did not occur during the last permit term. In general, environmental impacts are reduced by discharging into deeper water and there is less of a chance of accumulation of particles in coastal areas. Additionally, as required by the Endangered Species Act (ESA), EPA submitted a Revised Biological Evaluation (BE) for the permit reissuance and requested concurrence from the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). USFWS concurred with EPA's determination in the BE. NMFS concurred with EPA's determination that the proposed action is not likely to adversely affect Steller sea lion critical habitat in part because "[a]dditional mitigation requires no discharges within the boundaries of, or within 4,000 meters of a critical habitat area." NMFS also stated that "due to their

common range in the lower-Inlet and EPA's restrictions on new development, NMFS concurs with EPA's determination that the proposed action is not likely to adversely affect humpback whales, fin whales and Steller sea lions." This evaluation supports retention of the 4,000 meter setback area in the final permit.

4. EPA should not require whole effluent toxicity (WET) limits and monitoring for small volume discharges because such requirements are unnecessary and expensive. Further, some of the treatment chemicals have extremely low toxicity. WET testing should only be required for miscellaneous discharges greater than 10,000 gpd and only for treatment chemicals with a low LD50 (perhaps <1,000).

Response: See Response to Comment #8 regarding the removal of WET limits for miscellaneous discharges. The WET monitoring requirements in Section II.F.4 of the final permit apply to miscellaneous discharges greater than 10,000 gpd. EPA considers "per day" to mean "through a 24 hour period." The final permit has been changed to clarify that point.

The monitoring requirements are necessary because some treatment chemicals that are added to waste streams, such as water flooding, can be highly toxic and have been shown to have the potential to cause toxic effects in the receiving water. The state water quality standard for toxicity is expressed as chronic toxicity and chronic toxicity monitoring is required in the final permit. As discussed in Response to Comment #8, the correlation between acute and chronic toxicity is unknown for the chemicals used at Cook Inlet facilities and, therefore, it is not appropriate to establish a monitoring threshold based on the LD50 as requested by the commenter.

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5. The proposed ambient monitoring study for large volume produced water dischargers is logistically infeasible, economically challenging and repetitive of studies already conducted by EPA, the Minerals Management Service (MMS), and the Cook Inlet Regional Citizens Advisory Council (CIRCAC).

Response: EPA continues to believe that the ambient monitoring study is necessary to provide additional information that will supplement previous studies conducted by EPA, MMS, and CIRCAC. Since the public notice of the draft general permit, EPA has worked together with oil and gas operators, the State of Alaska Department of Environmental Conservation (ADEC), and CIRCAC to define a specific set of objectives and requirements for the ambient monitoring study. Oil and gas operators discharging greater than 100,000 gpd of produced water must plan and conduct a single study that addresses the fate and transport of pollutants in the water column and sediments.

The overall objective of the study is to evaluate contaminant fate and transport from large volume produced water dischargers. The components of the discharges addressed in the study will include dissolved and particulate metal and hydrocarbon concentration analyses. The study will be accomplished by statistically comparing contaminant concentrations at the discharge point with concentrations at distances from the discharge point (transport) and evaluating the accumulation of contaminants in Cook Inlet's water

column and/or sediments (fate). See Response to Comment #52 and Section V of the permit.

6. The permit should require zero discharge from the facilities covered by the permit, consistent with the discharge limits in other parts of the country.

Response: The final permit contains technology-based limitations and conditions established in the Oil and Gas Extraction ELGs. See 40 CFR Part 135. The ELGs establish best conventional pollutant control technology (BCT), best available technology technologically achievable (BAT), best practicable control technology currently available (BPT), and new source performance standards (NSPS). Under this permit, EPA will not authorize the discharge of muds/cuttings and produced water for new development and production facilities. The ELGs for the Coastal Subcategory do not require zero discharge from exploration facilities for any area of the U.S.

Clean Water Act § 402(a)(1)(B) allows development of technology-based limits based on the best professional judgment of the permit writer (BPJ). To establish a limit based on BPJ, it must be determined whether a need for additional controls beyond the existing ELGs is necessary. The need for additional controls may result from not falling under any category for which an ELG exists or there is a discharge of pollutants that are not addressed in the development of the ELGs. See 40 CFR § 125.3. Here, the oil and gas operators are specifically covered by the ELGs. Therefore, EPA does not have the flexibility to develop additional technology-based limitations unless the Effluent Guideline is revised.

EPA Region 10 has reinitiated conversations with the Office of Science and Technology at EPA Headquarters and has requested that consideration be given during the upcoming planning cycle to review the ELGs, specifically the Coastal Subcategory (40 CFR Part 435, Subpart D), regarding the ELGs applicable to Cook Inlet. Significant environmental, economic, and technological changes have occurred since the last review of the guideline which Region 10 believes warrants additional review.

7. The treatment chemicals now being used and ultimately discharged as part of the miscellaneous discharges are subject to EPA risk evaluation and have been used in Cook Inlet without impact.

Response: Although treatment chemicals are subject to EPA's labeling requirements under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), EPA requires WET testing to determine compliance with State water quality standards and to evaluate the potential toxicity associated with the miscellaneous discharges. EPA does require producers of pesticides to provide instructions for safe use of the product on the product's label. The label requirements apply to the safe application of the product from a human health standpoint, which do not necessarily address its ultimate fate in and effect on the environment. Following the labeled instructions of a FIFRA-labeled pesticide does not exempt the discharger from complying with the Clean Water Act where toxicity in the discharge is a potential water quality concern. Although existing data does not indicate

significant impacts are likely, additional WET monitoring will provide assurance that toxicity is not occurring. See also Response to Comment #8.

8. Due to the lack of specific toxicity data for many of the components of the miscellaneous discharges, there is uncertainty in the current WET mixing zones and limits. For example, EPA had to use hazard quotients to calculate the reasonable potential analysis. Given this uncertainty, EPA should apply Best Management Practices (BMPs) to reduce toxicity.

   Response: Given the lack of actual toxicity WET test data for the miscellaneous discharges, EPA believes that the hazard quotient (HQ) approach, as proposed by dischargers in the mixing zone application, is a reasonable methodology for estimating toxicity. EPA does, however, agree that there are uncertainties in determining permit limits for these discharges. Specifically, for the chemicals used at the Cook Inlet facilities, only acute toxicity data is available, but the State water quality standards specifically address chronic toxicity. EPA, therefore, has removed the WET limits for miscellaneous discharges from the final permit. Instead, the values based on the Sea Water Dispersion Modeling results, expressed as chronic toxic units (TU_c), will be utilized as a trigger to require additional testing pursuant to Section III.A.7-9. The WET monitoring frequency and requirements for miscellaneous discharges, pursuant to Section II.F.4, remain unchanged. During the next permit reissuance, EPA will evaluate these data to determine the need for chronic toxicity permit limits. See also Response to Comment #187. Section IV of the permit contains provisions for implementing BMPs.

9. EPA should have used existing studies to address the issues raised in the Traditional Ecological Knowledge (TEK) report.

   Response: EPA has a responsibility to balance a variety of concerns and perspectives. TEK is a mechanism by which EPA can collect and evaluate information from non-traditional sources. The information and concerns identified through the TEK report were considered in developing permit conditions and additional monitoring requirements; however, it was not the only justification for additional permit requirements (also see Responses to Comments #1 and #2). EPA believes that this permit balances the variety of concerns raised during permit reissuance and meets EPA's regulatory requirements.

10. The use of topsmelt for WET testing is difficult due to the availability of the species from the supplier at critical times.

    Response: EPA acknowledges the difficulties Cook Inlet oil and gas operators are having with the use of topsmelt (*Atherinops affinis*) for WET testing. Thus, EPA has included inland silverside (*Menidia beryllina*) as an alternative vertebrate species if topsmelt is not available.

11. The commenter requests a clarification to the legend in Figure 1 of the permit. The legend implies that all discharges from new production facilities would be prohibited in Upper Cook Inlet.

Response: Figure 1 of the final permit has been revised to remove the word "existing" from the legend as identified in the comment. The details of the prohibitions and limitations as they pertain to different types of discharges are explained in detail in the body of the permit.

12. Table 1 of the permit contains limits for non-aqueous stock base fluids; however, Section II.B.1 of the permit prohibits the discharge of non-aqueous fluids. This appears to be a conflict within the permit.

Response: The limits shown in Table 1 are for stock base fluids used in non-aqueous based drilling fluids adhering to discharged drill cuttings. Those drill cuttings are only allowed to be discharged in Offshore Subcategory waters. The bulk discharge of non-aqueous based drilling fluid is prohibited throughout the permit's coverage area.

13. The permit needs to define the term "constituent" in the end-of-well reporting requirements in Section II.B.4.b.

Response: For purposes of the end-of-well reporting requirement in Section II.B.4.b.ii, constituent is defined as the chemical product(s) added downhole.

14. The draft permit requires environmental monitoring for new exploration facilities. It is difficult to develop and implement a meaningful monitoring plan with response mitigations in the short period of time in which exploration occurs.

Response: The environmental monitoring requirements for new exploration facilities required in this permit are the same as those in the expired permit except that the requirements are expanded to encompass a wider range of facilities (not limited to only those within 4,000 meters of sensitive areas). The monitoring requirements do not include identifying or implementing mitigation measures to minimize environmental impacts. The results of the studies could indicate the need for mitigation measures in future permitting actions. Study requirements are prescriptive with the main focus to develop data that can be used to compare baseline conditions and conditions during and after discharge. These studies would not be duplicative of either the ambient monitoring study for large volume produced water discharges or previous studies conducted by EPA, MMS, or CIRCAC. This ambient monitoring study will provide baseline data for specific locations where discharges will occur.

15. EPA should allow operations to continue under the existing regulatory regime with improvements directed at making monitoring more efficient and reducing the number of samples required.

Response: EPA has established monitoring requirements in the final permit that are necessary to demonstrate that permit conditions are being achieved and water quality protected. When operators have demonstrated compliance, the permit allows for a decrease in monitoring consistent with 40 CFR § 122.44(i).

16. EPA should have taken time to better understand operations in Cook Inlet by communicating with oil and gas operators, and evaluating the extensive data available from existing studies.

Response: EPA reviewed all existing data on Cook Inlet from a variety of sources in reissuing the permit. EPA worked directly with oil and gas operators to clarify permit applications, operational issues, and technical constraints. In addition, EPA worked with oil and gas operators to determine the feasibility of installing a diffuser at the Trading Bay Production Facility (TBPF) and in refining the requirements of ambient monitoring study for large volume produced water dischargers.

17. Environmental contaminants have been documented in Cook Inlet in a number of studies, including EPA's Contaminant Survey. These studies found hydrocarbons and heavy metals in flora and fauna that are the same as those being discharged by the oil and gas operators. Please eliminate Cook Inlet oil and gas discharges to protect welfare of future generations.

Response: The Agency for Toxic Substances and Disease Registry (ATSDR) provided an independent evaluation of data contained in EPA's Contaminant Survey as well as data collected by CIRCAC under ADEC's environmental monitoring program. This evaluation determined that metals posed no apparent health hazard to Alaska natives. In addition, this report concluded that data were insufficient to address polycyclic aromatic hydrocarbons (PAHs). The public health implications of these exposures are unknown and ATSDR's conclusion for them is indeterminate public health hazard. The contaminants identified in the different data sets are also released from many sources within the Cook Inlet watershed and with very little evidence that they can be directly attributed to the oil and gas operators covered by this permit.

The permit requires monitoring for some of the hydrocarbons and metals that were identified in the survey. The permit also requires environmental monitoring for any new exploratory facilities discharging drilling muds and/or cuttings and monitoring within the water column and sediments for facilities discharging greater than 100,000 gpd of produced water. These studies will be coordinated with the ongoing work in Cook Inlet by others and should provide a greater extent of knowledge that can be used for future permitting decisions. See also Response to Comment #6.

18. The diffuser at TBPF is not necessary and burdensome. In addition, some of the details presented in the draft permit and supporting documents are incorrect, such as the proximity of the discharge to sensitive areas and outfall length. Finally, interim limits should be set for the facility for the period before/during installation of the diffuser with final limits taking affect after the diffuser is in place.

Response: EPA recognizes that TBPF is not the closest facility to the coast; however, TBPF is the largest discharger of produced water in Cook Inlet, the outfall is located in relatively shallow water (10 meters), and it is the closest facility to sensitive areas. The

reference to the TBPF outfall in the Ocean Discharge Criteria Evaluation (ODCE) has been removed and EPA recognizes that the length of the diffuser was stated in error in the Fact Sheet (the length of the diffuser would be 80 meters long rather than 100 meters).

A diffuser is a simple and practicable mechanism which is required to meet the State water quality standard requirement that mixing zones are as small as practicable. ADEC has established a mixing zone for TBPF which is based on the addition of a diffuser. The permit also requires that the diffuser that is installed to be consistent with ensuring that the discharges meet the State water quality standards as implemented by ADEC.

The two year implementation period is a result of discussions with Chevron/Unocal regarding the length of time it would take to design and install the additional equipment. The commenter noted that it would have difficulty meeting the two year schedule if the permit was not issued by November 2006. However, during a recent conversation between EPA and a Chevron representative, EPA understands that the two year compliance schedule would not be problematic. As a result, EPA has retained the two year installation requirement in the permit. EPA has removed the requirement to approve the design of the diffuser prior to its construction but may provide comments to ADEC on the design considerations.

EPA did not establish interim limits or a compliance schedule because effluent limits are established at end of pipe. However, ADEC's final CWA 401 certification establishes two separate mixing zones, one to apply to the discharge before/during installation of the diffuser and the other that will apply after the diffuser is installed.

19. Section II.G.3 of the draft permit includes inaccurate information on the routing of produced water from the platforms to shore-based facilities for discharge.

Response: Section II.G.3 has been revised in the final permit to reflect the correct routing information between platforms and shore-based facilities.

20. Section II.G.3 includes a requirement to provide EPA notification within 24 hours of re-routing of produced water discharge to an onshore facility. This requirement is unnecessary and overly burdensome.

Response: EPA agrees that the reporting requirements are unnecessary. Section II.G.3 of the final permit has been reworded to indicate that rerouting of produced water must be reported in the next submitted discharge monitoring report (DMR).

21. The commenter requests that Bruce, Baker and Dillon platforms be reclassified as M9 marine sanitation devices (MSDs). In addition, the commenter requests a uniform total residual chlorine (TRC) limit of 13.35 mg/L for these platforms as well as Granite Point Platform and Tyonek A.

Response: In its final CWA 401 certification, ADEC has denied the request for a TRC limit of 13.35 mg/L. The TRC limits established in Table 3-B of the permit remain

unchanged. The permit limits are consistent with the mixing zones established by ADEC and were determined by ADEC to be protective of State water quality standards. EPA has not reclassified the MSDs as M9 MSDs.

22. The commenter requests that the draft Fact Sheet be updated to reflect the final permit provisions. Alternatively, the commenter requests that EPA generate an addendum to the Fact Sheet.

Response: In accordance with 40 CFR § 124.8, EPA prepared a Fact Sheet to accompany the draft permit. EPA does not reissue or add addenda to fact sheets because a fact sheet explains the rationale for the proposed permit rather than the final permit. Instead, EPA prepares a response to comments document, which provides responses to the comments received during the public comment period. One of the main purposes for the response to comment document is to explain the rationale for changing or not changing the final permit based on comments received on the draft permit during the comment period.

23. The final permit should clarify the procedure for submitting a Notice of Intent (NOI) to be covered under the permit. The NOI should include a form and provide an option to request a mixing zone other than the default authorized in the permit.

Response: The NOI process has been revised to include a procedure for new facilities within Coastal Waters to apply for permit coverage. New facilities located within Coastal Waters may request a mixing zone from ADEC, for discharges of sanitary and domestic wastes. For discharges of sanitary and domestic wastes in Coastal Waters, the permittee must limit the discharge of Total Residual Chorine to 0.0075 mg/L, unless a mixing zone has been authorized by ADEC. If ADEC has authorized a 100-meter mixing zone, the permittee must limit the discharge of TRC to 1.0 mg/L. These limits are consistent with the Arctic General Permit (AKG280000). For new facilities located in Federal Waters and Territorial Seas, a standard 100-meter mixing zone applies pursuant to the Ocean Discharge Criteria. EPA has included a sample NOI form as an attachment to this permit.

24. Section II.F.4 requires that facilities within Coastal Waters must apply for a miscellaneous discharges mixing zone for WET. This requirement is vague and does not set out the applicable procedures

Response: The final permit requires new facilities located in Coastal Waters to conduct WET testing for informational purposes. The testing requirements for these facilities are quarterly for the first year and will be reduced to once every 6 months following the first year of testing. This information will be used by EPA for the next permit reissuance. See also Response to Comment #8.

25. It is inappropriate to perform a WET test for purposes of demonstrating compliance with a chronic WET state water quality standard when the effluent stream has been batch treated.

Response: Please see Responses to Comments #8 and #24, above.

26. The draft permit appears to slant toward curtailing new exploration and production in Cook Inlet based on non-governmental organization (NGO) input without any technical, regulatory or environmental basis.

Response: Discharges from new exploration and development and production facilities are authorized under this permit. With regard to discharges from new production and development facilities, see Response to Comment #1.

27. The approach of the EPA permit writer using Gulf of Mexico conditions and discharge permits as a template does not take into consideration unique qualities of the Gulf of Alaska where discharges result in no or negligible harm.

Response: The NPDES permitting program is designed to implement the Clean Water Act under a systematic approach throughout the U.S. The ELG development process includes a broad evaluation of the characteristics of industry discharges, standard industry practices, and economics. Moreover, EPA did take into consideration the unique aspects of Cook Inlet in establishing some of the conditions in the permit. Also see Response to Comment # 2.

28. Section I.F.2 of the draft permit requires facilities to file the end-of-well report within 7 days of ceasing drilling operations whereas Section II.B.4.b requires facilities to file an end-of-well report within 90 days of well completion. The two requirements contradict each other.

Response: Section I.F.2 has been eliminated from the permit since it did conflict with Section II.B.4.b. End-of-well reports will be required upon 90 days of well completion.

29. The Drilling Fluid Plan is redundant, burdensome and was rejected during issuance of the expired permit.

Response: The drilling plan requirement (formerly Section VI) has been removed from the permit. EPA has determined these requirements are satisfied elsewhere in this permit.

30. The commentor, XTO, submitted the Parametrix report along with a request for an acute TRC mixing zone for each platform.

Response: Thank you for your comment. ADEC has addressed this comment in its response to comments.

31. If permittees have complied with the limits in the expired permit, they should be allowed to go to reduced monitoring of those parameters immediately because, in some cases, the expired permit had more stringent limits than current permit.

Response: EPA's standard practice is to reinitiate sampling at each reissuance and look at the data collected during the new permit cycle. Restarting monitoring enables EPA to capture the effects of any of changes that may have taken place since issuance of the previous permit including limits, monitoring test methods and procedures, and operational changes at the facilities. As discussed in Response to Comment #64, EPA has complied with the anti-backsliding provisions of the Clean Water Act.

32. Tables 3-A and 3-B of Section II.D state that grab samples for all parameters shall be collected and analyzed on a monthly basis. This frequency is not consistent with requirements in other general permits.

Response: EPA does not believe that the sampling requirements in Tables 3-A and 3-B are overly burdensome. The sampling frequency is based on the history of compliance with biochemical oxygen demand (BOD) and total suspended solids (TSS) limits at some facilities. To ensure consistency in the permit, EPA is requiring monthly monitoring.

33. Commenters find it unacceptable to expand the permit area. The expansion of the permit area will increase the produced water discharges. EPA should gain a better understanding of potential impacts of discharges before expanding the permit coverage area.

Response: 40 CFR § 122.28(c) requires that EPA issue general permits for offshore oil and gas exploration and production discharges. According to this requirement, the general permit area should generally be no less extensive than the lease sale area defined by the Department of the Interior. While EPA has extended the area of coverage in the reissued permit, EPA is not authorizing the discharges of produced water, muds, and cuttings in the entire permit coverage area from new development and production activities. EPA is also implementing additional monitoring requirements for all new exploratory activities to gain additional baseline information and requiring an ambient monitoring study for large volume produced water dischargers.

34. The Oil Pollution Act of 1990 (OPA '90) prohibits oil discharges into Cook Inlet. The draft permit conflicts with OPA '90 and violates the Clean Water Act.

Response: OPA '90, 33 U.S.C. § 2701 *et seq.*, addresses a number of aspects of oil pollution, including oil spill prevention and preparedness, cleanup authority, liability for cleanup costs, and penalties. The commenter cites to certain sections of OPA '90 that address liability for cleanup costs. These sections do not apply to NPDES permitting actions. Section 311 of the Clean Water Act, which OPA '90 amended, prohibits the discharge of oil in harmful quantities. 33 U.S.C. § 1321(b)(4). 40 CFR § 110.3 defines harmful quantities as those that (1) cause a film or sheen upon or discoloration of the surface of the water or adjoining shorelines or (2) violate applicable State water quality standards. The permit includes conditions to prevent discharges from causing a film or sheen upon or discoloration of the water (*e.g.* Permit at Condition A.9), and ADEC has certified that discharges as authorized and conditioned by the permit will not violate State water quality standards. Furthermore, the term "discharge" under Section 311 of the

Clean Water Act excludes discharges that are in compliance with a NPDES permit. *See* 33 U.S.C. § 1321. For these reasons, OPA '90 does not prohibit the discharges that this NPDES permit authorizes, nor does the permit conflict with OPA '90.

35. All new areas in the permit should be handled by an entirely new and separate permit that recognizes the significant impacts on people, fishing, fish and the economy.

Response: EPA determined that separate permits were not necessary since the Environmental Assessment (EA) concluded that the reissuance of the permit, including expanding the area of coverage, would not result in any significant impacts to the natural or human environment. See Response to Comment #33.

36. Proposed permit limits and mixing zones should be reevaluated and recalculated to ensure that total concentrations and pollutants do not increase from the current permit.

Response: The limits set forth in the proposed permit were established to ensure that State water quality standards will be met. See Response to Comment #64.

37. A commenter submitted data that the commenter believes shows there will be increases in the total pollutant loads as a result of the new permit. The commenter is opposed to such increases.

Response: The pollutant load contributed from produced water discharges in Cook Inlet has increased as oil and gas fields age and a greater volume of produced water may generated. Since the ELGs do not require mass limitations and since ADEC has certified that the projected discharges meet State water quality standards, there is no justification for including flow limits in the permit. See also ADEC Response to Comments at #9 and 10.

38. Since pollutant loading levels are expected to increase, a review of past monitoring data and compliance history should have been performed as part of the permitting process. The data should have been clearly laid out and summarized and past compliance history compared with new effluent limits that are proposed in the draft permit.

Response: Region 10 does not generally summarize DMR data in the permit documents such as the Fact Sheet, EA, etc. EPA's review of the compliance history and DMR data contributed, in part, to the increased monitoring requirements and the addition of new environmental monitoring studies in the final permit.

39. Commenter does not believe that the mixing zone modeling has been shown to be conservative as was claimed in the Mixing Zone Application and Fact Sheet. Many of the produced water limits were based on only one number and some of the assumptions made during the CORMIX modeling do not match commenter's knowledge of Cook Inlet's physical oceanographic environment.

Response: ADEC ran CORMIX for multiple scenarios and determined that the input parameters used to develop the mixing zones were the most appropriate. While no data were presented by the commenter to suggest that the model results were not conservative, EPA has examined the use of CORMIX in many other scenarios and found that its results are protective, accurate, and relatively conservative compared to available field and laboratory data. See also ADEC Response to Comment at #21.

40. Lack of summarized DMR data made it difficult to follow the process used for determining maximum reasonable concentrations for determining permitted effluent limits.

Response: In preparing the reasonable potential analysis (RPA) for the draft permit (as shown in Appendix A of the Fact Sheet), EPA used the maximum effluent concentrations cited in the dischargers' NPDES permit application. This did not include all of the DMR data submitted by the dischargers during the expired permit's term. For the final permit, EPA has updated the RPA using recent DMR data and the results are provided in Attachment A to the response to comments document. Attachment A specifically includes a description of the data and methodology used to update the RPA.

41. EPA should require the oil and gas operators to submit the DMR data into a publicly accessible database or in an easily accessible electronic form.

Response: EPA does not currently have the resources to develop a database that would make DMR information more readily available to the public. At present, individuals may request copies of DMR from EPA through a Freedom of Information Act (FOIA) request.

42. The description of allowable drilling muds, fluids, and cuttings discharges is inconsistent between the Fact Sheet and the permit.

Response: Thank you for your comment. The permit correctly states the requirements in terms of prohibited discharges. EPA does not reissue a revised fact sheet with the final permit because fact sheets only describe the rationale for the draft permit rather than the final permit. New sources are defined as development and production facilities. New sources are not authorized to discharge produced water, drilling fluids, or drilling cuttings under this general permit. Exploratory facilities are not authorized to discharge produced water. Section II.B.5 has been clarified to indicate that the section applies to new *exploratory* facilities.

43. The Fact Sheet does not explain why exploration facilities are not considered New Sources and provides no explanation for not extending the discharge restriction for drilling fluids and cuttings to include new exploratory facilities.

Response: Section I.C.3 of the Fact Sheet explains that exploratory facilities are not considered New Sources. The permit is consistent with the Federal Register in treating exploratory facilities differently than development and production facilities. Allowing

the discharge of drilling fluids and cuttings from exploratory facilities is consistent with EPA's permitting approach for these discharges.

44. Commenter supports the decision to require a consistent list of analytes to be monitored between facilities which will make permit conditions and compliance much easier to track.

Response: Thank you for your comment

45. EPA should provide a basis for removing the effluent and monitoring requirements for lead, silver and arsenic in produced water discharges at some facilities. EPA should provide a summary of data that shows levels with respect to State water quality standards, permit compliance, or some other basis for no longer requiring the monitoring.

Response: As documented in Attachment A to this Response to Comments document, EPA updated and re-evaluated the RPA presented in the Fact Sheet. Based on the results of the RPA, EPA re-calculated the effluent limits for produced water using the methods provided in EPA's Technical Support Document for Water Quality Based Toxics Control, 1991 (TSD), which the Region generally follows in developing all NPDES permits in Alaska The RPA update did not show reasonable potential for lead or arsenic; therefore, limits and monitoring requirements for these pollutants are not included in the final permit. Based on the updated analysis, effluent limits and monitoring requirements for silver have been included in the final permit.

CWA Section 402(o)(1) allows for an anti-backsliding exception that is applicable to water quality based effluent limits. This section allows backsliding if the revised limits are established in compliance with CWA Section 303(d)(4). For attainment waters, such as Cook Inlet, backsliding is authorized if the revision is consistent with the State's antidegradation policy. Here, ADEC has provided an antidegradation analysis in the CWA 401 certification that explains that the discharges meet the State's antidegradation policy. EPA has independently reviewed the mixing zones and permit conditions and believes that State water quality standards are being met. As such, the changes to the lead, silver and arsenic effluent limits are allowable exceptions to anti-backsliding requirements. The data and methodology used in the updated RPA and effluent limit calculations are described in detail in Attachments A and B to this Response to Comment document.

46. Selenium should be included in the monitoring requirements for produced water.

Response: EPA disagrees. The RPA documented in the Fact Sheet and updated in Attachment A shows no reasonable potential for selenium to exceed water quality criteria at any of the facilities.

47. Table 2 of the Fact Sheet shows the maximum projected rate and the current discharge rate are the same for Tyonek A.

Response: The maximum projected discharge rate for Tyonek A is the same as the current discharge rate and reflects the values included on the mixing zone application submitted to ADEC for the facility. Additionally, upon review of Table 2 it became clear that the Granite Point Platform was missing from the table The numbers for Granite Point Platform are: Previous Discharge Rate (GPD) of zero; Current Discharge Rate (GPD) of 0 and Maximum Projected Discharge Rate (GPD) of 84,000. The "Current Discharge Rate (GPD)" for Granite Point Tank Farm should have been 72,400 rather than the 7,000 reported in the table.

48. Request the following clarifications and requirements be added to the permit with regard to WET testing:

A. For static renewal testing, the effluent water used in the toxicity tests must be renewed daily. However, a fresh 24-hour composite sample need only be collected every other day.

Response: Section III.A.3 references the methodology documents that specify chronic toxicity testing protocols. *Short-Term Methods for Estimating the Chronic Toxicity in Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms* (EPA/600/R-95/136) specifies methods for all applicable species except for inland silverside. Inland silverside chronic toxicity methods can be found in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms* (EPA-821-R-02-014).

B. Complete results of the WET testing shall be submitted with the DMR for the month following completion of the test.

Response: Section VI.B (formerly VIII.B) of the permit has been revised to clarify that the requirement that results of WET testing must be submitted with the DMR for the month following completion of the WET test.

C. Reports of the toxicity testing results should include all relevant information outlined in Section 10, Report Preparation, in *Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms, the Third Edition*.

D. **Response:** The permit has been revised to clarify that the oil and gas operator is responsible for submitting the WET testing reports, which shall consist of: (1) the toxicity test results; (2) the dates of sample collection and initiation of each toxicity test; and, (3) the flow rate at the time of collection. The WET testing shall be reported in accordance with the procedures described in Section 10, Report Preparation, in EPA's *Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms, the Third Edition.*

E. All quality assurance and statistical analyses shall be in accordance with *Quality Assurance Guidelines for Biological Testing, Quality Assurance Bibliography,* and other Region 10 approved protocols.

Response: The oil and gas operator is responsible for maintaining this information and submitting the information upon request.

49. Section II.G.6.a.2 of the permit specifies increased WET monitoring to once per month if the WET limits are exceeded. Sections III.A.7 and III.A.8 already specify a rigorous accelerated testing program if there is a WET limit exceedance. These sections also specify that if the accelerated testing indicates no toxicity, then the oil and gas operator may return to "normal" testing. Commenter suggests deleting the increased monitoring set forth in Section II.G.6.a.2 since it is already covered in the permit. Also, the word "normal" in Section III.A.8 should be changed to quarterly.

Response: EPA agrees. The increased monitoring discussion in Section II.G.6.a.2 of the permit now refers to Section III.A.7 for accelerated WET monitoring requirements. Section III.A.8 has been revised in the final permit to clarify the toxicity identification evaluation (TIE) and toxicity reduction evaluation (TRE) requirements.

50. The final permit should clarify that the test method required for PAH only applies to the testing of drilling fluids and drill cuttings.

Response: The PAH limit only applies to non-aqueous based drilling fluids that adhere to discharged drill cuttings (Table 1). Since there are no PAH limits associated with any other discharges, no clarification is necessary.

51. A number of potential errors occur in Tables 7B1-7B9 of the Permit:

A. Table 7B2 (East Forelands): The TAqH limits are less than the TAH limits which does not make sense because TAH is included in the determination of TAqH. Also, based on the mixing zone applications submitted to ADEC, daily max effluent limits for TAqH and ammonia should be 26.06 mg/L and 23.63 mg/L, respectively, rather than 24.2 mg/L

Response: Based on the updated RPA as shown in Attachment A, reasonable potential is not shown for TAqH or ammonia and, therefore, limits for these pollutants are not included in the final permit. However, EPA is requiring permittees to monitor for TAqH and total ammonia.

B. Table 7B4 (Platform Bruce): Should daily max limit for total zinc be 44.6 mg/L instead of 446 mg/L?

Response: This was a typographical error in the draft permit. For the final permit, EPA revised the effluent limitations for zinc consistent with the

methodology provided in the TSD, see Attachment B to this response to comments document.

C. Table 7B5 (Platform Baker): Should the copper limits be in µg/L rather than mg/L?

Response: This was a typographical error in the draft permit. For the final permit, EPA revised the effluent limitations for copper consistent with the methodology provided in the TSD, see Attachment B to this response to comments document.

D. Table 7B6 (Platform Dillon): Should the unit for copper limits be in µg/L rather than mg/L?

Response: This was a typographical error in the draft permit. For the final permit, EPA revised the effluent limitations for copper consistent with the methodology provided in the TSD, see Attachment B to this response to comments document.

E. Table 7B6 (Platform Dillon): Should the nickel daily max limit be 210 µg/L rather than 2.1 mg/L?

Response: Based on the updated RPA as shown in Attachment A, reasonable potential is not shown for nickel and, therefore, limits for nickel are not included in the final permit.

F. Table 7B9 (Granite Point Platform): Should the unit for nickel limits be µg/L rather than mg/L?

Response: Based on the updated RPA as shown in Attachment A, reasonable potential is not shown for nickel and, therefore, limits for nickel are not included in the final permit.

52. Commenter supports the requirement for ambient monitoring for produced water discharge over 100,000 gpd, but notes the study design has flaws as specified below.

A. Commenter notes that an inventory and reporting of a full suite of chemical analytes, beyond those required in the permit should be completed.

Response: The ambient monitoring study requirements in the permit specify the objective, schedule and other general requirements for the study. Details of the study and specific analytes will be identified and agreed to during the development of the Study Plan for this study, but will be a combination of total concentration analysis and fingerprinting dissolved and/or particulate metals and hydrocarbons. The specific analyte list provided by the commenter will be considered during development of the Study Plan.

B. Commenter notes that the draft permit grid sampling requirements for water quality specify too many samples and are too costly.

Response: EPA has revised the monitoring approach for this study to evaluate contaminant fate and transport through a statistical comparison of contaminant concentrations at the discharge point with concentrations at distance from the discharge point. This approach will result in fewer samples being collected and, thus, less expense. In addition, this approach results in a more focused study objective.

C. Commenter states that if the purpose of the water quality component of the study is to ascertain the dispersion and dilution of the effluent plume, the study should include a dye or tracer study coupled with a limited water quality study.

Response: The objective of the study has been revised to evaluate fate and transport of contaminants from large volume produced water discharges. As such, the study is not intended to determine dispersion and dilution rates for the effluent.

D. Commenter states that fixed location grid sampling is not reasonable in the Cook Inlet environment. Commenter suggests a better method utilizing a current drogue followed by sampling along the drogue drift line.

Response: EPA has revised the sampling requirements for this study and deleted reference to grid fixed location sampling. EPA will consider the suggested sampling approach during development of the Study Plan.

E. Commenter notes that the draft study requires sampling for lead which is not a parameter in the draft permit and does not include sampling for mercury, which is an ambient monitoring requirement and requests all metals added to the effluent monitoring requirements be included in the receiving water study.

Response: The revised sampling requirements state that the study must address a monitoring approach that includes dissolved and/or particulate metal and hydrocarbon concentration analyses. EPA anticipates that mercury sampling will be included as part of the environmental study program.

F. Commenter requests the Study Plan include both total recoverable and dissolved metals and TSS.

Response: The ambient monitoring study requires sampling of dissolved and particulate metals. Additional parameters will be identified during the development of the Study Plan.

G. Commenter suggests in situ hydrographic measurement of the water column and an effluent dilution study to obtain sufficient data to confirm CORMIX modeling results.

Response: The purpose of the sampling program is not to confirm CORMIX modeling results. Specific data needs and sampling methods will be evaluated during the development of the Study Plan. Methods will be chosen to most effectively accomplish the study objectives. See also Response to Comment #52-C.

H. Commenter notes the draft permit sediment grid sampling requirements specify an excessive number of samples be collected compared to a typical NPDES requirement.

Response: EPA has revised the sampling approach for this study and deleted reference to grid fixed location sampling. However, EPA would like to clarify that the ambient monitoring study requirements are for large volume produced water discharges only and reflect a single study event, and is not considered routine monitoring for the NPDES permit.

I. Commenter states that it would be more beneficial to collect better data at sampling locations rather than more samples. Commenter requests the TAqH should include a broader suite of PAH's to allow determination of PAHs from produced water effluent versus other sources. Commenter also identified additional measurements for EPA's consideration and suggested eliminating TAH from sediment analysis

Response: Specific data needs and sampling methods will be evaluated during the development of the Study Plan. Methods will be chosen to most effectively accomplish the study objectives. EPA will consider the suggested sampling approach during development of the Study Plan.

J. Commenter identifies a two hour Cook Inlet tidal window for sampling due to currents and suggests sampling without anchoring and fewer sampling locations.

Response: EPA has eliminated the fixed grid location sampling, which eliminates the need to anchor for sample collection. See Response to Comment #52-D.

K. Commenter suggests sampling methods such as a pipe dredge to document sediment bottom type is not possible due to tidal scouring. Additionally, the commenter suggests that an intertidal sampling program may be used if subtidal sediment sampling is not possible.

Response: See Response to Comment #52-I.

53. The ammonia limit of 35 µg/L appears to be incorrectly based on a chronic limit of 2,200 µg/L for ammonia in the receiving waters. (CIRCAC p. 12, comment 14)

Response: Based on the updated RPA as shown in Attachment A, reasonable potential is not shown for ammonia and therefore, limits for ammonia are not included in the final permit. However, as noted in Response to Comment #51, above, EPA is requiring permittees to monitor for total ammonia.

54. The "reasonable maximum concentration" approach for setting effluent limits rewards discharges that have historically exceeded their permit limits or have done a poor job of consistently removing pollutants from their influent water prior to the discharge. Commenter provides specific details about WET exceedances at the Granite Point Tank Farm.

Response: EPA disagrees with the commenter's assertion that the approach to developing effluent limits encourages dischargers to not comply with permit limits or not achieve pollutant removal. EPA uses the estimate of the "maximum expected concentration" and reviewed the DMR data from 1998-2003 to determine whether permit limits are required. The permit limits are calculated using the State water quality standards including the mixing zones. The mixing zones established by ADEC have been certified to be consistent with State water quality standards.

55. Many of the produced water limits that were set in the draft permit are based on a single sample analysis. With only a single sample to base effluent limits on, no statistical analysis of variability is possible and the use of the "maximum reasonable concentration" approach resulted in the effluent limits being set at 13.2 times the sample analysis result.

Response: EPA has revised the effluent limits in the final permit as discussed in Attachment B to this response to comments document. Regardless, the commenter is correct that in developing the limitations in the draft and final permits, EPA used an approach that based the allowable dilution on the maximum expected concentration of each pollutant in the effluent. The TSD recognizes the variability and uncertainty in monitoring data and recommends the use of a "reasonable potential multiplier" to project a maximum potential effluent concentration from the maximum observed concentration in the effluent dataset. In conducting the updated RPA for the draft permit, EPA used the statistical approach recommended by the TSD as shown in Attachment A to this response to comments document. This approach uses the maximum *observed* effluent concentration, the number of data points, and the coefficient of variation (CV) of the effluent dataset to determine the maximum estimated effluent concentration. The maximum effluent concentration was then compared to the applicable State water quality standards to determine the required dilution. The mixing zones were then modeled and certified as protective of water quality by ADEC. The dilution was then used to calculate the end-of-pipe permit limits. The maximum estimated concentrations were calculated in a manner consistent with EPA procedures for water quality-based permitting and to ensure compliance with State water quality standards.

56. The use of the "maximum reasonable concentration" approach ensures that mixing zone sites are very large. Additional analyses should have been conducted and utilized for those discharges where insufficient data existed to ensure that the mixing zone size was as small as practicable.

Response: The mixing zones were established by ADEC. ADEC has determined that these mixing zones are consistent with State water quality standards and are as small as practicable. See the final CWA 401 Certification and ADEC Response to Comments.

57. Instead of applying the maximum reasonable concentration to the monthly average effluent concentration limit, the commenter believes it would have been more appropriate to apply maximum reasonable concentration to set the daily max effluent limit.

Response: See the Response to Comment #55. The maximum estimated concentrations were used to determine the necessary mixing zones. In the final permit, the effluent limits were revised based on calculations using the methods described in the TSD, as discussed in Attachment B to this response to comments document.

58. Commenter believes that discharge rate limits should be established in the permit.

Response: The ELGs do not prescribe discharge rate limits for these types of discharges. Since discharge rates correspond to the amount of water extracted with the oil and gas, discharge rate limits are not practicable because operators cannot control them by optimizing plant processes. See also ADEC Response to Comment #14 and ADEC Cover Letter to CWA 401 Certification.

59. Fact Sheet states "the main reasons for these larger [produced water] mixing zones are that a more conservative model was used in the mixing zone applications for the proposed permit and that mixing zones were established for reasonable worst-case conditions." (p. 37) Commenter ran Visual Plumes model and CORMIX model and showed that model calculations performed with Visual Plume were found to be in good agreement with those determined by CORMIX; therefore, one of the main reasons for differences between mixing zone sizes is attributed to the use of the maximum reasonable concentration approach

Response: Thank you for your comment. Although there are some differences in the results from the two models that affect the size of the produced water mixing zones, EPA agrees that the increase in size is due, in part, to the maximum reasonable concentration and discharge rate approach used by ADEC to develop the mixing zones. See also ADEC Response to Comments at #11 and 21.

60. CORMIX assumed that the vertical structure of the receiving waters is isohaline and isothermal, which has an effect on dilution and mixing zone calculations. Although studies show that the water column in Cook Inlet is well mixed, there are still noticeable differences between top and bottom.

Response: This issue was examined by ADEC during development of the mixing zones. Use of the isohaline and isothermal conditions in dispersion modeling did not significantly affect the model results and did not affect the size of the mixing zones. See also ADEC Response to Comments at #7.

61. The permit does not meet the goals or letter of the Clean Water Act because it uses discharge volumes provided by the dischargers themselves, without independent verification from the regulatory agencies, to drive effluent limits and mixing zones.

Response: Pursuant to Clean Water Act Section 401, ADEC is required to issue a state water quality certification which certifies that the discharges that are being permitted comply with State water quality standards. ADEC may include conditions as part of that state water quality certification, which would be incorporated as part of the permit. Here, ADEC issued a CWA 401 certification that establishes mixing zones derived from the mixing zone applications submitted to ADEC. The mixing zone applications contained estimated discharge volumes. The State established mixing zones were used by EPA to establish the effluent limitations in the permit. EPA has independently reviewed the mixing zones and permit conditions and believes that State water quality standards are being met.

62. The most positive aspects of the permit are the requirements for ambient monitoring for existing and new facilities, and baseline monitoring for new facilities. Commenter supports the permit provisions expanding the 1,000 meter setback area to 4,000 meters.

Response: Thank you for your comment. Please see the Response to Comment #3.

63. A general permit is not warranted in this case and, instead, individual permits should be required. A general permit is not warranted because the effluent limits in the permit are different for each facility, the operating conditions at each facility vary significantly, and State water quality standards are not being met at the edge of the mixing zone for the TBPF.

Response: 40 CFR § 122.28(c) states that "[t]he Regional Administrator shall, except as provided below, issue general permits covering discharges from offshore oil and gas exploration and production facilities within the Region's jurisdiction." The regulation goes on to state that "[w]here the offshore area includes areas, such as areas of biological concern, for which separate permit conditions are required, the Regional Administrator may issue separate general permits, individual permits or both." Since no such areas exist that would warrant separate permit conditions, EPA is required to issue a general permit.

64. The permit violates anti-backsliding requirement. The permit contains less stringent effluent limitations for produced water discharges from all facilities covered by the old permit. At Granite Point, effluent limits are relaxed for TAH, total mercury, and WET. At East Foreland, effluent limits are relaxed for total copper, total mercury, and WET. At Platform Anna, effluent limits are relaxed for TAH, TAqH, total copper, total mercury,

and WET. At Platform Bruce, relaxed for WET. At Platform Baker, relaxed for total zinc and WET. At Platform Dillon, relaxed for total copper and WET. At the TBPF, relaxed for TAH, TAqH, total copper and WET. None of the anti-backsliding exceptions apply to this situation.

Response: Section 402(o) of the Clean Water Act states that a permit may not be renewed, reissued or modified to incorporate less stringent effluent limitations than those set forth in the previous permit unless one of the anti-backsliding exceptions applies. CWA Section 402(o)(1) allows for an anti-backsliding exception that is applicable to water quality based effluent limits. This section allows backsliding if the revised limits are established in compliance with CWA Section 303(d)(4). For attainment waters, such as Cook Inlet, backsliding is authorized if the revision is consistent with the State's antidegradation policy. Here, ADEC has provided an antidegradation analysis in the CWA 401 certification that explains that the discharges meet the State's antidegradation policy. EPA has independently reviewed the mixing zones and permit conditions and believes that State water quality standards are being met. As such, effluent limits were revised as appropriate. The data and methodology used in the updated RPA and effluent limit calculations are described in detail in Attachments A and B to this Response to Comment document.

65. There is no justification for the dilution factors used in the RPA. EPA improperly relies on the State's analysis to allow mixing zones without question. The modeling inputs are not accurate for Cook Inlet and the modeling does not support the large dilution factors for the RPA calculations or the mixing zones.

Response: A variety of model inputs were used to simulate produced water discharges. Based on numerous model runs, ADEC used input parameters which were found to be representative of reasonable worst case conditions. ADEC issued a CWA 401 certification which establishes mixing zones derived from the mixing zone applications submitted to ADEC. These mixing zones were used by EPA to establish the effluent limitations in the permit. EPA has independently reviewed the mixing zones and permit conditions and does not believe that the discharges will exceed State water quality standards outside the permitted mixing zone.

66. The projected discharge rate relied upon in the Fact Sheet is unsupported. No basis for current and projected flow rates analyzed in the Fact Sheet and mixing zone modeling.

Response: EPA provided ADEC with a preliminary draft permit and Fact Sheet for CWA 401 certification. The preliminary draft was based on the flow rates provided in the NPDES permit applications submitted by the operators. ADEC provided EPA with a state CWA 401 certification that contained mixing zones based upon the projected discharge rates. EPA did an independent analysis of the CWA 401 certification and found no evidence indicating that the mixing zones in the CWA 401 certification will not meet State water quality standards. As such, pursuant to Clean Water Act Section 401(d), EPA is required to adopt the information certified by the State. See Response to Comment #58; see also ADEC Cover Letter to CWA 401 Certification.

67. The commenter disagrees with the reduced monitoring frequency when monitoring shows the facility has been in compliance for one year. Lax monitoring requirements may encourage sloppy operations resulting in noncompliance. Further, there will be more limited data for determining whether there is reasonable potential to cause/contribute to an exceedance of State water quality standards.

Response: Reduced monitoring is based on the record of compliance and the data needed to demonstrate compliance. Conversely, noncompliance results in an increase in monitoring frequency. EPA believes that the operators will continue their due diligence to ensure that they can continue with reduced monitoring which results in a decrease in monitoring costs. If sampling shows noncompliance, then monitoring will be increased to the initial levels. EPA feels that this approach is protective of the environment and provides an incentive for operators to comply and benefit from reduced costs.

68. The expired permit allows EPA to require coverage under an individual permit if ELGs are promulgated for point sources covered by this permit or the point sources covered by the permit that do not meet the conditions set forth in 40 CFR § 122.28(a)(2)(ii). These conditions are not in the permit which reduces EPA's discretion and weakens the permit.

Response: ELGs have been promulgated for the point sources covered by this general permit. Section I.H of the permit incorporates the requirements set forth in 40 CFR § 122.28(b)(3). The regulation sets out the conditions under which EPA may require a discharger to apply for an individual permit.

69. The permit does not prohibit non-aqueous-based (*i.e.*, synthetic) drilling fluids and associated cuttings. The general permit in California prohibits these discharges.

Response: Permit requirements can vary from state to state and region to region dependent on State water quality standards and program delegation status. In Alaska and Federal OCS waters, the bulk discharge of non-aqueous-based drilling fluid and associated cuttings is prohibited; however, the discharge of the associated cuttings and the drilling fluid which adheres to them is not prohibited. It should be noted that the non-aqueous based fluids were not authorized by EPA Region 9's oil and gas general permit for facilities offshore of California because industry did not request authorization to discharge the associated drill cuttings.

70. The expired permit contains toxicity testing requirements for drilling fluids. Similar requirements should be included in the proposed permit.

Response: Toxicity testing requirements for toxicity of drilling fluids (Discharge 001) remain the same between the expired permit and the new permit. As required by ELGs, the permit includes toxicity limits, see Table 1 of the permit.

71. Section II.H.3 of the draft permit should require submittal of inventories by March 1st of the next calendar year to be consistent with Section I.F.2.

Response: The sections in question apply to different operational activities. Section I.F.2 specifies requirements for termination of drilling and Section II.H.3 specifies that annual inventories must be submitted.

72. The expired permit requires metals monitoring for well treatment, completion, or workover fluids. Such monitoring is not required in the proposed permit; thus, weakening the permit.

Response: Over five years of metals data has been collected under the expired permit. EPA has found that collection of additional data is not likely to provide new information beyond that already provided by monitoring. These discharges are typically commingled with produced water, which is limited for metals; therefore, additional monitoring is not warranted in the final permit for well treatment, completion or workover fluids.

73. The expired permit requires 24-hour notification when bypasses/upsets result in or contribute to an exceedance of an effluent limitation. The proposed permit only requires 24-hour notification when there is an actual exceedance; thus, the permit is weaker than the expired permit.

Response: The final permit language is consistent with the language required in all permits by 40 CFR § 122.41(l)(6). While the permit language has changed slightly from the expired permit, EPA disagrees with the commenter that it substantively changes the requirement to provide notification when a bypass causes an exceedance of an effluent limitation.

74. The proposed permit should contain the "Removed Substances" provision in the expired permit (Section V.F).

Response: The omission in the draft permit is an oversight that has been corrected. The language has been included in the final permit as Section VII.F.

75. The Reopener clause in the expired permit (Section VI.L) must be maintained in the proposed permit because a reopener clause is required when there are effluent limits for toxic constituents.

Response: A reopener clause is not necessary. EPA is required by regulation to institute proceedings to modify or revoke and reissue the permit to conform to any newly promulgated toxic effluent standard or prohibition. If such a standard or prohibition is promulgated, EPA will comply with 40 CFR § 122.44(b)(1).

76. EPA provided no justification for eliminating the definitions of "chronic toxicity unit," "coastal," "development facilities," "LC_{50}," "monthly average," "no observed effect concentration," "produced sands," "produced water," "production facilities," "24-hour composite sample," "waterflooding discharges," "weekly average," "well completion fluids," and "workover fluids."

Response: The definitions in Appendix A of the final permit have been revised as appropriate.

77. Due to lack of adequate data regarding the discharges from facilities and history of noncompliance, weekly discharge monitoring should be required rather than monthly monitoring.

Response: EPA believes that it is reasonable to require monthly monitoring for the majority of the parameters with the exceptions set forth in the permit. EPA does not believe that there is significant value added to increase monitoring to ensure compliance. This permit is consistent with the monitoring requirements set forth in other Region 10 oil and gas NPDES permits. It should be noted that if a permittee takes only one sample during a month and it shows a permit violation, the discharge would be considered to be in violation of the monthly average limit for the entire month. The resulting penalty would be higher than if they were conducting weekly monitoring and had one sample that exceeded the limit. Therefore, while the expense is decreased with less frequent monitoring, the risk to the permittee is greater if noncompliance occurs.

78. WET testing of deck drainage discharges should be required every year instead of once during the first year of the permit.

Response: EPA believes that there will not be significant variation in deck drainage over the life of the permit. Therefore, EPA believes that one WET test for deck drainage discharges during the life of the permit is adequate. Moreover, this provision is consistent with the previous permit and there is no indication that a more stringent permit provision is required at this time. Deck drainage does not contain added chemicals that are likely to result in toxic conditions in the receiving water as confirmed by previous monitoring results.

79. Monitoring at the edge of the mixing zones should be required on an annual basis.

Response: The CWA 401 certification did not require monitoring at the edge of the mixing zone to determine compliance with State water quality standards. Compliance with the effluent limits of the permit, developed pursuant to 40 CFR § 122.44(d)(1), is determined by monitoring at the end-of-pipe.

80. Because fecal coliform may contain pathogens that could affect marine mammals, monitoring of sanitary waste discharges for fecal coliform should be required at least quarterly.

Response: The permit establishes a total residual chlorine limit. As stated in the permit, TRC is a surrogate parameter to fecal coliform. Therefore, EPA believes that this limit ensures that there will not be any harmful levels of fecal coliform in the discharge. As such, EPA has determined that additional fecal coliform monitoring is unlikely to produce new or useful information.

81. Storm water discharge provisions should require that the storm water pollution prevention plan (SWPPP) be retained onsite and available to agency personnel during inspections.

Response: The onshore facilities must have coverage under a NPDES permit in order to discharge storm water. Since there is a Multi-Sector General NPDES Permit for Storm Water Discharges from Industrial Activities (MSGP), EPA has removed the storm water provisions from this permit. The MSGP requires that facilities covered by the permit retain a SWPPP onsite. However, the permit includes requirements for developing a Best Management Practices (BMP) Plan to prevent or minimize the generation and potential release of pollutants from the facility to waters of the U.S. Operators are required to maintain a copy of the BMP Plan at the facility.

82. In Section III.A.1.a, the vertebrate test species should include inland silverside. In addition, a survival, growth, and fecundity test should be performed on the invertebrate species.

Response: See Response to Comment #10. In Section III.A.1.a of the final permit, EPA is requiring the permittees to conduct the appropriate tests referenced in Section III.A.3 of the permit.

83. EPA is allowing the oil industry to exceed clean water standards instead of requiring more stringent technology.

Response: EPA has established permit conditions in accordance with the Clean Water Act, ELGs, and State water quality standards.

84. Commenter agrees with not allowing new sources to discharge production wastes; however, commenter is concerned of the possibility of EPA allowing the discharge through an individual permit.

Response: If a new source development/production facility needs to discharge produced water, and drilling fluids and cuttings, the facility must submit an NPDES permit application to obtain an individual permit and must comply with the National Environmental Policy Act (NEPA) requirements. At that time, EPA would evaluate the application to ensure that discharges meet the applicable provisions of the Clean Water Act and State water quality standards.

85. Commenter is concerned that the permit allows the discharge of synthetic based drill cuttings because EPA's 1999 environmental assessment report on the effects of synthetic based drill cutting dispersal into the marine environment shows that fluids that adhere to the cuttings do not disperse in the water column. By allowing the discharge of synthetic based drill cuttings, EPA is allowing a negative effect on the fishing industry because there will be a perception that pollutants are being discharged in fishing areas.

Response: The EA cited by the commenter evaluated the effects of implementing the final ELGs and NSPS for synthetic based drilling fluids and other non-aqueous drilling fluids (SBFs) in the Oil and Gas Extraction Point Source Category. As the commenter noted, the EA acknowledges that discharges of SBFs can cause the initial smothering of the benthic community and that the biodegradation of the base fluid can cause anoxic conditions in the sediment in the immediate vicinity, depending on bottom currents, temperature and rate of biodegradation. The EA further states that studies conducted in the North Sea showed that SBFs that biodegrade faster also allow recolonization to occur more quickly. It goes on to state that EPA believes that rapid biodegradation is environmentally preferable to persistence, despite the increased risk of anoxia, which accompanies fast biodegradation.

The volume of drill cuttings released is small on a per well basis – approximately 565 barrels (23,740 gallons) for development wells and 1,184 barrels (49,728 gallons) for exploration wells. Research on SBFs in the environment is fairly limited although the information available indicates that effects are likely to occur within 200 meters of the discharge and may occur out to 500 meters. The initiation of the recovery of benthic communities is likely within a year; however the process is likely to take longer. In its rulemaking, EPA ultimately determined that controlled discharges of SBFs would not result in adverse impacts to the environment.

The permit also only authorizes the discharge of those SBFs that adhere to cuttings and does not authorize the bulk discharge of the drilling fluid. Additionally, the permit limits the amount of drilling fluid which can be discharged with cuttings, thereby requiring much more advanced treatment than is used when drilling with water based fluids. In establishing the ELGs, EPA found that by reducing the amount of drilling fluid adhering to discharged cuttings the cuttings dispersed more readily in the environment and the potential effects of smothering were greatly reduced.

The permit includes specific effluent limitations for non-aqueous stock base fluid (C_{16}-C_{18} internal olefin, C_{12}-C_{14} ester or C_8 ester) addressing mercury, cadmium, PAHs, and sediment toxicity. Dischargers are also required to report the total volume of base fluid used on a monthly basis. The limitations also address SBFs adhering to drill cuttings prohibiting the discharge of free oil, diesel oil and formation oil, limiting suspended particulate phase (SPP) toxicity, sediment toxicity, and the amount of base fluid retained on the cuttings. Since these additional limits are placed on SBF cuttings discharges, which do not apply to water based drilling fluids discharges, and the only SBF authorized to be discharged are those that adhere to drill cuttings, EPA finds that use of SBFs is an environmentally preferred option relative to water based fluids.

86. Commenter advocates requiring platforms to send their process waters to one of the three onshore production facilities to allow ease in monitoring.

Response: The Clean Water Act authorizes EPA to regulate the discharge of pollutants to waters of the United States. However, in this case, it does not provide a basis for EPA to require the platforms to direct their discharges to onshore facilities.

87. PAHs should be monitored in the sediment near all platforms because they have the potential to bind to sediment and be taken up the food chain.

Response: The final permit requires that all large volume dischargers of produced water (*i.e.,* those facilities that discharge greater than 100,000 gpd) conduct an ambient monitoring study to determine the fate and transport of pollutants found in oil and gas discharges (*e.g.,* PAHs and metals). If the ambient monitoring study demonstrates that contaminants may be accumulating in the environment, additional investigations to evaluate potential impacts may be required in future permits.

88. Commenter believes that EPA is avoiding classifying the discharges as hazardous waste by allowing non-production wastes into settling ponds.

Response: NPDES permits cannot allow the discharge of oil or hazardous substances in harmful quantities pursuant to Clean Water Act Section 311, 33 U.S.C. § 1321. This permit regulates discharges to waters of the United States and authorizes discharges related to oil and gas operations into Cook Inlet.

89. Commenter is concerned about the discharge of drilling waste into Cook Inlet and the effect the discharges would have on fish and marine mammals.

Response: The EA evaluated the potential environmental impacts associated with oil and gas discharges and determined that there would not be a significant effect on fish and marine mammals in Cook Inlet. The potential effects on fish and marine mammals were also evaluated in the Biological Assessment (BA), which resulted in a Not Likely to Adversely Affect (NLAA) determination by EPA which was concurred upon by NMFS and the U.S. Fish and Wildlife Service. See Responses to Comments # 3 and 96.

90. Commenter was disappointed in the lack of public notice concerning the hearings.

Response: EPA complied with the public notice requirements in 40 CFR § 124.10. However, EPA acknowledges that several commenters indicated they were not provided sufficient notice concerning the public hearings. Although beyond what is required in the regulations, in the future, EPA will try to provide additional notice.

91. Commenter believes that the small oil and gas operators will not be able to understand the permit because they do not have the experience and expertise that the larger companies have.

Response: If operators have questions concerning the permit they should visit EPA's website (http://yosemite.epa.gov/R10/WATER.NSF/NPDES+Permits/General+NPDES+Permits) for appropriate contact information.

92. Major permit changes do not serve any other purpose than hastening the demise of existing operations.

Response: EPA believes that the permit changes are appropriate and necessary to protect the environment and these permit changes meet EPA's regulatory responsibilities under the Clean Water Act. See also Responses to Comments #2, 4, and 5.

93. In response to requests from several stakeholders to update ELGs, EPA stated that it would not do so because the EPA permit writer could require an operator to demonstrate that zero discharge is not technically feasible for a specific project. EPA did not, however, require a demonstration of technical feasibility prior to development of the current draft general discharge permit.

Response: To establish BPJ based limits, a permit writer must first determine a need for controls in addition to the existing ELGs. The need for additional controls may result from not falling under any category for which an ELG exists or there is a discharge of pollutants that are not addressed in the development of the ELGs. See 40 CFR § 125.3. Here, the permit writer determined that additional controls beyond the existing ELGs were not required. While EPA acknowledges numerous Cook Inlet facilities have developed grind and inject capabilities, reinjection wells and landfills, there remain ongoing technological concerns over the ability of all existing facilities in Cook Inlet to routinely implement these technologies. Also see Response to Comment #6.

94. The permit allows nine Cook Inlet discharge locations, a significant increase from the four locations now discharging produced water. There are five locations where discharges are allowed in the permit which are not discharging at this time.

Response: In August 2003, Union Oil Company of California submitted NPDES permit applications for facilities that are either not currently discharging, shut in, or routing their discharge through another facility's outfall (Platform Anna, Platform Baker, Platform Dillon, and Granite Point Platform). Conoco-Phillips submitted a NPDES permit application for the Tyonek Platform at around the same time. These applications indicate that these platforms would be discharging during the 5-year permit term. As such, EPA has identified limits for these facilities in this permit.

95. The Kenai Wild brand of salmon has gained market share outside of Alaska. Allowing discharges will have an impact on this economy.

Response: The EA evaluated the potential environmental impacts associated with oil and gas discharges and determined there would not be a significant effect on fish and marine mammals in Cook Inlet. While EPA understands the commenter's concerns regarding the Kenai Wild brand, the permit requires the discharges meet State water quality standards and the Clean Water Act, both of which are designed to be protective of these resources.

96. The impact of discharges on Cook Inlet's beluga whale population is unknown but it may be significant according to EPA's statements in the 1995 Fact Sheet for the Cook Inlet permit.

Response: EPA's 2006 EA evaluated the impacts of the discharges on the beluga whale population. Since the permit ensures that the discharges meet State water quality standards and New Sources are not permitted to discharge produced water, drilling fluids or cuttings under this permit, the EA and Biological Evaluation concluded that there will not be a significant impact on the beluga whale population. EPA has consulted with NMFS regarding threatened and endangered species, as well as beluga whales, and NMFS has concurred on the NLAA finding.

97. EPA's cost analysis in the *ELG Development Document* is unrealistically low.

Response: Thank you for your comment. See Response to Comment #6.

98. Because salmon and herring eggs are adversely impacted by oil contamination at levels 1,000 times less than previously recognized, EPA needs to update its scientific analysis of the impacts of offshore discharges on Cook Inlet marine organisms.

Response: EPA evaluated potential impacts to salmon and herring species in the EA. Oil effects on salmon eggs are not relevant for these discharges because salmon are anadromous and spawn in fresh water. Moreover, the discharge of free oil is not authorized in this permit. Information provided in the EA indicates that herring spawn in portions of Cook Inlet where discharges are not allowed.

The mechanism for considering this type of data is to petition or request ADEC to review this data for consideration in updating the State water quality standards. Once the State has evaluated the data and if the state determines they need to update the water quality criteria, they will submit to EPA for approval. Once approved, EPA will incorporate the State water quality standards into NPDES permits.

99. In the absence of an ADEC implementation plan for its antidegradation policy, and the likely potential for increased degradation of the aquatic environment, the basis for allowing increased pollutant loadings is unsupported by EPA.

Response: See ADEC Response to Comment at #20.

100. EPA requirement for WET testing fails to capture the synergistic, or total, effects of toxic chemicals acting together.

Response: WET testing was specifically developed because chemical specific monitoring does not measure the combined effects of different pollutants in a specific discharge. The purpose of WET testing is to allow monitoring of the synergistic effects of combined pollutants in discharges.

101. The limitations of the mixing zone analysis performed for the draft NPDES permit affect the ODCE.

Response: An ODCE applies to Federal Waters and Territorial Seas. The mixing zone analysis applies to discharges occurring in Coastal (state) Waters. Therefore, the ODCE has been revised and the discussions of mixing zones and the existing discharges have been removed from the analysis.

102. Draft permit and supporting documents lack sufficient analysis of bioaccumulative chemicals and their potential impacts on Cook Inlet marine organisms, including salmon. For example, some heavy metals are present in Cook Inlet Chinook salmon at elevated levels.

Response: The EA evaluated the bioaccumulative effects of chemicals on Cook Inlet marine organisms, including salmon. The EA concluded that there will not be an adverse impact on these organisms as a result of the discharges. In addition, the ADEC fish tissue testing program took tissue samples from 119 fish in Cook Inlet and testing results indicate that the level of metals and organochlorine compounds are generally lower in Cook Inlet organisms than in the rest of the State. See ADEC Response to Comment at #19.

103. Section 403 of the Clean Water Act applies to discharges into Territorial Seas and Federal Waters. Discharges from Upper Cook Inlet may also impact Territorial Seas and Federal Waters in violation of Section 403.

Response: Section 403 of the Clean Water Act only applies to discharges into territorial seas, the contiguous zone, and oceans. Upper Cook Inlet is defined as a coastal water body pursuant to 40 CFR § 435.40. ADEC established mixing zones for those facilities that discharge into Upper Cook Inlet (*i.e.,* Coastal Waters). According to the CWA 401 certification, State water quality standards will be met at the edge of the mixing zone. Therefore, since the facilities are located in Coastal Waters and the edge of the mixing zones are also located in Coastal Waters, discharges in Upper Cook Inlet will not adversely impact the Territorial Seas or Federal Waters and, thus, there is not a violation of Clean Water Act Section 403.

104. Commenter believes that data indicate that the TBPF has not been in compliance with the expired permit. Therefore, commenter believes that the TBPF may require an individual permit to maintain consistency with the draft general permit compliance conditions.

Response: Facility specific mixing zones are established to ensure compliance with State water quality standards at each discharge location as they were under the previous permit. Although noncompliance can be justification for an individual permit, EPA does not believe that the compliance record for the TBPF supports such a decision.

105. Commenter believes that monitoring data indicates that other facilities are currently exceeding the existing mixing zone distances. Therefore, other discharges may require individual permits.

Response: Permit limits are the enforceable criteria within the permit, not mixing zone distances. Even though permit limits were derived using mixing zones to protect water quality at the edge of the mixing zone, the enforceable criteria is at the end of pipe. EPA does not believe that the compliance record supports the decision to require an individual permit. See also ADEC Response to Comment at #18.

106. EPA analysis ignores the historical effluent record in RPA values that are used to determine whether effluent limits will be required in the draft permit. Historical record is fundamental to the RPA analysis since it is a statistical analysis that relies on the frequency of effluent monitoring to determine the likely maximum effluent concentration that may occur.

Response: EPA acknowledges that there is additional historical data available for discharges of produced water from Cook Inlet facilities, including the information cited by the commenter in the mixing zone applications. In developing the final permit, EPA updated the RPA (see Attachment A of the response to comments document) by incorporating DMR data collected by the dischargers from 1998-2003 and data from the mixing zone application.

107. ADEC and EPA disregard the historical effluent statistical data for toxic chemicals submitted by the discharges in the mixing zone applications. RPA is not a function of Cook Inlet dilution as the EPA erroneously employs in the draft Fact Sheet.

Response: EPA disagrees with the commenter. As documented in Section 3.2 of EPA's TSD, it is appropriate to consider dilution in determining reasonable potential. See Response to Comment #106.

108. The Parametrix analysis used an unreasonable ambient flow velocity of 2.3 meters per second, generated as the 90th percentile value, in evaluating acute mixing zone boundary dilutions. This produces an exaggerated dilution rate which results in effluent limits that will likely allow the discharge of unsafe concentrations of toxic metals and PAHs.

Response: EPA disagrees that the use of a high ambient velocity leads to overestimation of dilution. The dilution model explicitly accounts for changes in dilution caused by changes in ambient current speeds. The critical condition for these discharges occurs when the discharge concentration is at the level of the maximum permit limit and the current speed is high (*e.g.*, 90th percentile velocity). In this instance, the plume travels to the mixing zone boundary quickly, and the dilution at the mixing zone boundary is lower than the dilution at a lower current speed. ADEC's use of a high current speed provides a conservative baseline for calculation of permit limits to achieve the mixing zone restriction (and thereby meet the State water quality standards).

109. The Fact Sheet for the draft permit incorrectly cites the Ocean Discharge Criteria as the authority for effluent limits and other requirements in coastal waters.

Response: The commenter is correct that the Ocean Discharge Criteria do not apply to discharges in coastal waters. Here, Upper Cook Inlet is considered inland or coastal waters under the Clean Water Act. Pursuant to Clean Water Act Section 403 and 40 CFR Part 125, Subpart M, EPA must conduct an ODCE before it issues a permit for a discharge into the territorial sea and waters of the contiguous zone or the oceans. EPA prepared an ODCE for discharges authorized under the final permit that occur in Territorial Seas and Federal Waters. See also Response to Comment #110.

110. In describing the legal basis for various requirements, including expanded no-discharge buffer zones (Fact Sheet, p. 11), environmental monitoring of discharges of drilling muds and cuttings (Fact Sheet, p. 23), and toxicity limits on treated seawater (Fact Sheet, p. 31), the Fact Sheet cites to the Ocean Discharge Criteria. Since the Ocean Discharge Criteria do not apply to discharges in Coastal Waters, they cannot provide a legal basis for any permit requirements applicable to those discharges, not is it appropriate to cite "consistency" with Ocean Discharge Criteria-based requirements as a legitimate basis.

Response: EPA incorrectly cited Ocean Discharge Criteria as justification for requirements in Coastal Waters. The exclusions on Page 11 of the Fact Sheet reflect state and federal lease sale stipulations or were carried forward from the expired permit. Table 1 (page 23) of the Fact Sheet cited Clean Water Act Section 403 as the basis for the environmental monitoring requirement instead of citing Clean Water Act Section 308. Finally, toxicity limits on treated seawater are a result of State water quality standards and/or federal standards.

111. 40 CFR § 125.121(c) allows EPA the option of making mixing zones smaller than 100 meters. The regulation also authorizes EPA to define a larger mixing zone. This language gives EPA the flexibility to allow a mixing zone larger than 100 meters in waters subject to the Ocean Discharge Criteria.

Response: EPA concurs with the commenter's interpretation of 40 CFR § 125.121 that EPA has the authority to allow mixing zones both larger and smaller than 100 meters. However, EPA has never established mixing zones larger than 100 meters for Offshore Subcategory oil and gas related discharges. As documented in the Fact Sheet, EPA has determined that the 100 meter mixing zone is appropriate for discharges of chemically treated sea water and new discharges of sanitary wastewater in Territorial Seas and Federal Waters.

112. Fact Sheet, p. 40: The Table 5 input parameters are not consistent with those used by Parametrix in development of the modeling submitted to EPA and ADEC in the Mixing Zone Application and supplemental information. This modeling was completed by Parametrix, verified by ADEC, and provided the basis for permit limitations.

Response: EPA apologizes for the inconsistencies cited by the commenter. The referenced table includes several inadvertent typographical errors which were not corrected from the numerous updates of the dischargers' dispersion modeling and mixing zone application. The corrected values, as presented in *Revisions to Mixing Zone Application of Cook Inlet Oil and Gas Operators,* October 2005 are as follows:

Ambient Conditions:

Summer/winter density: 1018 kg/m^3 and 1025.5 kg/m^3
Current speed: 0.2 m/s (Trading Bay), 2.3 (others)

Discharge-specific Conditions:

Discharge	Port Diameter (m)	Port Height (m)	Discharge Density, Summer/Winter (kg/m^3)	Receiving Water Depth (m)
Trading Bay	0.4064	0	1016/1019	10
Granite Pt. Tank	0.0762	1.5	1009/1013	15.2
East Forelands	0.2032	0.3	1016/1018	7.6
Tyonek A	0.1016	2.1	1002/1002	31.1
Platform Bruce	0.0762	11.6	1009/1011	18.9
Platform Baker	0.0762	3	1005/1008	31.1
Platform Dillon	0.0762	2.4	1007/1011	28
Platform Anna	0.0774	0.9	1006/1009	21
Granite Pt Platform	0.0762	3	1006/1010	21

These are the values that were evaluated by ADEC in certifying the mixing zones for produced water.

113. Fact Sheet, Appendix A: The information provided in Appendix A is not provided in the Proposed Permit and the purpose of the appendix is not clearly defined.

Response: Appendix A describes how EPA determined which pollutants to include effluent limits for in the draft permit. Specifically, it provides the results of the reasonable potential analysis and identifies those pollutants for which effluent limits were required in the draft permit. Since this is supporting information, it is appropriate to be included in the Fact Sheet but not in the permit. EPA has updated the RPA for the final permit, as discussed above in response to Comment #55 and documented in Attachment A.

114. Fact Sheet, p. 40: EPA incorrectly states that ammonia, copper, TAH, and TAqH have the potential to exceed State water quality standards outside the pending mixing zone. However, there is no reasonable potential for these or any other pollutant to exceed State water quality standards outside the mixing zone.

Response: In determining what pollutants in the discharge necessitate effluent limitations, EPA first determines whether there is a reasonable potential for the effluent to cause or contribute to an exceedance of a State water quality standard. Here, EPA

used effluent data provided by the permittees to conduct the RPA. First, the maximum detected effluent concentration is determined. Then, to account for effluent variability and uncertainty, the maximum detected concentration is multiplied by a factor to calculate the maximum expected concentration in the effluent. This concentration is then divided by the dilution from the mixing zone evaluation to determine the maximum possible concentrations at the edges of the mixing zones for human health and acute and chronic aquatic life criteria. If these concentrations exceed the applicable criteria, reasonable potential is found and effluent limitations are required.

For the final permit, EPA updated and re-evaluated the RPA analysis to include additional data from DMRs and the mixing zone applications (see Attachment A). The updated RPA shows that the calculated maximum expected concentration for the metals limited in the final permit and TAH have reasonable potential to exceed State water quality standards at the mixing boundary and effluent limits are required. No reasonable potential is shown for ammonia or TAqH and effluent limits for these pollutants are not included in the final permit. However, as discussed previously in Responses to Comments #51 and #53, the permit requires monitoring for total ammonia and TAqH.

115. Fact Sheet, App. A: The human health dilution factors in Appendix A appear to be erroneous because they match the WET dilution factors from the mixing zone application.

Response: Incorrect human health dilution factors were cited in Appendix A of the Fact Sheet and used in the RPA for the draft permit. The correct factors were listed in Table 4 of the Fact Sheet. These were the factors requested by the dischargers in the mixing zone application. The correct factors, which have been certified by ADEC, were used in the updated RPA shown in Attachment A and to calculate effluent limits as shown in Attachment B.

116. Fact Sheet, Appendix A: Commenter believes that EPA improperly used a default coefficient of variation (CV) of 0.6 to come up with the long-term average (LTA) multiplier. Use of LTA multiplier is incorrect because LTAs were not first calculated in Appendix A—the LTA must first be calculated from the waste load allocation. It was not necessary to use the default CV of 0.6 for parameters with a sample size greater than one and for which a CV is available.

Response: LTAs are used in calculating effluent limits and are dependant on the CV for each pollutant. For the final permit, EPA revised the effluent limitation calculations following the methodology cited in the TSD (see Attachment B). The effluent limits were calculated using the CVs determined from the pollutant-specific data sets, i.e., the default value of 0.6 was not used in all cases. Note also that pollutant-specific CVs were also used in the RPA as shown in Attachment A.

117. Commenter believes the better approach for calculating reasonable potential maximum concentrations is to use the reasonable potential multiplying factors in Tables 3-1 and 3-2 in the TSD.

Response: The updated RPA reflects the TSD approach to calculating multiplying factors as cited by the commentor.

118. All effluent concentrations and criteria in the Fact Sheet need to be verified relative to the effluent data provided in the mixing zone application and State water quality standards.

Response: The values have been verified as requested. As expected in a document of this size, several typographic errors were found. Part of the purpose of the comment period is to allow the regulated community and the public to help improve the final product.

Although most typographic errors found in the Fact Sheet did not affect the draft permit, any errors that were made in the draft permit have been corrected in the final permit. See Responses to Comments #55 and #116, which discuss the updated RPA. The RPA includes DMR data and effluent data that were provided in the mixing zone application.

119. Permit, p. 1, Discharge Descriptions: Commenter requests that EPA acknowledge that the following waste streams, addressed in the response to comments for the expired permit, are authorized for discharge without specification of the location: uncontaminated freshwater, contaminated freshwater, uncontaminated seawater, vehicle wash water, and spill response equipment wash water.

Response: All discharges authorized by the expired permit were included in the draft permit. No requests have been made to include additional waste streams either in the permit applications or in other correspondence, so no additional waste streams have been authorized.

120. Section I.C.3(h), which prohibits discharges within 20 nautical miles of Sugarloaf Island, appears to be inconsistent with Figure 1. Recommended that the Proposed New Area of Coverage in Figure 1 be modified to exclude the area within 20 nautical miles of Sugarloaf Island.

Response: Sugarloaf Island is located in the Barren Islands. The figure has been revised to include an approximation of a 20-mile buffer around Sugarloaf Island but the commenter should note that the small scale of the figures only result in *approximations* of the locations of the various boundaries. The presentation of the tracts identified in Mitigation Measure Number 33 has not been modified since resolution of those details at the scale of the existing figure is unnecessary. The text in the permit provides the defining and enforceable language.

121. The draft permit requires facilities to submit a NOI. The permit does not refer to applications made by existing facilities rather than NOIs. To ensure seamless continued operation of currently operating facilities, the commenter suggests that EPA use language from Section I.D.1 of the expired permit which states that “an NPDES permit application … constitutes a Notice of Intent.”

Response: EPA agrees that additional information regarding the NOI needs to be provided. Section I.D.1 of the final permit incorporates the language from Section I.D.1 of the expired permit which states that "an NPDES permit application … constitutes a Notice of Intent."

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122. Section I.D.4 requires written notification 30 days prior to moving a mobile facility. Advance notice is impractical and should be consistent with the oil and gas permit in Region 6. Facilities must have flexibility to mobilize on short notice. Given the cost of standby time for mobile facilities and crews, the lag time must be minimized as much as possible, which is inconsistent with waiting 30 days to begin the next well.

Response: EPA has changed the notification period in the final permit to 7 days prior to the movement of the mobile facility to address the commenter's concerns and to allow adequate flexibility to mobilize on shorter notice. This notification must be in writing either through letter or email communication.

123. Section I.E.1 allows only limited transfers of permit coverage for existing facilities. That section states, in part, that "discharge authorizations for a specific existing facility may not be transferred to a new facility at the same site" and that "discharge authorization for new facilities …may not be transferred." Commenter finds these statements to be confusing and would like EPA to explain why these provisions are more stringent than contemplated by 40 CFR § 122.61, which governs permit transfers.

Response: Section I.E.1 is not more stringent than 40 CFR § 122.61. Section I.E.1 allows transfers for existing facilities (*i.e.*, an existing platform) at the same location. Section I.E.1 does not allow the transfer of permit coverage issued to an existing facility to a new facility (*i.e.*, a new platform). Moreover, Section I.E.1 does not allow the transfer of permit coverage when an existing facility moves location.

124. Commenter requests that Section I.F.1 of the new permit be replaced with Section I.D.2 of the expired permit.

Response: EPA has changed the language in Section I.F (formerly I.F.1) of the final permit to reflect Section I.D.2 of the expired permit. The new language is as follows: "The permittee must notify EPA, in writing, within 30 days following cessation of discharges from the discharge site." In the notice of termination, the permittee must certify that it is not subject to any pending enforcement actions concerning this NPDES permit, including citizen suits brought under State or Federal laws. The notice of termination shall be signed in accordance with the Signatory Requirements of Section VIII.E of this general permit. This will terminate permit coverage at the site or within the mobile area. The notification may be provided in a DMR or under separate cover. In addition, the permittee is required to submit the final DMRs within thirty days after cessation of discharges.

125. Commenter notes that Section I.F.1 requires the permittee to certify that "it is not subject to any pending enforcement actions…." Commenter states that it will be difficult for large companies to make such a certification if it is not limited to enforcement actions associated with this permit.

Response: The certification required under Section I.F.1 only requires the permittee to certify that it is not subject to pending enforcement actions under this NPDES permit, Permit No. AKG-31-5000.

126. Section I.F.2 should be deleted because the permit does not regulate well operations or drilling. Further, Section I.F.2 is duplicative and inconsistent with Section II.B.4.b.

Response: EPA agrees that Section I.F.2 is duplicative and inconsistent with Section II.B.4.b.and has deleted Section I.F.2 from the final permit.

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127. Section II.A.3 requires permittees to collect effluent samples after the last treatment unit prior to discharge. This requirement is appropriate and should be carried forward throughout the permit; however, it contradicts requirements in the permit where samples are required to be collected prior to commingling.

Response: In the final permit, EPA has clarified Section II.A.3 by indicating that this requirement applies "except as otherwise required by discharge specific sections of this permit." For some parameters, such as oil and grease in produced water discharges, the discharges must be sampled prior to commingling with other waste streams in order to ensure compliance with the technology-based effluent limitation guidelines.

128. Section II.A.6 contains an unreasonably vague requirement that the permittee must "minimize the discharge" of surfactants, dispersants and detergents. This is a subjective standard that creates uncertainty in permit compliance. Further, it is duplicative of Section II.A.5. Commenter requests deletion of Section II.A.6.

Response: EPA disagrees with the commenter and has retained the requirement in the final permit. Surfactants, dispersants, and detergents can make discharges, such as deck drainage, much more toxic than they would otherwise be. The requirement is a BMP that specifies that operators should minimize the use of surfactants, dispersants, and detergents except as needed to ensure the safety of workers. Under 40 CFR § 122.44(k), EPA has the authority to require BMPs to control or abate the discharge of pollutants. EPA further does not agree that Section II.A.6 is duplicative of Section II.A.5, which is a general requirement included in all permits. Section II.A.6 is a specific BMP applicable to oil and gas facility discharges.

129. It is not possible to comply with Section II.A.7 because platforms are designed to allow their major components to move around as operations change. Fixed plumbing would interfere with platform operations and would increase costs. Further, platform drains are not typically segregated.

Response: This section has been retained in the permit to ensure compliance with State water quality standards.

130. Section II.A.11 sets a new pH range limit and requires monthly pH monitoring. There is no precedent for this requirement nor has EPA given any substantive reason for a pH limit on all discharges. The pH limit is not a technology-based limit nor is it a water quality-based limit. Further, EPA does not attempt to justify imposing the pH limit in the Fact Sheet.

Response: Section II.A.11 is redundant with pH requirements specified in Table 7A and Table 8. Therefore, Section II.A.11 has been deleted from the final permit.

131. Sections II.A.10 and II.C.3 are not consistent with Section II.A.3. Further, Section II.C.3 is not consistent with the Coastal Oil and Gas Extraction ELGs. Provisions require monitoring of internal waste streams without providing justification required under 40 CFR § 122.45(h)(2).

Response: Section II.C.3 has not substantially changed from the expired permit. This section is intended to ensure that combined deck drainage and produced water discharges meet State water quality standards. The requirement does not change any technology-based limit. Sections II.A.10 and II.C.3 require samples for produced water oil and grease limits to be taken prior to commingling. Section II.A.3 requires monitoring of all waste streams prior to discharge. EPA has determined that these requirements are not contradictory.

132. In the Fact Sheet, EPA stated that produced water oil and grease limits have been exceeded most often. The commenter states that no documentation was provided for this assertion.

Response: Based on a review of DMR data submitted to EPA by the dischargers from 1998-2003, there were multiple exceedances of permit limits for oil and grease at three of the facilities. Specifically, the permit limits were exceeded four times at Granite Point, and three times each at the TBPF and Platform Bruce.

133. The proposed permit contains an illogical requirement that any time oil sheen is observed, a produced water sample should be collected and tested. The requirement should not apply if the source of the sheen is known and is not attributed to produced water.

Response: The requirement calls for operators to observe the surface water in the vicinity of the produced water discharge for the presence of a sheen. Presence of a sheen caused by a produced water discharge is typically a sign that the oil/water separation equipment is not functioning properly and compliance with the oil and grease limit is questionable. If there is a sheen caused by some other source on the platform, it is either a permit violation or an oil spill. Such a sheen is defined as a harmful quantity of oil

under Section 311 of the Clean Water Act and must be reported under the permit's 24-hour reporting requirements. The permit has been changed to reflect those requirements.

134. It is not clear if Section II.A.12 is a distinct monitoring requirement in addition to the requirements imposed on specific discharges. The section should be deleted as redundant, unnecessary and unreasonably burdensome.

Response: EPA agrees that Section II.A.12 is redundant with several other permit requirements. Therefore, Section II.A.12 has been deleted in the final permit.

135. Section II.C.2 should be changed as follows: "The permittee must ensure that deck drainage contaminated with oil and grease is processed through an oil-water separator prior to discharge." The rest of the provision should be deleted.

Response: EPA has decided not to change Section II.C.2. The requirement has been included to ensure compliance with ELGs and State water quality standards for oil and grease. This requirement is also consistent with other oil and gas permits in Region 10.

136. The last sentence of Footnote 1, Table 3-A on p. 31 should be deleted because it does not apply to domestic wastewater. Commenter would also like EPA to add the phrase "when conditions permit" to the first sentence of Footnote 1, Table 3-A on p. 31.

Response: EPA has corrected the second sentence of Footnote 1, Table 3-A to state that "*For sanitary waste*, observations must follow either the morning or midday meal." EPA has corrected the first sentence of Footnote 1, Table 3-A to state "The permittee must monitor by observing the surface of the receiving water in the vicinity of the outfall(s) during daylight at the time of maximum estimated discharge, *during conditions when observation on the surface of the receiving water is possible in the vicinity of the discharge*."

137. Section II.G.1, Footnote 2, Table 7-A refers to Section II.G.6.b which is not feasible for onshore facilities. Therefore, footnote 2 should be deleted.

Response: EPA recognizes that it may not be possible for onshore facilities to observe at the point of discharge depending on the location of the outfall. EPA has added the following sentence to Section II.G.6.b.: "The visual monitoring requirement does not apply to shore-based facilities."

138. Section II.A.14 should be modified because the currently proposed limit appears to require vacuum abrasive blasting, covering grated areas with plywood, surrounding the area with canvas tarps, etc., in every blasting and painting situation. However, these techniques may not be appropriate in every situation and as technology improves there may be better techniques for capturing the waste. Commenter suggests changes that would allow for all methods and for improvements in practices/technologies without having to modify the permit.

Response: EPA has not revised Section II.A.14. EPA has allowed for technological improvements in capturing waste by stating that "Such material shall be contained to the maximum extent practicable using vacuum abrasive blasting, … *and similar measures to capture as much material as practicable*." Section II.A.14 has, however, been renumbered as Section II.A.12 in the final permit.

139. Commenter requests that the definition of "maintenance waste" be added to Appendix A. The term "maintenance waste" is defined in 33 CFR § 151.5.

Response: EPA has added the following definition of "maintenance waste" to Appendix A of the permit: "Maintenance waste" means materials collected while maintaining and operating the facility, including, but not limited to, soot, machinery deposits, scraped paint, deck sweepings, wiping wastes, and rags."

140. The tables set out in Section II of the permit are inconsistent in format and headings. For example, the term "average monthly limit" and "monthly average limit" are used interchangeably but are not equivalent terms and the footnotes to the tables are used to provide definitions rather than consolidating all definitions in Appendix A. Commenter requests that separate tables be used for restrictions specific to different discharge locations and the format of the tables be consistent. Commenter recommends that one table be added to each discharge in Section II that summarizes the effluent limits and monitoring for a particular discharge that apply to all facilities regardless of discharge location and include separate tables, restrictions applicable to discharging the effluent either in federal or state waters or from a particular platform.

Response: In all cases in the draft permit, the terms "monthly average limit" and "average monthly limit" are equivalent. They represent the highest allowable average of all daily discharge measurements collected during a given month. EPA has changed the terminology in the table headings to consistently reflect the term "average monthly limit." EPA has amended Appendix A of the permit to include all relevant definitions.

EPA has chosen to organize the tables by types of discharges rather than discharge locations. The draft permit did include tables that set forth the effluent limits and monitoring requirements that apply to all facilities for each particular discharge. For example, Table 3-A sets out the effluent limits and monitoring requirements for the sanitary waste water discharge applicable to all facilities. Table 3-B sets out the specific effluent limits and monitoring requirements that apply to specific facilities.

141. EPA has not provided any justification as to why Section II.B.1.a of the permit prohibits the discharge of drilling fluids and cuttings from new sources. 40 CFR § 435.45 expressly authorizes the discharge of drilling fluids and cuttings from New Sources in coastal waters in Cook Inlet. The question of whether it was appropriate for EPA to set different standards for Cook Inlet facilities was tested in court in *Texas Oil & Gas Assoc. v. EPA*, 161 F.3d 923 (5th Cir. 1998). EPA cannot simply choose to prohibit a discharge. Its decision must be based on an applicable, technology-based standard or applicable water quality-based standard. Since neither prohibits the discharge of drilling fluids and

cuttings from New Sources, the proposed permit should be revised to authorize such discharges.

Response: EPA has chosen not to authorize the discharge of drilling fluids and cuttings from new sources in this general permit. If a New Source determines that it needs to discharge drilling fluids and cuttings, the facility can apply for an individual NPDES permit. If a facility applies for an individual NPDES permit, EPA will, at that time, determine the applicable technology-based standard or water quality-based standard. See also Response to Comment #1.

142. Section II.B.1.b prohibits the discharge of non-aqueous based drilling fluids on a case-by-case basis. This section contradicts the Coastal Oil and Gas Extraction ELGs Appendix 1 which provides a procedure by which Cook Inlet operators may make a case-by-case demonstration that they qualify for an exemption from the "no discharge" requirement. This regulation should be reflected in the permit.

Response: The permit does not authorize the discharge of non-aqueous based drilling fluids. 40 CFR Part 435, Subpart D, Appendix 1 requires a Coastal Cook Inlet operator who believes that it qualifies for an exemption to the discharge prohibition to obtain an individual permit. The only discharges that could be authorized under a general permit are high risk emergency discharges pursuant to 40 CFR Part 435, Subpart D, Appendix 1, Section 3.2. Therefore, a Coastal Cook Inlet facility may apply for an individual permit and, at that time, EPA will consider allowing the discharge of non-aqueous based drilling fluids on a case-by-case basis pursuant to 40 CFR Part 435, Subpart D, Appendix 1.

143. Table 1, footnote 1 has an incorrect reference to toxicity testing of suspended particulate phase. Footnote references 40 CFR Part 435, Subpart A, Appendix 1. Reference should be to Appendix 2. Same comment for Table 2, footnote 1.

Response: EPA has corrected Table 1, footnote 1 in the final permit to state "40 CFR § 435, Subpart A, Appendix 2." Table 2, footnote 1 was accurate as written in the draft permit and has not been revised.

144. Language in the expired permit at Section III.B.2.e.3 should be retained because the language was added in response to comments regarding costs of WET testing.

Response: EPA has re-evaluated the WET testing requirements and associated costs based on current Cook Inlet operations. EPA has determined that the new permit requirements are appropriate.

145. The expired permit at Section III.B.2.e.1 states that "If no mineral oil is used … this sample can also serve as the monthly monitoring sample." Language should be added as a new footnote to the Measurement Frequency column requirement, "Monthly and End of Well" as follows: "At the end-of-well, a sample must be collected for toxicity testing. This sample can also serve as the monthly monitoring sample."

Response: EPA has added a footnote (Footnote 16) in Table 1 of the final permit allowing the end-of-well sample to serve as the monthly monitoring sample when no mineral oil is used. This requirement is the same as the expired permit .

146. Section II.B.3.b should be corrected to allow 90 days for reporting to comport with the end-of-well requirements.

Response: Section II.B.3.b is a reporting requirement which applies when mineral oil pills are used and has not been changed from the expired permit. The end-of-well reporting requirements in Section II.B.4.b are not associated with use of a mineral oil pill. Since these requirements are not related, no change is warranted.

147. Section II.B.3.b.ii contains a typographical error which should be corrected.

Response: EPA has revised Section II.B.3.b.ii to state "taken when residual mineral oil pill concentration is expected to *be* greatest."

148. Table 1, footnote 2 references Section II.B.4.a, which is a section on maintaining chemical inventory records, is not appropriate in this table.

Response: EPA has deleted the reference to Section II.B.4.a in Table 1, footnote 2.

149. Table 1, footnote 3 is inappropriately applied to free oil effluent limits for water-based and non-aqueous fluids; and should be deleted.

Response: EPA has deleted footnote 3 from Table 1 in the final permit.

150. The sample type for free oil for water-based fluids and cuttings should be grab, not visual, since it is a static sheen test.

Response: EPA agrees. The change has been made as requested.

151. Mercury and cadmium limits referenced in footnote 5 require sampling for every well and are inconsistent with requirements that appear later in the permit and should be deleted. Specifically, the limits conflict with Section 4.f.ii of the permit.

Response: Table 1, footnote 5 requires monitoring prior to drilling a well unless the same stock of barite is used for subsequent wells, in which case the initial results are allowed to be used for the subsequent wells. This is the same requirement as stated in Section II.B.4.f and it is not inconsistent. However, EPA found a related inconsistency in the reporting requirement. Table 1, footnote 5 requires reporting on the DMR for the month in which drilling is commenced; whereas, Section II.B.4.f.i requires reporting on the DMR for the month the well is completed. Section II.B.4.f.i has been changed in the final permit to require reporting on the DMR for the month the drilling of the well has commenced so that compliance can be measured in a more timely manner. Footnote 5 has been renumbered to Footnote 4 in the final permit.

152. Commenter requests that EPA delete Table 1, footnote 6 and PAH be added to the acronyms and abbreviations list.

Response: EPA has chosen not to delete footnote 6 in Table 1 but has added PAH to the definitions in Appendix A of the permit. In addition, footnote 6 has been renumbered to footnote 5.

153. Diesel oil is prohibited from discharge and a monitoring requirement of daily grab is imposed. Reference to Section II.B.4.c of the permit should be added to Table 1 which will direct permittees to the additional information provided later in the permit about diesel oil.

Response: EPA has added footnote 15 that references Section II.B.4.c in the final permit.

154. Table 1, footnote 10 contains a typographical error—it references Appendix A instead of Appendix B.

Response: EPA has revised footnote 10 accordingly. Footnote 10 has been renumbered to footnote 9.

155. Footnotes 8, 9, and 10 in Table 1 should be amended to allow averaging of test results as part of the calculations to determine compliance with sediment toxicity and biodegradation limits. The averaging procedure has been clarified for the General Permit for the Offshore Subcategory for the Western Portion of the Outer Continental Shelf of the Gulf of Mexico.

Response: Footnotes 8, 9, and 10 in Table 1 have been amended in the final permit to allow averaging of test results as part of the calculations to determine compliance with sediment toxicity and biodegradation limits. The change is consistent with the intent of the ELGs. In addition, footnotes 8, 9, and 10 have been renumbered to footnotes 7, 8, and 9.

156. Section II.B.2 should be deleted in its entirety because the applicable ELGs authorize the discharge of drilling fluids and cuttings from New Sources in Cook Inlet. Drilling discharges from exploration sites are also authorized. EPA has provided no justification to limit discharges from "no more than 5 wells." If Section II.B.2 is retained, it should be corrected to specify that the 5 well limitation is intended to apply to exploratory facilities only.

Response: The discharge limitation to "no more than five wells" from exploratory activities was a requirement of the expired permit. Additionally, EPA reviewed the Cook Inlet Planning Area Final Environmental Impact Statement for Oil and Gas Lease Sales 191 and 199, MMS publication 2003-055. In this document MMS assumes 2 exploration wells and 3 delineation wells will be drilled during exploration activities, for a total of

five wells. Volume estimates of drilling fluids and cuttings for discharge, and subsequent evaluation of potential environmental effects, are based on these estimates. EPA has revised the permit to specify this requirement only applies to exploratory facilities.

157. The commenter recommends that Sections II.B.3 and II.B.4 be replaced with language from the expired permit at Sections III.B.1.a and III.B.2.a-d. EPA has not established a foundation for requiring changes to reporting protocols which appear to have been modified solely to reflect convention in Region 6 rather than Region 10.

Response: The only substantive changes that were made to Sections II.B.3 and II.B.4 were the additional information required to be included in end-of-well reports in Section II.B.4.b.i-viii. EPA has determined that this information is important to understanding the potential effects of drilling operations on water quality, including the type and composition of drilling fluids. Note that the language in the final permit is consistent with EPA's final general permit for Artic Oil & Gas operations, see: http://yosemite.epa.gov/r10/water.nsf/95537302e2c56cea8825688200708c9a/bc30f88057c7455088256c870082cd07/$FILE/AKG280000FP.pdf

Moreover, Section I.F.2 has been removed from the final permit because of a conflict with Section II.B.4. See Response to Comment #28 and #126.

158. Section II.B.5 should be amended to retain language from the expired permit at Section III.B.3. First, EPA should not prohibit all discharges within 4000 meters of sensitive areas. Second, commenter assumes that Section II.B.5.b applies only to new exploratory facilities.

Response: Please see Response to Comment #3. As stated in Section II.B.5.a, this requirement only applies to new exploratory facilities.

159. Commenter seeks clarification whether all the facilities, without regard to location, are subject to the baseline study requirements.

Response: EPA has clarified that the environmental monitoring requirements in Section II.B.5 of the final permit only apply to new exploratory facilities.

160. Section IV.D.1 of the Fact Sheet (p. 46) cites the Ocean Discharge Criteria as the driver to require "a full understanding of the potential impacts of permitted discharges" and, therefore to extend "the monitoring requirement … to include new facilities …." However, Ocean Discharge Criteria are not applicable to all the areas addressed by this permit. Further, the environmental baseline study will be duplicative of environmental studies/assessments that are required to be performed prior to leasing. Therefore, commenter requests that the language in Section III.B.3 of the expired permit be retained.

Response: Environmental studies and assessments that are done prior to leasing are not designed to collect site-specific information. The environmental monitoring study was a requirement in the expired permit for facilities located within 4,000 meters of a sensitive

area. EPA has expanded this requirement to include all new exploratory facilities to satisfy data needs for operations in coastal waters. Regarding the ODCE, see Response to Comment #110; regarding the 4,000 meter setback, see Response to Comment #3.

161. Section II.B.4.c.i has a typographical error: "must" to "muds"

Response: EPA has clarified the typographical error in Section II.B.4.c.i from "must" to "muds" in the final permit.

162. Commenter recommends that to ensure consistency of results while providing reasonable and practical flexibility EPA should specify the reporting units for each monitoring parameter.

Response: The final permit includes units for all monitored parameters.

163. Commenter recommends that when specifying methods, the following language is recommended: "In addition to the procedures approved under 40 CFR Part 136 or approved in Alaska Standards, the XXX method may be used for analysis."

Response: EPA has retained the draft permit language. ADEC did not request a reference to State water quality standards or alternate analytical methods.

164. The proposed permit adds a requirement to quantify PAHs in deck drainage that has been processed through an oil-water separator "once per discharge event." (Section II.C.2). For most platforms, discharges occur daily which means daily sampling. However, volume discharges are small (1,000 to 5,000 gpd). This requirement is prohibitively onerous and expensive for a low toxicity, small volume discharge and should be dropped.

Response: See Response to Comment #135.

165. It is not practical to require testing of deck drainage prior to commingling and treatment (Section II.C.3). Monitoring following treatment is a fundamental principle of NPDES permits which should be consistently applied. Monitoring before commingling provides no additional protection to the environment.

Response: See Response to Comment #131.

166. Monitoring Frequency of Free Oil in Table 2 should be changed from "daily" to "monthly," with a provision for reduced monitoring based on compliance added.

Response: EPA agrees that changing the monitoring frequency for Free Oil in Table 2 from "daily" to "monthly," is permissible when a good history of compliance has been demonstrated for three consecutive months. Footnote 2 has been revised to allow a decrease in the monitoring frequency based on continued compliance with the limit.

167. Table 2, Footnote 3 is redundant to Section II.C.2 and should be deleted.

Response: Footnote 3 of Table 2 was revised in the final permit to add a reference to Section II.C.2. However, Footnote 3 will not be deleted because additional sampling requirements are specified in this footnote beyond those described in Section II.C.2.

168. Table 2, Footnote 5 is confusing. The requirement is to provide an estimate of daily flow is either redundant to the table for those who estimate or inappropriate for those who meter flow. The footnote should be deleted.

Response: EPA agrees that the requirement in Table 2, Footnote 5 is not needed. It has been removed from the final permit.

169. WET testing of deck drainage was conducted in the first year of the expired permit. The Fact Sheet does not provide justification for the requirement in Table 2 to repeat this data collection and the requirement should be eliminated.

Response: The sampling requirement for WET testing of deck drainage should be reinitiated during each permit cycle to establish records of compliance. As such, this requirement has been retained in the final permit.

170. It is impossible to comply with Section II.C.3. Gross fluids are routinely commingled on platforms and shipped to onshore facilities for separation and treatment. It serves no purpose to sample waste streams prior to commingling or prior to treatment. Once commingled, the waste water is treated and compliance with permit limits and State water quality standards is confirmed through monitoring.

Response: See Response to Comment #131.

171. Analytical methods should not be specified. It is problematic for the permit to specify analytical methods that are regularly updated by EPA or to eliminate flexibility to choose other approved methods. Commenter requests that rather than specify the analytical method, EPA require that analyses be conducted by an EPA approved analytical method or to analytical methods specified in State water quality standards.

Response: Many of the analytical methods included in the final permit are established to ensure compliance with the specific requirements in the ELGs at 40 CFR Part 435. Other requirements are based on general use of EPA-approved methods at 40 CFR Part 136, which is routinely updated. In each of these cases, EPA believes that is appropriate to ensure consistency with regulatory requirements by specifying analytical requirements. The permit also contains the following statement in Section VI.C, "The permittee must conduct monitoring according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit." This statement is consistent with other oil and gas permits in Region 10.

172. Commenter supports ADEC's decision to regulate sanitary discharges for all offshore facilities based on an upper total residual chlorine limit of 13.35 mg/L. EPA should

establish one mixing zone size, equally applicable to each platform and consistent with the 13.35 mg/L TRC limit.

Response: EPA agrees that limits for TRC in sanitary discharges are appropriate to ensure compliance with State water quality standards. ADEC has determined in the CWA 401 certification that different mixing zone sizes and effluent limits should be required for individual facilities based on the treatment type and amount of available discharge data. As noted in the Response to Comment #21, the TRC limits established in Table 3-B of the permit remains unchanged. Also, as discussed in Response to Comment #23, new facilities located within Coastal Waters may request a mixing zone from ADEC, for discharges of sanitary and domestic wastes. For discharges of sanitary and domestic wastes in Coastal Waters, the permittee must limit the discharge of TRC to 0.0075 mg/L, unless a mixing zone has been authorized by ADEC. If ADEC has authorized a 100-meter mixing zone, the permittee must limit the discharge of TRC to 1.0 mg/L. These limits are consistent with the Arctic General Permit (AKG280000). For new facilities located in Federal Waters and Territorial Seas, a standard 100 meter mixing zone applies pursuant to Ocean Discharge Criteria.

173. Sections II.D.2 and II.D.4 apply to facilities in Federal Waters and require the permittee to conduct annual testing of the marine sanitation device. Commenter is not aware of any testing methodology available. Section II.D.2 should thus be deleted in its entirety and Section II.D.4 should be amended to strike the last sentence.

Response: Section II.D.2 applies to facilities located in Federal Waters. Section II.D.2 is required pursuant to Section 312 of the Clean Water Act. Additional information on testing methodology and other requirements for marine sanitation devices can be found at 33 CFR Part 159. Section II.D.2 has been changed to reflect the fact that the requirement only applies to facilities located in federal waters.

The last sentence of Section II.D.4 simply requires that facilities report the number of days the discharge does not comply with the permit limit. Section II.D.4 has been retained in the permit.

174. First column of Table 4 is labeled “discharge” which is not consistent with all the other tables.

Response: This table applies to the domestic waste water discharge, therefore, the first column description is appropriate. No change has been made to the final permit.

175. Table 4, Footnote 1 should be in the “sample type” column and, if retained, should apply to both the visual sampling requirements.

Response: EPA disagrees that Footnote 1 in Table 4 should be in the “sample type” column. The requirement specifies when sampling is required and is more consistent with the frequency of sampling than the type of sample. No change has been made.

176. Table 4, Footnote 2 and Section II.E.2 are redundant. The same language is stated in Section II.D.3 and more appropriately belongs in the sanitary waste section. Therefore, these provisions should be deleted.

Response: Footnote 2 in Table 4 has not been deleted to avoid redundancy with Section II.E.2. The provision applies to both sanitary and domestic waste water discharges. Therefore, the provision has been retained in both Section II.D.3 and II.E.2.

177. Table 5 should be deleted. Weekly monitoring can only be accomplished using visual monitoring during the summer. Thus, static sheen tests would be required to be conducted weekly for 10 different waste streams that may discharge at multiple locations on any given facility. Some of these cannot be monitored using the static sheen test. Thus, the commenter recommends that Table 5 be deleted in its entirety and replaced with the requirements in the expired permit at Section III.E.

Response: It is not appropriate to allow discharges without monitoring during the majority of the year. The static sheen test is allowed to be used to accommodate these discharges during times visual sheen monitoring is infeasible. The static sheen test is simple to conduct and takes very little time. EPA recognizes that some minor modifications to accomplish sampling may be necessary. However, EPA does not believe that the static sheen test is unduly burdensome. No changes have been made to the final permit based on this comment.

178. Section II.F.2.a requires that an annual inventory for desalination unit waste water treatment chemicals be submitted by March 1st of the following calendar year. Section II.H.3 requires the chemical inventory for work over, completion, and well treatment and test fluids be submitted within 90 days of the completion of the calendar year. Commenter recommends that the 90-day timeframe be retained and requests that for consistency, both chemical inventories be due within 90 days of completion of the calendar year.

Response: The final permit has been changed to require chemical inventories in Sections II.F.2.a and II.H.3 to be due by April 1 of the following calendar year.

179. Section III.E.3 of the expired permit allows the commingling of excess waterflood water with produced water to minimize line freezing. EPA previously recognized the difficulty posed by keeping discharge flow lines operating during extreme cold temps (RTC for the expired permit at p. 52). Commenter recommends that the following language be added to Section II.F.2.c of the draft permit: "If excess waterflood water is added to the produced water discharge in order to minimize the possibility of line freezing, then the discharge must be considered produced water for monitoring purposes. The estimated waterflood flow rate must be reported in the comment section of the DMR."

Response: EPA agrees and has added a section (Section II.F.2.c) with the proposed language to the final permit; however, oil and grease samples must be collected prior to

mixing with other waste streams to ensure representative sampling for compliance with those technology based limits.

180. Section II.F.4 contains new WET limits and testing requirements. The Fact Sheet explains that this limit is a response to the potential toxicity of treatment chemicals and is intended to assure compliance with State water quality standards for toxicity. Since the previous permit issuance, BMPs have been developed and implemented. Given the inclusion of limits on treatment chemical concentrations (Section II.F.3), and particularly in light of the proposed mixing zones for these discharges, there is no reasonable potential for treated seawater discharges to cause toxicity at the edge of the proposed mixing zones, nor is there any value in requiring WET monitoring on treated seawater discharges. Section II.F.4 should, thus, be removed from the permit.

Response: Please see the Response to Comment #8. In the mixing zone application, the discharger's analysis shows that the miscellaneous discharges may cause chronic toxicity at the points of discharge. In ADEC's CWA 401 certification, ADEC has granted acute and chronic mixing zones for miscellaneous discharges to ensure compliance with State water quality standards. EPA does not believe that monitoring miscellaneous discharges is burdensome and the difficulties are outweighed by the need for toxicity data associated with these discharges and to support future permit reissuance.

181. EPA erred in conducting the RPA for treated seawater discharges. In particular, EPA should not have treated HQs as numerically equivalent to Toxic Units (TUs) in setting limits for the existing facilities.

Response: Please see the Response to Comment #8. The HQ approach, as proposed by the dischargers in the mixing zone application, is based on acute toxicity data for the chemicals found in the discharges. EPA, however, has recognized the lack of chronic toxicity test data for the chemicals. The monitoring required under this permit, will provide chronic WET data that can be used directly during subsequent permit reissuance to determine reasonable potential and permit limits.

182. If EPA does not delete Section II.F.4, then WET monitoring should be conducted for no more than one year to characterize treated seawater discharges and the limits should be removed.

Response: Please see Response to Comment #8.

183. Given the configuration of the platforms, the WET monitoring requirement is impractical and unlikely to produce results representative of the actual exposure to these discharges that biota might experience in Cook Inlet. The samples would over-estimate toxicity and only verify the effectiveness of chemicals designed specifically as biocides.

Response: The monitoring is consistent with the mixing zones set forth in the CWA 401 certification. The monitoring provisions have been retained to ensure compliance with State water quality standards. See Response to Comment #8.

184. If WET limits are retained, EPA should restrict the limits and monitoring to outfalls that have a monthly average discharge rate of 10,000 gpd or more. Also, the threshold should be expressed as a monthly average flow rate to avoid sweeping in intermittent discharge points which should not be included under the requirement at all.

Response: See Responses to Comments #4 and #8.

185. Monitoring should be limited to worst case discharge points. If retained, WET test should only be required for the first year for characterization purposes and should allow the identification of a single representative "worst case" sampling location.

Response: See Responses to Comments #4 and #8.

186. EPA should clarify which discharges are subject to WET limits. Not all miscellaneous discharges involve chemically treated seawater. Therefore, miscellaneous discharges proposed to be included under the requirement should be clarified.

Response: Table 5, footnote 2 has been revised to clarify which discharges WET testing applies to. See Responses to Comments #4 and #8.

187. If WET monitoring is retained, EPA should add provisions to reduce the frequency of WET monitoring of treated discharges similar to the reduced monitoring proposed for produced water discharges. This is especially so where these miscellaneous discharges are insignificant compared to the produced water discharges.

Response: See the Response to Comment #8. EPA agrees that reduced WET monitoring for miscellaneous discharges is appropriate when compliance has been demonstrated. EPA has amended Section II.F.4 in the final permit to reflect the fact that reduced monitoring (similar to the reduced monitoring for produced water discharges) for WET is permitted.

188. The phrase "produced water monitoring requirements" should be deleted from Section II.F.4 because Section III.A. is not exclusive to produced water discharges.

Response: The "produced water monitoring requirement" has been deleted from Section II.F.4 in the final permit since the requirement was not exclusive to produced water discharges.

189. Section II.F.4 states "the dilution factor calculated at the edge of the mixing zone is the WET limit for those facilities." This statement is unclear. It appears that EPA intends the TUs listed in Tables 6 A-C to represent limits, however, whether these are intended to represent daily maximum, monthly average or both is not stated. Commenter requests clarification to these suggested limits if this requirement is not deleted. In addition, units should be added to all limit tables.

Response: Please see the Response to Comment #8. WET limits for miscellaneous discharges have been removed from the final permit and will instead be used as maximum trigger values for additional testing. Section II.F.4 has been revised to reflect this change.

190. If EPA continues to require WET testing of treated miscellaneous discharges, Section II.F should include a compliance schedule to allow for installation of sampling ports, etc.

Response: EPA agrees that operators may need time to prepare for sampling. As such, EPA has required that the oil and gas operators commence WET monitoring six months after the effective date of the permit.

191. Section II.G.1 states that produced water discharges from New Sources would not be authorized by the proposed permit. Such discharges are authorized by the applicable ELGs in 40 CFR § 435.15 for discharges in the Territorial Seas and Federal Waters, and in 40 CFR § 435.45 for discharges to Coastal Waters. For the same reasons as discussed with discharges of drilling fluids and cuttings, the proposed permit should authorize the discharge of produced water from New Sources.

Response: See Responses to Comments #1 and #141.

192. Commenter requests that the definition of produced water that was set forth in the expired permit be added to Appendix A of the proposed permit to clarify that hydrotest water can be commingled and discharged with produced water.

Response: EPA has included the definition of produced water. Produced water is water brought up from hydrocarbon baring strata during oil and gas extraction and can include formation water and injection water, and added chemicals. The definition in the permit is consistent with the ELGs. Hydrotest water is not brought up from a hydrocarbon baring strata and is not produced water. The permit does, however, clearly state that hydrotest water can be discharged with the produced water stream. See Section II.F.2.c of the Permit.

193. Commenter requests that the definition of hydrotest water in Appendix A be replaced with the following language: "Hydrotest water is water that is used to hydrotest the integrity of pipelines, tanks or equipment."

Response: The definition of hydrotest water in Appendix A has been changed to "Hydrotest water is water that is used to hydrotest the integrity of pipelines, tanks or equipment" as requested.

194. Table 7-A, Footnote 1 requires samples for oil and grease to be taken prior to the addition of any seawater to the produced water waste stream. Commenter believes that this requirement stems from EPA's intent to prevent operators from adding seawater to waste water prior to discharge in order to meet technology-based limits such as oil and grease. However, this footnote does not take into account that seawater is a component used in

many activities that add value and insure efficient production and responsible operations. For example, it is used in hydrotesting pipelines and tanks. Commenter suggests deleting the last sentence of Footnote 1.

Response: The requirement is needed to ensure that the samples meet the permit's representative sampling requirements for the oil and grease limits and has not been changed in the final permit.

195. Table 7-A, Footnote 1, first sentence is consistent with language in the expired permit. However, this requirement can be problematic when a sample bottle is broken in transit or otherwise unavailable to be analyzed. The language does not allow averaging of the remaining three samples.

Response: The permit language has been clarified to allow averaging of remaining samples in the event sample bottles are broken in transit.

196. Table 7-B, Footnote 1 conflicts with methods required in Sections III.D and II.C.2. Commenter supports the reference to 18 AAC 70.020(b) as the applicable standard for TAH and TAqH test methods; however, these inconsistencies should be corrected.

Response: Section II.C.2 has been revised to be consistent with Table 7-B, Footnote 1 as related to analytical methods for TAH and TAqH. Section III.D is applicable to analytical methods for PAHs. The final permit has been modified to refer to the analytical method for TAH and TAqH specified at 18 AAC 70.020(b), Note 7.

197. Commenter clarified the list of facilities authorized to discharge produced water in Section II.C.1 of the Fact Sheet. Some additional facilities are allowed to discharge via transport to and treatment at other facilities.

Responses: EPA concurs with the commenter that the cited platforms have been allowed to discharge produced water under the previous permit via the two treatment plants and this will continue to be allowed under the final permit.

198. Commenter requests that the Monitoring Requirements (Section II.G.6.a) be expanded to allow reduced monitoring following demonstrated compliance for all continuous discharges.

Response: Monitoring reduction allowances are included for the more burdensome of the monitoring requirements because reduced monitoring will be most beneficial to permittees. Discharges such as produced water also have the greatest risk of impacting the environment. The monitoring reduction allowance is included in the permit as an incentive for operators to better maintain those potentially higher impacting discharges.

199. Table 7-B1-9, Footnote 2 refers the permittee to Section II.G.6.a.2 which increases WET monitoring following noncompliance. Section III.A.7, however, requires additional

sampling within two weeks if exceedance. It appears that Section II.G.6.a.2 conflicts with Section III.A.7.

Response: The conflict between Sections III.A.7 and II.G.6.a.2 has been corrected in the final permit.

200. It is unclear why, with carefully derived reasonable maximum concentrations for TAH and TAqH, the water quality standard rationale would be used to set effluent limits. This approach yields higher-than-needed limitations for either TAqH or TAH at every facility (and for every metal that is not the "driver" metal). It is recommended that all effluent limitations should corroborate reasonable maximum concentrations derived in the permit application.

Response: The commenter is correct that, in developing the permit limits for produced water discharges, EPA grouped the pollutants by type (e.g., metals, TAH/TAqH). EPA then determined which pollutant of each type required the greatest dilution to meet State water quality standards (based on the applicable standards and maximum potential effluent concentrations). As discussed in Attachment B, this dilution was then used to calculate the effluent limits for the pollutant requiring the greatest dilution. It was also used for any pollutant with limited monitoring data, because of uncertainty regarding the upper end of the concentration range. For pollutants with extended monitoring, EPA is confident that estimated reasonable maximum values represent the highest expected levels and the maximum daily limits have been set at these levels in the final permit as requested by the commenter.

201. Since sampling of produced water is already required once per week by grab, it appears that Section II.G.6.b conflicts with Section II.G, Table 7-A. Commenter requests that Section II.G.6.b be deleted in its entirety.

Response: The language has been changed to make Section II.G.6.b consistent with Table 7-A.

202. Greatly expanded metals monitoring is proposed despite substantial available evidence that metals concentrations in Cook Inlet are overwhelmingly established by sediment metals naturally occurring in the water body.

Response: Monitoring for metals is generally required for parameters which have been shown to have a reasonable potential to exceed water quality criteria. In addition, ADEC has requested that monitoring and limits for mercury remain in the permit because of the high degree of interest regarding mercury in fish tissue. See also ADEC Response to Comment #19.

203. Mixing zones have been established on the basis of a "driver" metal. The mixing zone application requested mixing zones for metals and ammonia and identified a single mixing zone size for metals at each facility, and associated dilution factor that would be sufficiently large for all metals to meet their respective State water quality standards. In

the proposed permit, the daily maximum permit limits for metals were calculated based on the dilution factors in the mixing zone application multiplied by the parameter's water quality standard. This approach results in an appropriate permit limit for the "driver" parameter but higher (*i.e.*, less stringent) than necessary permit limits for the non-driver parameters. Rather than imposing limits that data demonstrated have no reasonable potential to be exceeded, the permit should not impose limits on those metals. Alternatively, commenter recommends that permit limits for each parameter be calculated using parameter-specific dilution factors.

Response: As documented in Attachment A, permit limits have been included in the final permit for those parameters that show reasonable potential. Because of the limited monitoring data available for some pollutants at some facilities and the expected comparability among produced water discharges from different facilities, EPA has taken a conservative approach of establishing effluent limits at all facilities for any pollutant that shows reasonable potential at any one facility. See also Response to Comment #200.

204. Commenter requests that sample frequency be established consistent with risk and with the lack of variability in produced water content.

Response: EPA agrees that when effluent variability is low and permittees have shown a good record of compliance it is appropriate to decrease the monitoring frequency. The permit includes conditions that allow for reduced frequency when produced water discharges have been demonstrated to comply with the permit limits.

205. Expanding monitoring for metals in the proposed permit is unwarranted. If EPA wishes to monitor to assure that State water quality standards are being met at the edge of the mixing zone, monitoring only the "driver" metal is the most efficient way to ensure compliance for all metals that occur in produced water.

Response: See Responses to Comment #200 and #203. Since the effluent limits for a number of non-driver pollutants are no longer based on dilution allowed for the "driver" pollutants, EPA has determined that the required monitoring frequency is appropriate for pollutants with reasonable potential.

206. The chronic criterion set forth in Appendix A of the Fact Sheet should be expressed as total metal using metal-specific conversion factors.

Response: EPA agrees with the commenter and in the revised RPA included in Attachment A, total estimated maximum concentrations are compared to applicable total recoverable criteria. Similarly, in Attachment B, the total recoverable effluent limits have been calculated by applying the total criteria.

207. For some metals, the dilution factor was multiplied by a dissolved water quality standard and which value was identified as the permit limit expressed as total metal. Consequently, a translator was not used to properly adjust the dissolved concentration back to a total recoverable concentration. There are two options to address this: (1)

adjust the effluent limits so that they are based on total recoverable or (2) measure total recoverable metal in the effluent but estimate the dissolved metal concentration by multiplying the effluent concentration by the default conversion factor. Language in the permit needs to clarify the basis for the effluent limit and what form of metal should be monitored in the effluent.

Response: The permit describes the form of metal that should be monitored in the effluent (total metals). See the Response to Comment #206.

208. Effluent limits and the sample data used to calculate the ammonia limits are based on total ammonia; however, this is not stated clearly in the permit.

Response: See the Response to Comment #209.

209. In Appendix A of the Fact Sheet, the ammonia concentrations in effluent shown are based on total ammonia but the chronic criterion shown by which it is compared is based on un-ionized ammonia. Thus, Appendix A gives the misleading impression that effluent ammonia concentrations exceed the State water quality standard. Commenter recommends that all ammonia concentrations be expressed as total ammonia.

Response: EPA agrees with the commenter and in the revised RPA included in Attachment A, total ammonia concentrations are compared to applicable total ammonia criteria. As a result, no reasonable potential is shown for ammonia and permit limits, therefore, have not been included in the final permit. Monitoring for total ammonia is required in the final permit to verify no reasonable potential during the next permit reissuance.

210. Language should be added to Table 8, Footnote 2 to clarify that if fluids are commingled with produced water, then pursuant to Section II.H.2, they are considered produced water for monitoring purposes.

Response: Section II.H.2 appears directly below Table 8, Footnote 2; therefore, EPA does not believe further clarification is necessary. The change has not been included in the final permit.

211. Table 8 requires that volumes discharged to be reported in barrels rather than million gallons per day. This requirement is inconsistent with other sections of the permit.

Response: EPA has specified consistent units throughout the final permit.

212. The proposed permit should not include the requirements for SWPPPs.

Response: EPA agrees. The language has been removed from the permit. If a facility requires coverage for discharges or storm water, the facility should seek coverage under the MSGP. See Response to Comment #81.

213. There is a spelling error in Section III.A.1.b.: "Crassostrar gigas, or mussel, mytilis" should be "Crassostrea gigas, or mussel, mytilus."

Response: The spelling errors on *Crassostrea gigas*, and mussel, *mytilus* have been corrected in the final permit.

214. Commenter objects to the large increase in chronic toxicity testing required under the proposed permit. To decrease the testing burden while still achieving the permit objective of aquatic life protection, commenter suggests permit requirements to screen with two species once per permit cycle, and to use the most sensitive species for the remainder of the permit cycle.

Response: The permit is consistent with standard toxicity testing procedures. 40 CFR § 122.44(i) requires that monitoring be done at least once per year. Monitoring has been reduced in the final permit where appropriate.

215. The WET requirement should be changed to require screening with 1 fish and 1 invertebrate. The requirement should specify the invertebrate as the oyster/mussel, or give the option to choose between the oyster/mussel test OR the urchin/sand dollar test based on availability of spawning organisms.

Response: The WET requirement is consistent with "Regions 9 & 10 Guidance for Implementing Whole Effluent Toxicity Testing Programs," dated May 31, 1996.

216. The definition of Chronic Toxic Unit should be changed in Section III.A.4 and added to Appendix A. Chronic toxic unit is specifically defined in 18 AAC 70.030(b). Commenter requests that the definition be changed to use $100/IC_{25}$.

Response: The correction was made to Section III.A.4 and the definition was added to Appendix A.

217. For clarity, in Section III.A.4, the phrase "survival, growth, or fecundity endpoints" should be replaced with "survival, growth, development, or fertilization endpoints" to capture the endpoints in the test methods specified in the proposed permit.

Response: EPA has made the change as requested.

218. Commenter requests that Section III.A.6.a be amended as follows to be consistent with 40 CFR Part 136: "If organisms are not cultured in-house, concurrent testing with reference toxicants must be conducted, <u>unless the test organism supplier provides control chart data from at least the last five months of reference toxicant testing.</u>" "In-house" should be changed to "by the testing laboratory" because no WET tests are performed in-house.

Response: The change has been made as requested.

219. The entire second sentence of Section III.A.6.c should be deleted because animals are acclimated to lab dilution water prior to testing. Thus, the sentence is not needed.

Response: The language is standard toxicity testing permit language and is included to ensure quality assurance. There is no additional burden to permittees as a result of inclusion of the language; therefore, it remains in the final permit.

220. Section III.A.7.a should be reworded as follows: "If chronic toxicity is detected above the permit limits in Sections II.C.1, II.F.4, or II.G.1, collection of one additional sample is required within two weeks of receipt of the test results." This will help to clarify the applicable permit limits.

Response: The change was made as requested. See Response to Comment #8.

221. Both Sections III.A.7 and III.A.10 require notification to EPA within 15 days of receipt of results indicating exceedance of a WET limit. It is unreasonable to expect root causal analysis, corrective actions planned or scheduled, and a written correspondence prepared and delivered within 15 days of the receipt of test results. As such, the commenter requests that a minimum of 30 days be allowed to complete these tasks.

Response: Permittees should plan for how to address non-compliance issues in advance so that they are quickly resolved and penalties for violations are minimized. Therefore, EPA does not find the time requirements overly burdensome.

222. Section III.A.9.a should be clarified that if the source of toxicity is adequately identified in the Phase I or Phase II Toxicity Identification Evaluations (TIEs), such that toxicity can be reduced through control actions and/or plant modifications, then conducting subsequent TIE phases is not necessary. In addition, the Phase I manual referenced is for freshwater TIEs.

Response: The permit has been clarified as requested. In addition, EPA recommends that operators use the principles and procedures of the freshwater guidance and apply them to the marine situation.

223. Section III.B specifies an obsolete and inappropriate test method for stock base fluid sediment toxicity. The most current ASTM method is ASTM E 1367-03.

Response: EPA disagrees. The method is consistent with the ELGs. See 40 CFR § 435.13.

224. Sections III.B and III.C contain incorrect appendices references and Section III.G has a typographical error: The word "require" should be "required."

Response: EPA has corrected these typographical errors.

225. Section IV should be deleted. Quality Assurance Plans (QAPs) are commonly required to be developed and followed by contract laboratories that conduct analyses. However, it is not appropriate to require operators to develop, submit or certify these plans. Requirements included in Section IV.A-E are either already included in analytical methods, BMPs, or laboratory protocol specifications.

Response: A QAP is a routine permit requirement in Region 10 NPDES permits. It is required to document how on-site analysis is completed, how sample collection is conducted, and to ensure chain of custody. Therefore, this requirement has been retained in the permit.

226. Commenter provides a table that provides a summary of all the special documents proposed in the permit along with their deadline. Commenter requests that EPA consider reducing the number of these requirements by evaluating their value.

Response: EPA does not believe a table is necessary. Furthermore, the requirements specified in the permit are necessary to obtain pertinent effluent discharge information.

227. Commenter requests that Section V be deleted and replaced with the language from Section III.1 of the expired permit. Section V is over 10 pages of prescriptive, redundant and overly complicated requirements expanding the content of existing BMPs.

Response: Section III.1 of the expired permit has replaced the language in Section V of the final permit.

228. Sections VIII.A.2 and VIII.A.3 should be deleted. These are not standard permit conditions. Section VIII.A.2 is vague because it does not identify a recognizable triggering event for the obligation to collect an additional sample. Section VIII.A.3 is inconsistent with the monitoring protocols associated with most discharges.

Response: EPA agrees. Sections VIII.A.2 and VIII.A.3 have been deleted.

229. The due date for the DMRs should be restored to the 20th day of the month as it is in the expired permit. This does not allow enough time for the permittees to report the sample findings.

Response: The due date for the DMRs has been changed to the 20th day of the month in the final permit as requested.

230. Section VIII.B should also clarify that only information regarding discharges that occurred during the month must be reported on the DMRs.

Response: EPA has not changed the language in the permit. Permittees only have to report the monitoring for discharges that occurred during the reporting month.

231. Section VIII.G.2 should clarify that a written submission must be provided within five *business* days.

Response: The language in the final permit has been clarified as requested.

232. There is a typographical error in Section IX.F.2.b: "a required" should be "as required."

Response: A number of comments identified typographical mistakes in the draft permit and supporting documents. These errors have been corrected in the final permit and applicable supporting documents (EA and ODCE).

233. The following general conditions should be inserted into Section X: Oil and Hazardous Substance Liability provision, Severability provision, Reopener Clause provision, and a Duty to Reapply provision. In addition, there is a typographical error in the Duty to Provide information provision.

Response: EPA has added a Oil and Hazardous Substance Liability provision and a Severability provision. The Duty to Reapply provision has not been moved as requested to be consistent with other Region 10 permits that have been issued recently. A Reopener Clause has not been added to the permit. The typographical error in the Duty to Provide Information provision has been corrected.

234. EPA did not follow the TSD guidance to set acute toxicity mixing zone boundaries, which resulted in significantly larger acute mixing zones.

Response: ADEC established the mixing zones for the facilities. See also ADEC Response to Comments at #1.

235. EPA erroneously identified Cook Inlet as an "ocean" for modeling purposes rather than the "estuary" it is.

Response: ADEC established the mixing zones for the facilities. See also ADEC Response to Comment at #13.

236. Commenter requests an explanation and justification of how non-compliance history on the oil and gas operators in Cook Inlet is weighed in and included in the environmental assessment and the permit.

Response: The EA considered the water quality of Cook Inlet but did not directly consider incidences of non-compliance. Non-compliance is considered in developing the permit primarily in establishing monitoring requirements and determining whether an individual permit is necessary for a particular facility. In this case, EPA reviewed DMR data and has established monitoring requirements as necessary to demonstrate permit conditions are being achieved.

237. Commenter noted that opportunities for visual observations for sheen from platforms are severely limited by the physical conditions of Cook Inlet and are therefore an inconsistent tool with inherent shortcomings.

Response: EPA recognizes that, at times, the physical conditions in Cook Inlet may affect consistent visual monitoring. As set forth in the permit, if conditions do not allow the once per day visual monitoring, the monitoring is not required. EPA believes that the once per day visual monitoring could easily indicate treatment system problems and requires minimal effort and cost.

ATTACHMENT A
Updated Reasonable Potential Analysis for Discharges of Produced Water from Cook Inlet Facilities

EPA has revised the Cook Inlet reasonable potential analysis (RPA) for the final permit based on further review and verification of effluent characterization data. The revised RPA was performed following the methods described in EPA's Technical Support Document for Water Quality-Based Toxics Control (TSD), March 1991. This is the approach that EPA Region 10 generally uses in preparing all NPDES permits. The revised RPA results are presented in Tables A-1 through A-8 (at the end of this attachment). Note that no produced water monitoring data are available for the Granite Point Production Facility. Produced water data from the Granite Point Tank Farm was, therefore, used to characterize produced water discharges from both facilities.

Methods

For each parameter, the maximum *observed* effluent concentration was obtained from the NPDES permit application and effluent monitoring data. The maximum *potential* effluent concentration was then calculated based on the statistical distribution of the observed data. The dilution factor from the mixing zone analysis was then applied to the maximum potential effluent concentration to calculate the maximum potential concentration in the receiving water at the boundary of the mixing zone. Finally, this value was compared to the most stringent applicable water quality standard. If the concentration at the mixing zone boundary exceeds the standard, reasonable potential is shown and effluent limits for the parameter must be included in the permit.

Effluent Monitoring Data: In performing the RPA for the draft permit, EPA relied upon single effluent concentration values that were provided in the dischargers' NPDES permit application. For the updated RPA, these values have been supplemented by data summarized in the *Mixing Zone Application for Cook Inlet Oil and Gas Operations (August 2004, as revised in August 2005)*. Section 2.1 of the document cites the sources of the effluent data as DMRs submitted during the preceding 5 years and effluent monitoring conducted for the NPDES permit application. EPA further supplemented the data by independently reviewing DMRs submitted by the dischargers from December 1998 – December 2003.

EPA used the maximum observed effluent concentrations from the three data sets in preparing the RPA. It was apparent that one value from the NPDES permit application was likely to be an error, 4,800 ug/L copper at Tyonek A. The next lowest reported value for copper was 272 ug/L. This was verified as a typographical mistake and actual value was 4.8 ug/L. The discharger, Conoco Phillips; has submitted an amended NPDES permit application for Tyonek A with the correct value.

Reasonable Potential Multiplier: The TSD recognizes the variability in monitoring data and provides a statistical methodology for determining the maximum *potential* effluent

concentration (in this case, the 99th percentile value) from the *observed* maximum effluent concentration. This involves multiplying the maximum observed effluent concentration by a reasonable potential multiplier, determined using TSD methods.

In preparing the mixing zone application, the dischargers followed the EPA Region 10/TSD methodology to calculate maximum potential effluent concentrations to determine the required mixing zones for each parameter. Using this methodology and the datasets described in the mixing zone application, the multiplier is generally 13.2 for all parameters where only one sample result was reported. For parameters with multiple sample results, the reasonable potential multiplier varies by parameter and facility since it is calculated from the number of samples and the coefficient of variation (CV). As defined in the TSD, the CV "is a standard statistical measure of the relative variation of a distribution or set of data, defined as the standard deviation divided by the mean."

In preparing the updated RPA, EPA used the reasonable potential multipliers calculated by the dischargers in the mixing zone application. EPA independently verified the dischargers' calculations of the CV and reasonable potential multiplier for each parameter and facility. EPA acknowledges that these multipliers do not incorporate all of the effluent data used in the updated analysis (i.e., some DMR data from 1998 and 2003 and the NPDES permit application). EPA has, however, determined that the multipliers are a reasonable approximation particularly for parameters with extended long-term monitoring data.

Dilution Factors: In preparing the updated RPA, EPA used the dilution factors provided in the mixing zone application. Of specific note, for human health standards, the dilution factors were substantially different in the mixing zone application compared to Appendix A of the Fact Sheet for the draft permit. The comparisons are shown in Table A-9.

Table A-9. Comparison of Human Health Dilution Factors

Facility*	**Fact Sheet**	**Mixing Zone Application**	
		Metals	**Organics**
Tyonek A	329	0	0
Bruce	2623	70.6	3.2
Anna	693	72.9	3.2
Granite Point	1638	60.4	5.6
East Foreland	1824	77.9	0
Trading Bay	346	249.5	2.2

*Note: the Fact Sheet and draft permit only addressed produced water discharges from 6 facilities.

The human health dilution factors in Appendix A in the Fact Sheet were incorrect, although the correct dilution factors were listed in Table 4 in the Fact Sheet. Note that for all parameters considered in the updated RPA, the background concentrations have been assumed to be zero.

Applicable Water Quality Standards: The applicable Alaska water quality standards for human health and aquatic life for each parameter were used in the RPA. For metals, the total recoverable standards were applied because the effluent data are available in total/total recoverable form. Note that in the Fact Sheet, total/total recoverable effluent

data were incorrectly compared to the dissolved form of the water quality standards. For the updated RPA, total ammonia effluent data were compared to the total ammonia standards as cited in the mixing zone application. In the Fact Sheet for the draft permit, total ammonia data were compared to the much lower unionized ammonia standards, although effluent limits were only established for total ammonia.

Results

The following list presents the results of the RPA for each facility:

- *Bruce:* Reasonable potential is shown for no parameters
- *Dillon:* Reasonable potential is shown for mercury.
- *Baker:* Reasonable potential is shown for no parameters.
- *Anna:* Reasonable potential is shown for TAH.
- *Tyonek A:* Reasonable potential is shown for manganese.
- *East Forelands:* Reasonable potential is shown for silver.
- *Trading Bay:* Reasonable potential is shown for copper.
- *Granite Point Production Facility and Tank Farm:* Reasonable potential is shown for zinc.

Because of limited data for many parameters for individual facilities, EPA has determined that it is appropriate to include effluent limits at all facilities, where a parameter shows reasonable potential at one or more facilities. This approach was also followed in preparing the draft permit and fact sheet.

In summary, considering all of the facilities, reasonable potential is shown for TAH, copper, mercury, manganese, silver, and zinc, and limits for these parameters have been included in the final permit. In the updated RPA, no reasonable potential is shown for total ammonia, nickel, or TAqH, and effluent limits for these parameters are not included in the final permit. Since ammonia, nickel, and TAqH, were the "driver" parameters for the requested mixing zones at a number of facilities, the final permit requires monthly monitoring for these parameters to further verify no reasonable potential during the next permit reissuance.

Table A-1. Revised Reasonable Potential Analysis for Platform Anna

Parameter	Type	MEC (ug/L)	RP Multiplier	Projected Maximum (ug/L)	Dilution Factor	Mix Zone Concentration (ug/L)	Water Quality Criteria (ug/L)	Reasonable Potential?
1,2-dichlorobenzene	HH	0	13.2	0	3.2	0	17000	No
Acenaphthene	HH	0	13.2	0	3.2	0	2700	No
Ammonia	A	39,000	13.2	514800	34.3	15000	15000	No
Ammonia	C	39,000	13.2	514800	234	2200	2200	No
Anthracene	HH	0	13.2	0	3.2	0	110,000	No
Antimony	HH	0	13.2	0	3.2	0	4300	No
Arsenic	A	28.6	13.2	377.52	599.1	0.63	68.55	No
Arsenic	C	28.6	13.2	377.52	665.6	0.57	36.05	No
Cadmium	A	0.5	4	2	599.1	0	40.28	No
Cadmium	C	0.5	4	2	665.6	0	8.846	No
Chromium	A	14.3	13.2	188.76	599.1	0.32	1079	No
Chromium	C	14.3	13.2	188.76	665	0.28	49.86	No
Copper	A	33	2.4	79.2	599.1	0.13	5.78	No
Copper	C	33	2.4	79.2	665.6	0.12	3.73	No
Lead	A	1.54	13.2	20.328	599.1	0.03	217.16	No
Lead	C	1.54	13.2	20.328	665.6	0.03	8.468	No
Manganese	HH	112	13.2	1478.4	72.9	20.28	100	No
Mercury	A	1.69	2.2	3.718	599.1	0.006	1.8	No
Mercury	C	1.69	2.2	3.718	665.6	0.006	0.94	No
Mercury	HH	1.69	2.2	3.718	72.9	0.051	0.051	No
Nickel	A	3.21	13.2	42.372	599.1	0.07	74.6	No
Nickel	C	3.21	13.2	42.372	665.6	0.06	8.293	No
Nickel	HH	3.21	13.2	42.372	72.9	0.58	4600	No
Phenol	HH	1400	13.2	18480	3.2	5775	4600000	No
Pyrene	HH	0	13.2	0	3.2	0	11000	No
Selenium	A	96.4	13.2	1272.48	599.1	2.12	293.21	No
Selenium	C	96.4	13.2	1272.48	665.6	1.91	71.14	No
Selenium	HH	96.4	13.2	1272.48	72.9	17.46	11000	No
Silver	A	0	13.2	0	599.1	0	2.3	No
TAH	C	124000	1.4	173600	12509	14	10	**YES**
TAqH	C	124260	1.4	173964	12509	14	15	No
Toluene	HH	3300	13.2	43560	3.2	13613	200000	No
Zinc	A	8,260	6.9	56994	599.1	95.1	95.1	No
Zinc	C	8,260	6.9	56994	665.6	85.6	86.14	No
Zinc	HH	8,260	6.9	56994	72.9	781.8	69000	No

C=Chronic, A=Acute, HH=Human Health, MEC=Measured Max. Effluent Concentration, MEC=0 means no detected values
Projected Maximum=Maximum Predicted Effluent Concentration

Table A-2. Revised Reasonable Potential Analysis for Platform Baker

Parameter	Type	MEC (ug/L)	RP Multiplier	Projected Maximum (ug/L)	Dilution Factor	Mix Zone Concentration (ug/L)	Water Quality Criteria (ug/L)	Reasonable Potential?
Ammonia	A	24,000	13.2	316800	21	15000	15000	No
Ammonia	C	24,000	13.2	316800	144	2200	2200	No
Arsenic	A	48.1	13.2	634.92	151	4.20	68.55	No
Arsenic	C	48.1	13.2	634.92	168	3.78	36.05	No
Cadmium	A	1.4	8.7	12.18	151	0.08	40.28	No
Cadmium	C	1.4	8.7	12.18	168	0.07	8.846	No
Chromium	A	4.68	13.2	61.776	151	0.41	1079	No
Chromium	C	4.68	13.2	61.776	168	0.37	49.86	No
Copper	A	2.02	13.2	26.664	151	0.18	5.78	No
Copper	C	2.02	13.2	26.664	168	0.16	3.73	No
Lead	A	0.979	13.2	12.9228	151	0.09	217.16	No
Lead	C	0.979	13.2	12.9228	168	0.08	8.468	No
Manganese	HH	492	13.2	6494.4	70	92.78	100	No
Mercury	A	0.23	1.7	0.391	151	0.003	1.8	No
Mercury	C	0.23	1.7	0.391	168	0.002	0.94	No
Mercury	HH	0.23	1.7	0.391	70	0.006	0.051	No
Nickel	A	26.7	13.2	352.44	151	2.33	74.6	No
Nickel	C	26.7	13.2	352.44	168	2.10	8.293	No
Nickel	HH	26.7	13.2	352.44	70	5.03	4600	No
Phenol	HH	250	13.2	3300	2.5	1320	4600000	No
Selenium	A	103	13.2	1359.6	151	9.00	293.21	No
Selenium	C	103	13.2	1359.6	168	8.09	71.14	No
Selenium	HH	103	13.2	1359.6	70	19.42	11000	No
TAH	C	11870	13.2	156684	15668	10	10	No
TAqH	C	11926	13.2	157423.2	15668	10	15	No
Toluene	HH	3,100	13.2	40920	2.5	16000	200000	No
Zinc	A	8,000	1.8	14400	151	95.4	95	No
Zinc	C	8,000	1.8	14400	168	85.7	86.14	No
Zinc	HH	8,000	1.8	14400	70	205.7	69000	No

C=Chronic, A=Acute, HH=Human Health, MEC=Measured Max. Effluent Concentration, MEC=0 means no detected values
Projected Maximum=Maximum Predicted Effluent Concentration

Table A-3. Revised Reasonable Potential Analysis for Platform Bruce

Parameter	Type	MEC (ug/L)	RP Multiplier	Projected Maximum (ug/L)	Dilution Factor	Mix Zone Concentration (ug/L)	Water Quality Criteria (ug/L)	Reasonable Potential?
1,2-dichlorobenzene	HH	0	13.2	0	7.5	0	17000	No
Acenaphthene	HH	0	13.2	0	7.5	0	2700	No
Ammonia	A	18,000	13.2	237600	15.8	15000	15000	No
Ammonia	C	18,000	13.2	237600	108	2200	2200	No
Anthracene	HH	0	13.2	0	7.5	0	110,000	No
Antimony	HH	1.22	13.2	16.104	7.5	2.15	4300	No
Arsenic	A	45.9	13.2	605.88	496	1.22	68.55	No
Arsenic	C	45.9	13.2	605.88	550.7	1.10	36.05	No
Cadmium	A	1.2	6	7.2	496	0.01	40.28	No
Cadmium	C	1.2	6	7.2	550.7	0.01	8.846	No
Chromium	A	11.1	13.2	146.52	496	0.30	1079	No
Chromium	C	11.1	13.2	146.52	550.7	0.27	49.86	No
Copper	A	9.29	13.2	122.628	496	0.25	5.78	No
Copper	C	9.29	13.2	122.628	550.7	0.22	3.73	No
Lead	A	1.55	13.2	20.46	496	0.04	217.16	No
Lead	C	1.55	13.2	20.46	550.7	0.04	8.468	No
Manganese	HH	63.1	13.2	832.92	70.6	11.80	100	No
Mercury	A	0.8	4.5	3.6	496	0.007	1.8	No
Mercury	C	0.8	4.5	3.6	550.7	0.007	0.94	No
Mercury	HH	0.8	4.5	3.6	70.6	0.051	0.051	No
Nickel	A	3.03	13.2	39.996	496	0.08	74.6	No
Nickel	C	3.03	13.2	39.996	550.7	0.07	8.293	No
Nickel	HH	3.03	13.2	39.996	70.6	0.57	4600	No
Phenol	HH	950	13.2	12540	7.5	1672	4600000	No
Pyrene	HH	0	13.2	0	7.5	0	11000	No
Selenium	A	75.5	13.2	996.6	496	2.01	293.21	No
Selenium	C	75.5	13.2	996.6	550.7	1.81	71.14	No
Selenium	HH	75.5	13.2	996.6	70.6	14.12	11000	No
Silver	A	5	2.2	11	496	0.022	2.3	No
TAH	C	65500	1.4	91700	9170	10	10	No
TAqH	C	8369	13.2	110470.8	9170	12	15	No
Toluene	HH	2700	13.2	35640	7.5	4752	200000	No
Zinc	A	20,500	2.3	47150	496	95.1	95.1	No
Zinc	C	20,500	2.3	47150	550.7	85.6	86.14	No
Zinc	HH	20,500	2.3	47150	70.6	667.8	69000	No

C=Chronic, A=Acute, HH=Human Health, MEC=Measured Max. Effluent Concentration, MEC=0 means no detected values
Projected Maximum=Maximum Predicted Effluent Concentration

Table A-4. Revised Reasonable Potential Analysis for Platform Dillon

Parameter	Type	MEC (ug/L)	RP Multiplier	Projected Maximum (ug/L)	Dilution Factor	Mix Zone Concentration (ug/L)	Water Quality Criteria (ug/L)	Reasonable Potential?
Cadmium	A	2.1	8.1	17.01	24	0.71	40.28	No
Cadmium	C	2.1	8.1	17.01	26	0.65	8.846	No
Copper	A	5.6	2.5	14	24	0.58	5.78	No
Copper	C	5.6	2.5	14	26	0.54	3.73	No
Lead	A	50	3.4	170	24	7.08	217.16	No
Lead	C	50	3.4	170	26	6.54	8.468	No
Mercury	A	0.4	3.2	1.28	24	0.053	1.8	No
Mercury	C	0.4	3.2	1.28	26	0.049	0.94	No
Mercury	HH	0.4	3.2	1.28	22	0.058	0.051	**YES**
TAH	C	28220	1.2	33864	3386	10	10	No
TAqH	C	28647	1.2	34376.4	3386	10	15	No
Zinc	A	1,400	1.6	2240	24	93.3	95.1	No
Zinc	C	1,400	1.6	2240	26	86.0	86	No
Zinc	HH	1,400	1.6	2240	22	101.8	69000	No

C=Chronic, A=Acute, HH=Human Health, MEC=Measured Max. Effluent Concentration, MEC=0 means no detected values
Projected Maximum=Maximum Predicted Effluent Concentration

Table A-5. Revised Reasonable Potential Analysis for East Forelands Production Facility

Parameter	Type	MEC (ug/L)	RP Multiplier	Projected Maximum (ug/L)	Dilution Factor	Mix Zone Concentration (ug/L)	Water Quality Criteria (ug/L)	Reasonable Potential?
1,2-dichlorobenzene	HH	0	13.2	0	1	0	17000	No
Acenaphthene	HH	0	13.2	0	1	0	2700	No
Ammonia	A	1,790	13.2	23628	1.6	15000	15000	No
Ammonia	C	1,790	13.2	23628	11	2100	2200	No
Anthracene	HH	7900	13.2	104280	1	104000	110,000	No
Antimony	HH	40	13.2	528	77.9	6.78	4300	No
Arsenic	A	181	2.4	434.4	64.6	6.72	68.55	No
Arsenic	C	181	2.4	434.4	55.1	7.88	36.05	No
Cadmium	A	2	13.2	26.4	64.6	0.41	40.28	No
Cadmium	C	2	13.2	26.4	55.1	0.48	8.846	No
Chromium	A	40	13.2	528	64.6	8.17	1079	No
Chromium	C	40	13.2	528	55.1	9.58	49.86	No
Copper	A	31	2.9	89.9	64.6	1.39	5.78	No
Copper	C	31	2.9	89.9	55.1	1.63	3.73	No
Lead	A	120	3.4	408	64.6	6.32	217.16	No
Lead	C	120	3.4	408	55.1	7.40	8.468	No
Manganese	HH	590	13.2	7788	77.9	99.97	100	No
Mercury	A	0.46	1.7	0.782	64.6	0.012	1.8	No
Mercury	C	0.46	1.7	0.782	55.1	0.014	0.94	No
Mercury	HH	0.46	1.7	0.782	77.9	0.010	0.051	No
Nickel	A	0	13.2	0	64.6	0	74.6	No
Nickel	C	0	13.2	0	55.1	0	8.293	No
Nickel	HH	0	13.2	0	77.9	0	4600	No
Phenol	HH	0	13.2	0	1	0	4600000	No
Pyrene	HH	0	13.2	0	1	0	11000	No
Selenium	A	297	13.2	3920.4	64.6	60.69	293.21	No
Selenium	C	297	13.2	3920.4	55.1	71.15	71.14	No
Selenium	HH	297	13.2	3920.4	77.9	50.33	11000	No
Silver	A	54	3.8	205.2	64.6	3.18	2.3	**YES**
TAH	C	21300	1.2	25560	2556	10	10	No
TAqH	C	21714	1.2	26056.8	2556	10	15	No
Toluene	HH	4.7	13.2	62.04	1	62	200000	No
Zinc	A	80	13.2	1056	64.6	16.35	95.1	No
Zinc	C	80	13.2	1056	55.1	19.17	86.14	No
Zinc	HH	80	13.2	1056	77.9	13.56	69000	No

C=Chronic, A=Acute, HH=Human Health, MEC=Measured Max. Effluent Concentration, MEC=0 means no detected values
Projected Maximum=Maximum Predicted Effluent Concentration

Table A-6. Revised Reasonable Potential Analysis for Granite Point Production Facility and Tank Farm

Parameter	Type	MEC (ug/L)	RP Multiplier	Projected Maximum (ug/L)	Dilution Factor	Mix Zone Concentration (ug/L)	Water Quality Criteria (ug/L)	Reasonable Potential?
1,2-dichlorobenzene	HH	0	13.2	0	5.6	0	17000	No
Acenaphthene	HH	0	13.2	0	5.6	0	2700	No
Ammonia	A	15,000	13.2	198000	13.2	15000	15000	No
Ammonia	C	15,000	13.2	198000	90	2200	2200	No
Anthracene	HH	0	13.2	0	5.6	0	110,000	No
Antimony	HH	1.64	13.2	21.648	60.4	0.36	4300	No
Arsenic	A	58.6	13.2	773.52	32.2	24.02	68.55	No
Arsenic	C	58.6	13.2	773.52	35.9	21.55	36.05	No
Cadmium	A	1.1	7.4	8.14	32.2	0.25	40.28	No
Cadmium	C	1.1	7.4	8.14	35.9	0.23	8.846	No
Chromium	A	12.1	13.2	159.72	32.2	4.96	1079	No
Chromium	C	12.1	13.2	159.72	35.9	4.45	49.86	No
Copper	A	50	2.6	130	32.2	4.04	5.78	No
Copper	C	50	2.6	130	35.9	3.62	3.73	No
Lead	A	32	2.3	73.6	32.2	2.29	217.16	No
Lead	C	32	2.3	73.6	35.9	2.05	8.468	No
Manganese	HH	195	13.2	2574	60.4	42.62	100	No
Mercury	A	1.4	2.2	3.08	32.2	0.096	1.8	No
Mercury	C	1.4	2.2	3.08	35.9	0.086	0.94	No
Mercury	HH	1.4	2.2	3.08	60.4	0.051	0.051	No
Nickel	A	13.3	13.2	175.56	32.2	5.45	74.6	No
Nickel	C	13.3	13.2	175.56	35.9	4.89	8.293	No
Nickel	HH	13.3	13.2	175.56	60.4	2.91	4600	No
Phenol	HH	910	13.2	12012	5.6	2145	4600000	No
Pyrene	HH	0	13.2	0	5.6	0	11000	No
Selenium	A	95.3	13.2	1257.96	32.2	39.07	293.21	No
Selenium	C	95.3	13.2	1257.96	35.9	35.04	71.14	No
Selenium	HH	95.3	13.2	1257.96	60.4	20.83	11000	No
Silver	A	1.92	13.2	25.344	32.2	0.79	2.3	No
TAH	C	16840	1.2	20208	7756	3	10	No
TAqH	C	8814	13.2	116344.8	7756	15	15	No
Toluene	HH	2800	13.2	36960	5.6	6600.000	200000	No
Zinc	A	233	13.2	3075.6	32.2	95.5	95.1	**YES**
Zinc	C	233	13.2	3075.6	35.9	85.7	86.14	No
Zinc	HH	233	13.2	3075.6	60.4	50.9	69000	No

C=Chronic, A=Acute, HH=Human Health, MEC=Measured Max. Effluent Concentration, MEC=0 means no detected values
Projected Maximum=Maximum Predicted Effluent Concentration

Table A-7. Revised Reasonable Potential Analysis for Trading Bay Production Facility

Parameter	Type	MEC (ug/L)	RP Multiplier	Projected Maximum (ug/L)	Dilution Factor	Mix Zone Concentration (ug/L)	Water Quality Criteria (ug/L)	Reasonable Potential?
1,2-dichlorobenzene	HH	0	13.2	0	2.2	0	17000	No
Acenaphthene	HH	0	13.2	0	2.2	0	2700	No
Ammonia	A	12,000	13.2	158400	10.6	15000	15000	No
Ammonia	C	12,000	13.2	158400	72	2200	2200	No
Anthracene	HH	0	13.2	0	2.2	0	110,000	No
Antimony	HH	0	13.2	0	249.5	0	4300	No
Arsenic	A	71.6	13.2	945.12	20.3	46.56	68.55	No
Arsenic	C	71.6	13.2	945.12	183.3	5.16	36.05	No
Cadmium	A	0.6	4.5	2.7	20.3	0.13	40.28	No
Cadmium	C	0.6	4.5	2.7	183.3	0.01	8.846	No
Chromium	A	6.1	13.2	80.52	20.3	3.97	1079	No
Chromium	C	6.1	13.2	80.52	183.3	0.44	49.86	No
Copper	A	103	2	206	20.3	10.15	5.78	**YES**
Copper	C	103	2	206	183.3	1.12	3.73	No
Lead	A	200	2.6	520	20.3	25.62	217.16	No
Lead	C	200	2.6	520	183.3	2.84	8.468	No
Manganese	HH	1890	13.2	24948	249.5	99.99	100	No
Mercury	A	0.35	2.7	0.945	20.3	0.047	1.8	No
Mercury	C	0.35	2.7	0.945	183.3	0.005	0.94	No
Mercury	HH	0.35	2.7	0.945	249.5	0.004	0.051	No
Nickel	A	115	13.2	1518	20.3	74.78	75	No
Nickel	C	115	13.2	1518	183.3	8.28	8.293	No
Nickel	HH	115	13.2	1518	249.5	6.08	4600	No
Phenol	HH	280	13.2	3696	2.2	1680	4600000	No
Pyrene	HH	0	13.2	0	2.2	0	11000	No
Selenium	A	276	13.2	3643.2	20.3	179.47	293.21	No
Selenium	C	276	13.2	3643.2	183.3	19.88	71.14	No
Selenium	HH	276	13.2	3643.2	249.5	14.60	11000	No
Silver	A	1.44	13.2	19.008	20.3	0.94	2.3	No
TAH	C	16420	1.2	19704	1970	10	10	No
TAqH	C	17126	1.2	20551.2	1970	10	15	No
Toluene	HH	740	13.2	9768	2.2	4440	200000	No
Zinc	A	6.9	13.2	91.08	20.3	4.5	95.1	No
Zinc	C	6.9	13.2	91.08	183.3	0.5	86.14	No
Zinc	HH	6.9	13.2	91.08	249.5	0.4	69000	No

C=Chronic, A=Acute, HH=Human Health, MEC=Measured Max. Effluent Concentration, MEC=0 means no detected values
Projected Maximum=Maximum Predicted Effluent Concentration

Table A-8. Revised Reasonable Potential Analysis for Tyonek A

Parameter	Type	MEC (ug/L)	RP Multiplier	Projected Maximum (Ug/L)	Dilution Factor	Mix Zone Concentration (ug/L)	Water Quality Criteria (ug/L)	Reasonable Potential?
1,2-dichlorobenzene	HH	3.8	4.4	16.72	1	17	17000	No
Acenaphthene	HH	9.6	6.9	66.24	1	66	2700	No
Ammonia	A	6,100	4.2	25620	1.7	15000	15000	No
Ammonia	C	6,100	4.2	25620	11.8	2100	2200	No
Anthracene	HH	4.9	6.4	31.36	1	31	110,000	No
Antimony	HH	0	13.2	0	1	0	4300	No
Arsenic	A	372	3.7	1376.4	178.7	7.70	68.55	No
Arsenic	C	372	3.7	1376.4	276.7	4.97	36.05	No
Cadmium	A	1	13.2	13.2	178.7	0.07	40.28	No
Cadmium	C	1	13.2	13.2	276.7	0.05	8.846	No
Chromium	A	3.53	13.2	46.596	178.7	0.26	1079	No
Chromium	C	3.53	13.2	46.596	276.7	0.17	49.86	No
Copper	A	272	3.8	1033.6	178.7	5.78	5.78	No
Copper	C	272	3.8	1033.6	276.7	3.73	3.73	No
Lead	A	50	3.7	185	178.7	1.04	217.16	No
Lead	C	50	3.7	185	276.7	0.67	8.468	No
Manganese	HH	1000	13.2	13200	1	13200	100	**YES**
Mercury	A	0	13.2	0	178.7	0	1.8	No
Mercury	C	0	13.2	0	276.7	0	0.94	No
Mercury	HH	0	13.2	0	1	0	0.051	No
Nickel	A	80	13.2	1056	178.7	5.91	74.6	No
Nickel	C	80	13.2	1056	276.7	3.82	8.293	No
Nickel	HH	80	13.2	1056	1	1056.00	4600	No
Phenol	HH	250	13.2	3300	1	3300	4600000	No
Pyrene	HH	1.7	4.4	7.48	1	7.48	11000	No
Selenium	A	20	13.2	264	178.7	1.48	293.21	No
Selenium	C	20	13.2	264	276.7	0.95	71.14	No
Selenium	HH	20	13.2	264	1	264.00	11000	No
Silver	A	0	13.2	0	178.7	0	2.3	No
TAH	C	63.85	2.2	140.47	175.6	1	10	No
TAqH	C	1013	2.6	2633.8	175.6	15	15	No
Toluene	HH	3100	1.9	5890	1	5890	200000	No
Zinc	A	5	13.2	66	178.7	0.4	95.1	No
Zinc	C	5	13.2	66	276.7	0.2	86.14	No
Zinc	HH	5	13.2	66	1	66.0	69000	No

C=Chronic, A=Acute, HH=Human Health, MEC=Measured Max. Effluent Concentration, MEC=0 means no detected values
Projected Maximum=Maximum Predicted Effluent Concentration

ATTACHMENT B
Calculation of Revised Permit Limits for Discharges of Produced Water from Cook Inlet Facilities

Based on the results of the updated RPA as discussed in Attachment A, EPA has calculated revised water quality-based final permit limits for discharges of produced water from 9 facilities in Cook Inlet. Limits were determined for the individual parameters that show reasonable potential, i.e., TAH, copper, manganese, mercury, silver, and zinc and for WET.

As documented in the fact sheet, the limits in the draft permit were calculated using best professional judgment (BPJ), i.e., by applying the most stringent criteria at the boundary of the mixing zone and then back-calculating the maximum daily effluent limits (MDELs) based on the available dilution. In the draft permit, the average monthly effluent limits (AMELs) were then set at two-thirds of the MDELs. For the final permit, revised limits were initially calculated following the methods EPA Region 10 typically uses in preparing all NPDES permits, i.e., the statistical approach recommended in the TSD. Similar to the RPA, EPA verified and used the coefficient of variation (CV) values and dilution factors provided by the dischargers in their mixing zone application.

As discussed in the dischargers' mixing zone application, the dilution factors for each category of parameter were established based on the parameter requiring the largest dilution to meet the water quality standard at the mixing zone boundary (the "driver" parameter). This results in requested mixing zones for "non-driver" parameters that are larger than necessary. In order to limit the size of mixing zones, EPA has established the MDELs for non-driver parameters at the maximum projected effluent concentration where there are sufficient data to be confident that the maximum projected effluent concentration represents the upper endpoint of the concentration range (e.g., more than one datapoint). The maximum projected effluent concentrations for all parameters and facilities are shown in Tables A-1 through A-8 in Attachment A. Based on BPJ, the AMELs for non-driver parameters were then calculated as two-thirds of the MDELs, except for copper at the Granite Point Treatment Facility and Tank Farm. For the Granite Point facilities, the AMEL calculated using the TSD methodology is lower than two-thirds of the MDEL based on the maximum projected effluent concentration. The TSD-based AMEL is, therefore, included in the final permit.

The revised permit limits are summarized in Tables B-1-8: The permit limits based on MECs are highlighted.

Table B-1. Permit Limits for Anna

Facility	Average Monthly Limit	Daily Maximum Limit
Copper (ug/L)	53	79
Manganese (mg/L)	7.4	14.8
Mercury (ug/L)	3.8	9.5
Silver (ug/L)	687	1378
Zinc (mg/L)	22	57
TAH (mg/L)	109	183
WET (TUc)	574	1152

Table B-2. Permit Limits for Baker

Facility	Average Monthly Limit	Daily Maximum Limit
Copper (ug/L)	435	873
Manganese (mg/L)	7.1	14.2
Mercury (ug/L)	0.3	0.4
Silver (ug/L)	173	347
Zinc (mg/L)	6.7	14.3
TAH (mg/L)	128	257
WET (TUc)	172	345

Table B-3. Permit Limits for Bruce

Facility	Average Monthly Limit	Daily Maximum Limit
Copper (ug/L)	1429	2867
Manganese (mg/L)	7.2	14.4
Mercury (ug/L)	3.7	9.2
Silver (ug/L)	7.3	11.0
Zinc (mg/L)	28	47
TAH (mg/L)	78	143
WET (TUc)	2149	4312

Table B-4. Permit Limits for Dillon

Facility	Average Monthly Limit	Daily Maximum Limit
Copper (ug/L)	9.3	14.0
Manganese (mg/L)	2.3	4.6
Mercury (ug/L)	1.2	2.5
Silver (ug/L)	28	55
Zinc (mg/L)	1.2	2.3
TAH (mg/L)	31	42
WET (TUc)	293	588

Table B-5. Permit Limits for East Foreland

Facility	Average Monthly Limit	Daily Maximum Limit
Copper (ug/L)	60	90
Manganese (mg/L)	7.9	15.8
Mercury (ug/L)	0.5	0.8
Silver (ug/L)	46	149
Zinc (mg/L)	3.1	6.1
TAH (mg/L)	24	32
WET (TUc)	1209	2425

Table B-6. Permit Limits for Granite Treatment Facility and Platform (2 Facilities)

Facility	Average Monthly Limit	Daily Maximum Limit
Copper (ug/L)	67	130
Manganese (mg/L)	6.1	12.3
Mercury (ug/L)	3.1	7.9
Silver (ug/L)	37	74
Zinc (mg/L)	1.5	3.1
TAH (mg/L)	14	20
WET (TUc)	1341	2691

Table B-7. Permit Limits for Tyonek A

Facility	Average Monthly Limit	Daily Maximum Limit
Copper (ug/L)	328	1033
Manganese (mg/L)	0.1	0.2
Mercury (ug/L)	0.05	0.10
Silver (ug/L)	205	411
Zinc (mg/L)	8.4	17.0
TAH (mg/L)	0.09	0.14
WET (TUc)	268	537

Table B-8. Permit Limits for Trading Bay

Facility	Average Monthly Limit	Daily Maximum Limit
Copper (ug/L)	47	117
Manganese (mg/L)	25	50
Mercury (ug/L)	0.6	1.0
Silver (ug/L)	23	47
Zinc (mg/L)	0.9	1.9
TAH (mg/L)	18	27
WET (TUc)	283	568