US EPA, Region 9
NPDES/DMR, ENF-4-1
75 Hawthorne Street
San Francisco, CA 94105-3901
Attn: Beth Aubuchon

June 16, 2017

RE: March 8-9, 2017 Clean Water Act Inspection

Dear Ms. Aubuchon,

This letter is sent as a follow up to the inspection report received May 23, 2017 via email from Mr. Colby Tucker (EPA). Thank you for the opportunity to provide responses to the concerns described in Section IV of the report. As mentioned when you and Mr. Tucker visited our platforms March 8-9, 2017, the employees at Beta Offshore take their environmental responsibility very seriously and strive daily to be good environmental stewards and responsible business operators in the Outer Continental Shelf of the Pacific Ocean. Beta appreciates EPA's detailed inspection report. We have promptly investigated the identified concerns, both to prepare this response and to identify steps that we can take to strengthen our environmental compliance procedures and ensure that the effluent from the platforms does not harm the ocean. The following discussion provides Beta's perspectives for each of the Areas of Concern identified in Section IV of the inspection report. We would also like to reserve the opportunity to clarify some of the facts presented in Section III of the narrative in the EPA's report. This may be sent under separate cover per your request.

1. Area of Concern regarding adherence to EPA Method: EPA Method 1664 for Oil and Grease requires a one liter sample preserved with sulfuric acid and requires the analyst to utilize the entire sample. EPA Method 200.8 requires that Zinc analysis be performed on a separate sample collected with nitric acid preservative. The pre-populated chain of custody used on August 9, 2016 was intended to simplify the sample analysis communication to the lab; however, we now recognize that it created confusion when the zinc analysis was requested without a separate sample collected by our operator with proper preservative. A Eurofins Calscience Laboratory representative asked for permission to deviate from the zinc method when the representative observed that a separate sample with nitric acid preservative was not submitted with the other samples. The infrequency of discharge from EPA approved Discharge 002 location contributed to the operator's inadvertent omission to collect a separate sample for zinc analysis. Beta's procedures do not allow the submission of an oil and grease sample for zinc analysis. This appears to

have been a one-time, unintentional deviation from Beta's procedures and the EPA methods.

To assure future adherence to the details of both Methods 1664 and Method 200.8, Beta commits to conduct training with personnel involved in sampling for NPDES permit compliance and to ensure that a sample for metals analysis is collected in an appropriate manner at the same time as the samples collected for oil and grease. The chain of custody will be updated to include a line for the metals container and associated zinc analysis.

2. Area of Concern regarding chain of custody request for zinc analysis and oil and grease from same sample bottle: The pre-populated chain of custody form used on August 9, 2016 was intended to simplify the sample analysis communication to the lab; however it contributed to the confusion when the zinc analysis was requested without a separate sample collected with proper preservative. Beta did not intend nor is it Beta's standard operating procedure to limit the lab's ability to properly analyze samples according to standard methods.

   As mentioned, Beta commits to conduct training to assure a container for metals analysis is collected at the same time as the samples collected for oil and grease. The chain of custody will be updated to include a line for the metals container and associated zinc analysis. Beta will not ask or authorize a lab to deviate from an approved EPA method in the absence of a properly preserved sample.

3. Area of Concern regarding reported result of 15,300 mg/L oil and grease for Discharge 002 in August 2016: Beta reported to EPA the first result received from the laboratory. At no time did the laboratory rescind the result nor give Beta any reason to believe the result was inaccurate. Beta did request results from duplicate samples 2, 3, and 4; however the results were calculated to have 45% standard deviation (SD) when compared with sample 1. Among samples 2, 3, and 4 there was more than 30% relative percent difference (RPD). This variation was determined to statistically fail the required precision and accuracy for EPA Method 1664 which is 28%[1] for SD and 18%[1] for RPD. For this reason Beta did not have confidence in the data from the 3 samples reported separately by the lab. After discussion with LTS Environmental consultants and internal staff, Beta determined the first grab sample result would be representative and reported on the DMR.

   Going forward, Beta will report all data on future DMRs regardless of quality or confidence in lab results and make its case in each DMR regarding any data that appears invalid according to the required precision and accuracy requirement of EPA Method 1664. In addition, Beta personnel working offshore are vigilant in their monitoring of the ocean surrounding the platforms. They visually monitor for free oil or floating solids and report any and all such observances. There was no evidence of oil or sheen in the water in the hours following the August 9th, 2016 discharge. This fact further supports Beta's

[1] EPA Method 1664, Rev. A §9 6 and §17, Table 1

conclusion that the lab results for samples 2, 3, and 4 were not representative of the discharge. While Beta reasonably questioned the accuracy of these lab results, Beta will in the future report all data as well as any concerns and evidence it may possess indicating that particular results are invalid.

4. Area of Concern regarding August 2016 DMR zinc concentration lower than Eurofins Calscience report: The NPDES General Permit CAG280000 page 41 in Appendix A requires permittees to report metals in the DMR after using the PLUMES UM dilution value. The dilution calculation for August 2016 DMR reporting period was 1218:1. The post dilution value for zinc (Zn) was calculated and reported in the DMR as required by the permit. The end of pipe value for Zn was 0.061 mg/L and the post dilution value reported was 8 µg/L. The calculation of effluent concentration at the point of compliance was determined using the following equation:

$$C_o = (C_e + D_m C_s) / (D_m + 1)$$

Where C_o = Concentration at the edge of the mixing zone,
Ce = the end-of-pipe effluent concentration,
Cs = the background seawater concentration (Appendix A, Table 1)
D_m = the dilution ratio expressed in parts seawater per part wastewater

$$7.98\ \mu g/L = (61\ \mu g/L + 1218 \times 8\ \mu g/L) / (1218 + 1)$$

5. Area of Concern regarding one versus four samples reported during August 2016 DMR: Please see discussion in #3 regarding statistical validity under EPA Method 1664 and Beta's commitment to report in greater detail in the future.

6. Area of Concern regarding sample labeling, missing signatures on chain of custody and use of ice to preserve samples after collection: Beta infrequently discharges produced water at the EPA-approved Discharge 002 location. We are unable to report why paperwork in 2014 was missing a signature or why there were no labels affixed to the containers, but we assume that the infrequency of discharge contributed to these omissions. Beta's discussion with EPA inspectors regarding the use of ice directly following sampling involved reflection on historical experience at another location where produced water samples collected at ~140°F were iced immediately after collection. During transport the bottles broke from the rapid temperature change, and allowing the samples to cool prior to adding ice to the cooler avoided the broken bottles.

   Going forward, Beta's personnel training for sample collection will reinforce the need to follow procedure to ice samples and clearly label containers after collection and prior to transport to comply with EPA methods for sample collection.

7. Area of Concern regarding representative sample location for Discharge 002: The emergency sump U-06 is designed to separate oil and water as described in the

documentation provided to EPA during the inspection. The sample point for the emergency sump is upstream of the sump after the last treatment vessel. Beta's concern expressed in its August 23, 2016 letter to EPA was to reiterate that the oil and grease detected in the sample reported by Eurofins Calscience did not correlate to the actual produced water discharge because the sump is specifically designed to avoid discharge of oil to the ocean. The sump design causes the oil to rise to the surface inside the sump where it is skimmed and recovered four times each day. Beta recognizes sampling at or near the bottom end of the -177 foot subsurface outlet is not feasible, nor is it reasonable to believe that anywhere near the concentration of oil and grease recovered by Eurofins Calscience in the samples collected upstream of the sump and prior to skimming off the oil was actually discharged to the ocean. Beta's engineering group is evaluating the discharge sampling alternatives and has not so far determined a practical method to collect samples that would better represent the actual discharge compared to those currently collected upstream of the sump, and will continue to investigate this issue.

8. Area of Concern regarding the number of samples collected at one time: Beta has historically directed the operators to collect four samples to represent the produced water at Discharge 002. These samples are collected as duplicates in rapid succession as the length of discharge is always uncertain pending restoration of service of the injection pumps that send the produced water to water injection wells. The length of discharge is often very short as well as infrequent because of the general reliability of the water injection system. The first sample collected represents the grab sample required by the permit. The other three samples are the duplicates to have in case of breakage during transport and for in house quality control. The duplicate samples are held pending analysis of the first sample. Duplicate samples are prudent to collect but not required for analysis. The permit requires either a grab sample or composite samples, but does not prohibit collection of duplicates. Regardless, in the future we will report all lab results from samples collected as discussed in item #3 above. If samples are collected to represent a 24-hour period then these are all analyzed, averaged and reported in the DMR.

9. Area of Concern regarding the number of samples collected and analyzed: Please see our response to Concern #8.

We thank the EPA for the opportunity to comment and your consideration of the above responses. Beta Offshore is dedicated to being a responsible offshore operator, and a cooperative and conscientious business partner with the EPA and other regulatory agencies as well as the community in which we operate. We take compliance, protection and safety of our people and the environment very seriously. Beta agrees there are opportunities to improve our monitoring procedures and we will work towards consistent excellence in these operations.

Please feel free to contact me if you have any question or require further information. Again, we invite EPA's input on how to improve our operations and appreciate the observations and comments in the report.

Sincerely,

Diana Lang

Diana Lang
Beta Offshore
HSE Manager

cc: Eric Willis – General Counsel