

RESPONSE TO COMMENTS

For

**PRELIMINARY FINAL NATIONAL POLLUTANT
DISCHARGE ELIMINATION SYSTEM PERMIT**

RESPONSE TO COMMENTS

Comment F260-1: All non-hazardous fluids collected in the surface runoff sumps will be disposed of in a Class I, Industrial disposal well.

Response: The project proponent has redesigned Seal Island's surface drainage system so that runoff water previously proposed to be marine discharged will now be disposed down the Class I industrial disposal well. Hence, the previously proposed Outfalls 003 and 004 are no longer required and have been deleted from the Final NPDES Permit (AK-0052779). As noted in Response to Comment F357-6, discharge of surface and deck drainage is not authorized by this Final NPDES Permit under any conditions. Moreover, the Final UIC Permit (AK-11002-A) includes surface and deck drainage as a waste stream.

Comment F260-2: Outfalls 003, 004, and 006 are no longer required. BPXA requests all language, conditions, requirements, and stipulations related to these outfalls in the Draft NPDES' Permit be deleted.

Response: The project proponent has redesigned Seal Island's surface and deck drainage system so that Outfalls 003 and 004 are no longer required. In addition, the seawater treatment plant proposed for a waterflood enhanced oil recovery option is no longer proposed, thereby eliminating Outfall 006.

The EPA agrees that permit requirements associated only with Outfalls 003, 004, and/or 006 can be removed from the Final NPDES Permit (AK-0052779). Please see Response to Comments F357-6 through F357-13 for details.

Comment F357-1: BPXA requests that monitoring related to Outfalls 003, 004, and 006 be deleted from the Final NPDES Permit.

Response: The EPA agrees that monitoring requirements specifically associated only with Outfalls 003, 004, and 006 can be removed from the NPDES permit. In particular, this includes, for Outfalls 003, 004, and 006, the removal of end-of-pipe limitations and monitoring requirements from Section I of the Final NPDES Permit, and removal of Whole Effluent Toxicity (WET) testing from Section III.A.

A Turbidity Mixing Zone Compliance Study, and an Ambient Solids Monitoring, are also deleted from the permit. Moreover, both receiving water monitoring and sediment monitoring requirements are reduced, primarily in the number of monitoring stations employed and test analytes. Please see Response to Comments F357-9 through F357-13 for additional details.

Comment F357-2: A continuously moving stream of seawater within the seawater intake system provides a representative ambient seawater temperature. Since other permitted North Slope seawater treatment plants document ambient seawater temperatures similarly, BPXA requests that ambient seawater temperature measurements be taken from the seawater intake system, and that a requirement to measure such temperatures from the upcurrent side of Seal Island be deleted from the NPDES permit.

Response: Outfall 001 - Ambient Temperatures: Alaska Water Quality Standards require that a discharge not increase the receiving water temperature by more than 1 degree C (weekly average) or by 0.5 degrees C per hour. In the event a discharge warms its receiving water above these limits, a mixing zone is generally required. Moreover, the effluent temperature limitations are determined in such a manner that the receiving waters beyond a prescribed mixing zone remain within Alaska Water Quality Standards with respect to temperature. This requires that the difference between ambient water and effluent temperatures remain within a prescribed limit. Hence, knowledge of the ambient water temperature is required.

The Comment requests that the ambient water temperature be measured at a location within the seawater intake structure. However, of the expected 40,500 gallons per day entering the seawater intake structure for Northstar during winter, an average 37,440 gallons per day will be heated and recirculated into the intake sump to control ice formation. From information provided by the project proponent (BPXA), the temperature probe in the seawater intake system is downstream of the recirculation system. Hence, the temperature probe cannot be used to collect ambient water temperature data for NPDES permit monitoring.

The project proponent was advised of the above rationale eliminating the proposed use of the seawater intake system temperature probe. The project proponent subsequently proposed no other alternative method for establishing ambient water temperatures; hence, the requirement of monitoring ambient water temperature by a temperature probe upcurrent of the island remains in the NPDES Permit (Footnote #3 of Table 2, Final NPDES Permit, AK-0052779).

Comment F357-3: To prevent any confusion concerning the minimum detection limit and compliance evaluation level for TRC, it is suggested that a discussion from the NPDES Fact Sheet on limits and compliance evaluation levels replace Note 2 of Table 2 provided in the Draft NPDES Permit.

Response: Outfall 001 - Total Residual Chlorine (TRC): The EPA disagrees that inclusion of a discussion of detection limits and derivation of the compliance level for TRC would clarify the permit. Discussion of derivation of the limits and compliance evaluation levels is appropriate for the Fact Sheet, but not for inclusion in the permit. It is EPA Region 10 policy to include the actual limitations in the permit, along with a note explaining that the limitation is below the detection limit and, therefore, the EPA will use a specified value for determination of compliance. If additional information is needed, the reader can consult the Fact Sheet, which is available in the administrative record. The footnote to the table will appear in the Final NPDES Permit (AK-0052779) as it was proposed.

Comment F357-4: Permitted fire water test discharges at a similar facility indicate that discharges are unlikely to impact the surrounding seafloor. It is requested that depth restrictions for Outfall 002 be removed from the NPDES Permit.

Response: Outfall 002 - Fire Test Water, Effluent Limitations on Water Depth: The fire test discharge(s) for Outfall 002 is sprayed into the air before entering the surface of the Beaufort Sea. Because these discharges will either enter waters above the island's gravel berm or armor mat, or into water with depths of over 20 feet, these discharges are not expected to disturb seabed sediments. The draft condition "The Outfall shall be discharged into the surface of marine water *with depth of at least 23 feet (7 meters [m]).*"

is replaced in the Final NPDES Permit (Paragraphs I.B.1, Final NPDES Permit, AK-0052779) with “The Outfall shall be discharged into the surface of marine water.”

Comment F357-5: It is requested that fire water test discharge flow rates be determined by the design pump rating and the duration of use, rather than the flow measurement requirement in the Draft NPDES Permit.

Response: Outfall 002 - Fire Test Water, Effluent Limitations on Flow Rate: The project proponent has specified using pumps for the fire suppression system rated at 3,000 gallons per minute per pump. Given the maturity of pump design technology, it is reasonable to assume that such a pump’s maximum output will be close to its design specification in an unloaded setting. Downstream of the pump used for the fire test will be pipelines with elbows, hydrants and monitors (water canons) and, possibly, hoses and nozzles, all of which contribute to pressure losses. Hence, any exceedances in discharge flow rate above that specified for the pump will be small, if any at all. The draft requirement to employ a calibrated flow measurement device approved in advance by the EPA in consultation with ADEC, and accurate to within plus/minus 5% of actual flow, is replaced in the Final NPDES Permit with a requirement to employ a pump with a maximum estimated flow rate of 3,000 gallons per minute and to provide a method for estimating discharge rate. This method will be specified in the Best Management Practices (BMP) Plan developed for this discharge. If the method proposed is deemed unacceptable by the EPA, the BMP would not be approved. This estimate is required only for the first test and assumes that subsequent annual tests do not employ systems and/or procedures different from those described in the BMP. (Parts I.B.2 and II.E.5, Final NPDES Permit, AK-0052779).

Comment F357-6: Since improved designs eliminate the effluent discharges from Outfalls 003 and 004, BPXA will no longer address any requirements associated with these deleted outfalls. Therefore, all references and requirements pertaining to Outfalls 003 and 004 should be removed from the Northstar NPDES Permit.

Response: Outfalls 003 and 004 – Surface Drainage: The project proponent has eliminated all marine discharges of surface and deck drainages; such drainages will be disposed of via the Underground Injection Control (UIC) well. Permitting limitations and stipulations for these drainages will be set forth in the UIC Permit. Because these drainages will not be marine discharged, they are not limited or monitored by the Final NPDES Permit (AK-0052779). Discharge of surface and deck drainage is not authorized by this permit under any conditions. Snow inspection and disposal practices are required in the final permit under the BMP section as proposed (Part II.E.7, Final NPDES Permit, AK-0052779).

Comment F357-7: It is requested that the proposed continuous flow rate monitoring for the construction dewatering activities be determined by the design pump rating and the duration of use.

Response: Outfall 005 – Construction Dewatering Flow Rate: The project proponent has specified using pumps for construction dewatering rated at 650 gallons per minute per pump. Given the maturity of pump design technology, it is reasonable to assume that such a pump’s maximum output will be close to the design specification in an unloaded setting. Downstream of a pump used for construction dewatering will be hoses, nozzles, and diffusers, all of which contribute to pressure losses. Hence, any exceedances

in discharge flow rate above that specified for a pump will be small, if any at all. The draft requirement to monitor flow rates continuously by metered recording is deleted and replaced by a requirement to maintain a temporal log of the number and type of pumps in operation. From this log, the project operator will generate a record of estimated discharge rates. The estimated discharge rates will be based on the number of pumps in use and the estimated pump rate per pump (Part I.C, Final NPDES Permit, AK-0052779).

Comment F357-8: Because improved designs eliminate the effluent discharge from Outfall 006, BPXA requests that all references and requirements pertaining to Outfall 006 be removed from the Northstar NPDES Permit.

Response: Outfall 006 – Waterflood Seawater Treatment Plant Discharge: The project proponent has eliminated the seawater treatment plant that had been proposed for enhanced oil recovery by waterflooding the oil-bearing formation. By the elimination of this treatment plant, the Final NPDES Permit (AK-0052779) will not include any limitations or stipulations for this deleted discharge.

Comment F357-9: Whole Effluent Toxicity (WET) monitoring requirements should apply only to Outfall 001 in the Northstar NPDES Permit, due to the withdrawal of Outfalls 003, 004, and 006.

Response: Whole Effluent Toxicity Monitoring: With the elimination of Outfalls 003, 004, and 006, the WET testing requirements will apply to effluent from Outfall 001 only. Per requirement of the State 401 certification, the requirement that WET testing be conducted when Outfall 001b is in operation was added to the final permit. (Part III.A, Final NPDES Permit, AK-0052779).

Comment F357-10: It is requested that the receiving water monitoring apply only to Outfall 001, and only be applicable in the area of the 5-meter mixing zone as established in the ADEC Mixing Zone Determination for Outfall 001.

Response: Receiving Water Monitoring: With the deletion of Outfalls 003, 004, and 006, the number of receiving water monitoring stations can be reduced. In addition, pollutants associated solely with these deleted outfalls can be eliminated from the list of items to be tested per the draft monitoring program. In particular, 10 of the 18 water monitoring stations prescribed in the Draft NPDES Permit have been eliminated. The remaining monitoring stations set forth in the permit include three on the edge of the 5 meter radius mixing zone centered on Outfall 001, three at a distance of 10 meters from Outfall 001, and two within 100 meters of the island (one east and one west of the island). The latter two will provide characterization of the receiving water and were selected to ensure at least one upcurrent monitoring station relative to the island; the first six stations will provide data on receiving water dilution of Outfall 001 discharges. In addition, the draft list of constituents to be tested for in the collected water samples has been reduced with the elimination of total aqueous hydrocarbons (TAqH) and turbidity. The primary sources for these particular two potential pollutants were Outfalls 003 and 004, and Outfall 006, respectively, which have been deleted from the proposed project. (Part III.B.3, Final NPDES Permit, AK-0052779).

Comment F357-11: The Turbidity Mixing Zone requirement is no longer necessary with deletion of

Outfall 006 and should be removed from the Northstar NPDES Permit.

Response: Turbidity Mixing Zone Compliance Study: The purpose of this study was to assess, by sample collection, the ability of a 10-meter radius mixing zone to dilute turbid discharges from Outfall 006. The EPA concurs with the comment in that, with the elimination of Outfall 006, the draft Turbidity Mixing Zone Compliance Study (Part III.B.3 of the Draft NPDES Permit) is no longer required and has been deleted from the Final NPDES Permit (AK-0052779).

Comment F357-12: The Draft NPDES Permit incorrectly requires monitoring for Outfall 001 when it is only applicable to Outfall 006. Monitoring is no longer necessary with the deletion of Outfall 006.

Response: Ambient Solids Monitoring: The purpose of this study was to establish ambient total suspended solids (TSS) and turbidity levels near Seal Island. The comment is incorrect in stating that “The draft NPDES permit incorrectly states that this requirement applies to Outfall 001”; the Draft NPDES Permit text (Part III.B.4, Draft NPDES Permit) only states that this monitoring program should commence with the initial discharge of Outfall 001. The intent was to start this monitoring program as early as possible in order to establish baseline data on ambient TSS and turbidity levels. The commencement of discharges from Outfall 001 was viewed as a convenient indicator of initial facility operations. The results of this study would be employed in that portion of the analysis specified in draft SubPart III.B.6(3) (an interpretative summary) of the Draft NPDES Permit when addressing discharges from Outfall 006.

The Comment is correct in that a draft Ambient Solids Monitoring study is no longer required because of the deletion of Outfall 006; this study is, therefore, eliminated from the Final NPDES Permit (AK-0052779).

Comment F357-13: The sediment monitoring program should be removed from the Northstar NPDES Permit, since it specifically applies to the withdrawn Outfalls 003, 004, and 006.

Response: Sediment Monitoring: The Comment suggests that Outfalls 003, 004, and 006 are the sole reasons sediment monitoring is required and should, therefore, be deleted with the elimination of these outfalls. However, even with the elimination of these three outfalls, the pristine nature of the receiving waters, the subsistence lifestyle of local residents, and the fact that the proposed development is the first of its kind in the Beaufort Sea warrant some sediment monitoring near the end of the facility where the remaining primary discharges will occur (i.e., the south end of the island near Outfall 001). Sediment sampling will monitor pollutants that could be present from the result of permitted activities (snow removal and Outfall 001) as well as pollutants that are generally associated with an oil production facility and could be present due to improper design or improper operation. By conducting sediment sampling prior to and after operation of the facility, sediment sampling can provide an indication of impact on the environment. This information could influence future NPDES permit decisions.

The draft sediment monitoring program specified in the Draft NPDES Permit required annual sampling for 5 years at 18 sediment sampling stations. With the deletion of Outfalls 003, 004, and 006, the flux of possible pollutants to the sediments will occur much slower, if at all, and hence the sediment monitoring

program can be reduced from the program proposed in the draft NPDES permit. The sediment monitoring program in the final permit will include sediment sampling and analysis prior to island reconstruction, during the first year of operation of outfall 001, and during the last year of the permit term. In addition, with the elimination of Outfalls 003, 004, and 006, only two monitoring stations are required, one to the southeast and one to the southwest of Outfall 001. Last, with the deletion of Outfalls 003 and 004, several of the metals associated with an oil development facility (i.e., cadmium and manganese) may be deleted from the sediment monitoring program, in addition to BETX compounds such as benzene, ethylbenzene, and toluene. These deletions in the frequency, number of stations, and constituents are included in the Final NPDES Permit (Part III.B.4, Final NPDES Permit, AK-0052779).

Comment F357-14: BPXA requests that the description of the PLUMES and CORMIX dilution models found in the Northstar NPDES Fact Sheet be changed to state that neither model can be described as “theoretical” or “empirical”, because both have “theoretical” components. Whether one model is more “theoretical” or “empirical” than the other is irrelevant, because both have been tested extensively and proven reliable. Finally, the models should be regarded as tools in reaching a conclusion, and cannot account for all physical processes.

Response: The Comment addresses the Draft NPDES Permit Fact Sheet, Appendix B Technical Computations and states that:

“Representations made vis-à-vis the two EPA approved dilution models PLUMES and CORMIX suggest that there are fundamental misunderstandings regarding theoretical bases and empirical content of both models. For example, neither model (system) can be described as “theoretical” or “empirical”. The comparison presented herein is misleading because of implications that PLUMES is “theoretical” while CORMIX is “empirical”.”

Both PLUMES and CORMIX employ model components that may be classified as “empirical” or “theoretical”. An “empirical” component relies heavily on results collected during laboratory or in-situ tests, while a “theoretical” component generally relies on the fundamental physics of fluid mechanics. The comment is correct in that both PLUMES and CORMIX rely on empirical and theoretical components. However, PLUMES is described in the NPDES Fact Sheet (Appendix G of the DEIS) and the ODCE (Appendix H of the DEIS) as empirical because of its heavy use of empirical components, while CORMIX is described as theoretical because of its employment of components which generate solutions from first principles.

The following portion of the Comment is not valid:

“Whether one model is more “empirical” or “theoretical” than the other is irrelevant. Both have been tested extensively and proven reliable, within the usual accuracy expectations for fluid mixing phenomena, any mention of which was notably absent from the Draft NPDES Fact Sheet.”

The Draft NPDES Fact Sheet document clearly states: “Whether PLUMES or CORMIX models are used in many applications is often a matter of user preference, given both sets of models have been extensively

verified, are EPA endorsed, and were designed specifically for wastewater discharges. Both models provide similar results when applied appropriately to the same situation, and each model has advantages and disadvantages for particular uses. In the case of the project, either model performs adequately with no problematic limitations.” The Draft NPDES Fact Sheet continues with: “In this Fact Sheet, both models are employed to analyze the discharges to provide a greater degree of confidence, verify Mixing Zone Application results, better identify any problems associated with the discharges, and assess the mixing zone performance on a worst-case basis.”

Because the above is already provided in the Draft NPDES Permit Fact Sheet, no change is warranted to the Fact Sheet.

Comment F357-15: The final conclusion of the risk assessment provided in Appendix C to the Northstar NPDES Fact Sheet is not supported by the information presented in the risk assessment. In addition, many statements in the document are not supported by reference. The assessment states that the organisms in this region are not well characterized and that quantitative information regarding impact of the discharge activity is lacking. The Mixing Zone Risk Assessment (Woodward-Clyde, 1997) provides a clear assessment for each receptor and also provides an annotated bibliography. BPXA recommends that the permit preparers reexamine the risk assessment and annotated bibliography and re-evaluate risks associated with outfall discharges.

Response: The Comment addresses the Ecological Risk Assessment contained in Appendix C of the Draft NPDES Permit Fact Sheet and states that this Ecological Risk Assessment included:

- 1) For each stressor, the risk of negative impacts is small to negligible for each receptor.
- 2) Extensive monitoring is needed.

The Comment also requests a re-evaluation of risk due to exposure of discharges from Outfalls 001, 002, and 005.

While the Ecological Risk Assessment does state the first conclusion above, it does not state the second. In particular, it only states that three monitoring programs are recommended for the Northstar development, namely:

- 1) End-of-pipe monitoring
- 2) Whole effluent toxicity (WET) testing
- 3) Water column and sediment monitoring

Although an additional risk assessment study is not being published, risk was re-evaluated when drafting the final permit, specifically with regards to the environmental monitoring program. Review and revision of the environmental monitoring program was necessary due to the deletion of Outfalls 003, 004, and 006. The impact of these project changes, along with consideration of ecological risk from exposure to these discharges, are reflected in the changes made to the environmental monitoring program. These changes are discussed above in Comments F357-9 through F357-13.

Comment F357-16: The physical oceanographic processes are well understood and documented in the Beaufort Sea, and are not highly complex.

Response: The Comment implies that the Beaufort Sea oceanography cannot be both highly complex and well understood. It is true that the oceanography of the Beaufort Sea is complex. Simultaneously, it is understood well enough to support modeling and simulation efforts required for developing the NPDES permit. Hence, no change to the draft NPDES Permit Fact Sheet is warranted.

Comment F404-175: Baseline data, including annual precipitation, must be acquired prior to making any determinations. Precipitation figures are necessary in designing adequate water discharge and reinjection facilities.

Response: Rainfall data statistics for the Northstar Development's Seal Island are not available. Such statistics, if available, would be useful for estimating the rainfall the island would receive in a year, as requested by the Comment. However, such an estimate is of little value when designing the deck and surface drainage components of the reconstructed island. The design of these components is driven by the magnitude and duration of severe storms, which can generate large amounts of deck and surface drainage over a short period that must then be disposed of by some means other than a marine discharge.

There are no meteorological or hydrologic records for the island; this basic information was derived during the development of the Draft Environmental Impact Statement (DEIS) using standard hydrologic techniques. This involved four stages of data manipulation and modeling, including determining the appropriate precipitation records to use, converting that data into a series for determining the magnitude of different storm recurrence intervals, determining the stormshed's hydrologic characteristics, and calculating the peak and total flow rates. A conservative approach was used throughout the process to arrive at a "worst case" storm. Admittedly, such an approach cannot precisely characterize Seal Island's meteorology, but it does provide a method for estimating storm strength above that expected to occur at Seal Island.

Two sets of rainfall data with sufficient time periods were available for the North Slope: from Barter Island and Barrow. The Barter Island data was determined to have greater magnitude storms and was found to be closer in rainfall amount to a limited data set from Resolution Island, located at the mouth of Prudhoe Bay, 16.9 miles (27.2 km) on the 121° radial (true north) from Seal Island. Barter Island data was collected for approximately 40 years, from 1949 through 1988. The Barter Island data available for analysis included the occurrence year, record storm amount, and record month's precipitation for each month of the year, as well as the monthly precipitation from 1959 through 1988.

To synthesize the annual peak storm series, ratios between the record storms and record month's total rainfall were determined, then applied to each month from 1949 through 1988. This enabled an approximate determination of the peak annual storm for each year of record. It was found that, for Barter Island, there is very little difference between the greatest precipitation from snowfall, 2.25 inches (5.71 centimeters [cm]) and the greatest rainfall (2.23 inches [5.66 cm]). As a result, it is justified to look at both snowfall and rainfall to conservatively determine the greatest precipitation total that the island's drainage system may be required to handle. The greatest precipitation month values for each year in the

available record, the ratio that was applied, and the resulting estimated peak annual precipitation event was presented in Table B-7 of the DEIS Appendix G (National Pollutant Discharge Elimination System Fact Sheet). Using these data and a log Pearson Type III statistical distribution, the predicted storm for a 10-year reoccurrence interval is 1.336 inches of precipitation/24 hour period. The statistical parameters include a skew coefficient, G, of 0.539 derived from the data above. This data is shown in Figure B-3 of the Draft EIS Appendix G.

From the project description (Final EIS, Appendix A), Seal Island is divided into north and south drainages. The Soil Conservation Service’s TR55 model is commonly used to analyze the hydrology for small urban watersheds. An interface for TR55 developed at the University of Central Florida was utilized (SMADA 6.0 for Windows). In TR55, the first hydrologic parameter to derive is a time of concentration for each watershed using the anticipated longest flow path and the storm magnitude being analyzed. Next, “initial abstractions” are derived, based on the surfaces and soils, in this case gravel. An initial abstraction of 0.31 inches (0.78 cm) was assumed for the packed gravel surface of Seal Island. This means that the first 0.31 inches (0.78 cm) of the modeled rainfall would be held in storage in the void space of the gravel before runoff is generated. In addition, the TR55 method utilizes “curve numbers” to simulate the resistance and overall percentage of the rainfall that is expected to be infiltrated. Total and impervious areas are calculated from the watersheds’ dimensions. The model uses this watershed and rainfall data, with extensively researched mathematical curves, to estimate the amount of runoff for the storm event and watershed. The curve number for packed gravel over a packed gravel base from the TR55 manual was used. The modeled predictions are summarized in the table below. Note that the data presented in this table is an overestimate of a severe storm event on Seal Island.

Overestimated Flows to Seal Island Drainage Terminals

Drainage Terminal	Initial Abstraction (inches)	Peak Inflow (cfs)	24-hour Volume (cubic feet)	24-hour Volume (gallons)	2-hour Volume (gallons)
South	0.31	0.45	5,331	39,879	19,800
North	0.31	0.54	12,415	92,874	28,300

Notes: cfs = Cubic feet per second

The above flow rates are significant and would mandate a rather robust deck and surface drainage system to prevent a marine discharge of storm water. This is of particular concern should the island’s working surface be contaminated. To reduce these computed flow rates due to a severe storm, additional data must be made available or the assumptions relaxed (e.g., increasing the estimated initial abstraction); the second approach is not recommended without additional research to support a relaxation of assumptions.

Comment F404-176: Ambient water quality data must be acquired prior to construction and production.

Response: To develop an effective monitoring program and establish effluent limitations, ambient water quality data are required (as is correctly suggested by the Comment). With the expected marine discharges being from Outfalls 001, 002, and 005 (see Appendix G of the Draft EIS), the following ambient water

quality parameters are required: dissolved oxygen, total suspended solids, turbidity, pH (a measure of acidity), temperature, and salinity. In addition, oceanographic data on current direction and magnitude (average and maximum), pycnocline depth, and ice thickness must be available. Ambient concentrations of phosphate/silicate/ nitrogen/trace metal contents and hydrocarbon concentrations are also useful. Data on these parameters for the Beaufort Sea are available in sufficient detail to support the development of the discharge limitations for the above outfalls. For details on these pre-construction/production parameters and other oceanographic conditions, the reader is referred to Section IV of the Draft EIS Appendix G. The final permit does require pre-construction sediment sampling in order to further develop a sediment analysis baseline (see response to comment F357-13).

Comment F404-177: Public oversight requires regular monitoring of the water around the reconstructed Seal Island. This monitoring should look for industrial pollutants, sedimentation, and water temperature. Due to the nature of the project, there will be significantly large mixing zones around the island and they need to be monitored.

Response: The Comment author is correct in stating that adequate public oversight requires regular monitoring of the environment, including the water and sediment around the reconstructed Seal Island. The Final NPDES Permit addresses this concern by a multicomponent process, including:

1. Effluent monitoring of Outfalls 001, 002, and 005;
2. Performance of Whole Effluent Toxicity (WET) tests;
3. Water monitoring; and
4. Sediment monitoring.

The effluent monitoring component provides data collected on effluents from each of the three outfalls (001, 002, and 005). Part of this data is collected continuously, while other portions are collected periodically as grab samples. The WET tests assess the effects of collected effluents, in varying concentrations, on both finfish and sediment-dwelling organisms.

The water monitoring component examines water temperature, total suspended solids, total residual chlorine, biological oxygen demand, fecal coliform bacteria, pH, and salinity in the vicinity of the principal discharge port (Outfall 001) and at other points around the island. The above constituents were selected because they represent the possible pollutants from this outfall. In addition, ambient water temperature will also be monitored. The sediment monitoring component examines sediments near the island for ammonia, cadmium, total residual chlorine, chromium, manganese, mercury, nickel, vanadium, polynuclear aromatic hydrocarbons (PAH), and sulfides. Far-field sediment monitoring will be accomplished as a component of the Section 103 permit associated with the Northstar Development and pursuant to the Marine Protection, Research, and Sanctuaries Act of 1972 (MPRSA) for the transport of dredged materials for ocean disposal. Unlike the constituents sampled for in the water monitoring component, the above sediment constituents are not expected to be routinely discharged from Seal Island. However, they represent the type of pollutants that could be discharged by neglect or improper design from an oil production facility and could thereafter have an effect on sediment quality. In addition, the sediment monitoring component includes a benthic abundance and community structure study.

All of data collected and the subsequent analyzes are reported to both the EPA and ADEC on a periodic basis. These governing agencies can require additional monitoring based on the results of any of the above monitoring components.

There is no provision for “significantly large mixing zones around the island;” only one small mixing zone is needed (5 m in semiradius). The water monitoring program will collect water samples from the edge of this mixing zone to ensure water quality standards are complied with outside of this zone.

Comment F404-178: As a model facility for future offshore arctic operations, it is imperative that as much information be gathered as possible to assess negative impacts on marine life.

Response: While it is true that sedimentation from the island’s reconstruction and from the dewatering outfall (005) will have negative impacts on marine life around the island, the durations of these impacts are expected to be short because these two activities are one-time events. The remaining and primary outfall (001) is not expected to generate sedimentation, nor is it expected to create open water near its discharge port during the ice season. As a result, this discharge is not expected to result in marine mammal harassment.

Comment F404-179: Sufficient storage capacity for discharge water must be available during times in which the disposal well is inoperable.

Response: During the comment period for the Draft NPDES Permit, the permittee submitted a letter to the EPA stating their intention to eliminate Outfalls 003, 004 (North and South Deck Drainage Sump Effluent), and 006 (Seawater Treatment Plant Filter Backwash). Deck drainage will continue to be collected within the sump system, but the fluids will be pumped to the Class I industrial waste disposal well and not discharged through the outfalls as outlined in the NPDES Fact Sheet and Draft Permit. Outfall 006 has been eliminated altogether. Outfalls 001, 002, and 005 have not been eliminated and authorization to discharge from these outfalls, together with effluent limitations, monitoring, and other requirements, are contained in the final permit. The Comment’s reference to elimination of the discharge, storage, and reinjection suggest the commentor was raising concern over adequate storage of fluids collected in the deck sumps.

With the exception of snow removal, all requirements related to deck drainage (Outfalls 003 and 004) have been removed from the NPDES Permit. The NPDES Permit does not authorize the discharge of deck drainage fluids under any circumstances. Fluids collected in the sump system are to be pumped to the Class I industrial waste disposal well for reinjection, with the exception of those determined to be hazardous. Any fluids not injectable, will be transported to an appropriate onshore disposal location.

With regards to adequate storage of deck drainage should the disposal well be out of service, the permittee has outlined options that may be followed to contain the fluids (see August 27, 1998 letter to Mr. Robert Robichaud, EPA from Mr. Peter Hanley, BP, Northstar Development Project Sump Water Storage, Disposal and Control Options). These options include, storage in the sumps; storage in the Well Clean Out Tank; storage in a vac truck; and storage in a barge or other storage available for liquids recovered from spill response activities, such as temporary tankage or bladders. The Northstar Project is

required to have an approved Oil Discharge Prevention and Contingency Plan prior to commencement of operations. As part of that plan, the facility must demonstrate the ability to contain and recover 36,000 barrels of oil. This storage would be available for storage of liquids being routed to the 500 barrels Well Clean Out Tank via the sumps. The combined volume of the North and South sumps is 194 barrels.

Should the disposal well be out of service during precipitation, the fluids collected in the sump would have to be contained for later injection or transported off the island and disposed at another authorized facility. Except for snow removal, discharge of deck drainage to marine waters for the Northstar facility is not authorized by the NPDES Permit.