UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

Ms. Diana Lang
HSE Manager
Beta Offshore, a division of
Memorial Production Partners LP
111 West Ocean Blvd., Suite 1240
Long Beach, CA 90802

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

Dear Ms. Lang,

Please find enclosed the National Pollution Discharge Elimination System (NPDES) inspection report for the U.S. Environmental Protection Agency's (EPA) March 8-9, 2017 inspection of Platform Ellen and Platform Elly.

Based on the information gathered during our inspection, we have identified several compliance concerns, which are identified in Section IV of the enclosed report. To help us better understand your perspectives on these concerns, and any actions you may have taken since our inspection, please submit short responses to each of the numbered items in Section IV. For clarity, please match your responses to the numbered item in the inspection report. Send your response by mail or electronic mail within 30 days of receipt of this report to:

Beth Aubuchon
USEPA Region 9
Enforcement Division ENF 3-1
75 Hawthorne Street
San Francisco, CA 94105
Aubuchon.Elizabeth@epa.gov

You may also contact Beth Aubuchon with any questions regarding the inspection at Aubuchon.Elizabeth@epa.gov or (415) 972-3327.

Sincerely,

Ken Greenberg, Manager
Water Enforcement Section I

EPA United States Environmental Protection Agency

Region 9 Enforcement Division
75 Hawthorne Street
San Francisco, CA 94105

Inspection Date(s):	March 8 & 9, 2017	
Time:	**Entry:** 12:30pm (March 8)	**Exit:** 3:00pm (March 9)
Media:	Water	
Regulatory Program(s)	Clean Water Act NPDES	
Company Name:	Beta Offshore	
Facility or Site Name:	Platform Elly and Platform Ellen	
Facility/Site Physical Location:	Outer Continental Shelf, Long Beach, CA	
Geographic Coordinates:	33.583537, -118.128567	
Mailing address:	111 W. Ocean Blvd. Suite 1240 Long Beach, CA 90802	
Facility/Site Contact:	Diana Lang	**Title**: HSE Manager
	Phone: 562-628-1529	**Email**: dlang@memorialpp.com
Facility/Site Identifier:	NPDES Permit CAG280000 / CAF001147 & CAF001148	
NAICS:	211111	
SIC:	1311	

Facility/Site Personnel Participating in Inspection:

Name	Affiliation	Title	Email
Diana Lang	Beta Offshore	HSE Manager	dlang@memorialpp.com
Christian Zumaran	Beta Offshore	Facilities Engineer	czumaran@memorialpp.com
Jamie Cool	Beta Offshore	Production Manager	jcool@memorialpp.com

EPA Inspector(s):

W. Colby Tucker	EPA R9	Inspector	Tucker.WilliamC@epa.gov
Elizabeth Aubuchon	EPA R9	Inspector	Aubuchon.Elizabeth@epa.gov

Federal/State/Tribal/Local Representatives:

N/A			
N/A			

Inspection Report Author:	W. Colby Tucker	415-972-3556
		Date: 5/18/2017
Supervisor Review:		
	Ken Greenberg	415-972-3577
		Date: 5/22/17

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SECTION I – INTRODUCTION

I.1 Purpose of the Inspection

The purpose of the inspection was to ensure that Beta Offshore (Beta or Discharger) is in compliance with the requirements of the Clean Water Act (CWA) National Pollutant Discharge Elimination System (NPDES) permit CAG280000 for facility numbers CAF001147 (Platform Ellen), and CAF001148 (Platform Elly) (collectively, "Platforms"). During the inspection, we evaluated the accuracy and reliability of the Discharger's self-monitoring and reporting program and the Facility onsite generated waste streams, treatment processes and discharges to the Pacific Ocean, a water of the United States. The announced inspection consisted of two parts: a records review (conducted onshore on March 8, 2017 and continued March 9, 2017) and a general facility site visit (conducted offshore on March 9, 2017). The primary representative for the Discharger is Diana Lang, HSE Manager of Beta Offshore.

SECTION II – FACILITY / SITE DESCRIPTION

II.1 Facility Description

Platforms Elly and Ellen are two of the three "Beta Unit" offshore platforms built for Royal Dutch Shell Oil in the 1980s. Beta Offshore, an affiliate of Memorial Production Partners LP, manages and operates all three platforms of the Beta Unit: Platform Elly, Ellen, and Eureka. These facilities are located off the coast of Long Beach, California about 11 miles from shore. Platform Elly and Platform Ellen are located on the Outer Continental Shelf (OCS) and stand in about 250 feet of water. Platform Ellen is a wellbore platform equipped with permanent drilling equipment, including a drilling rig, a well bay with about 25 producing wells, and associated equipment. Platform Elly handles production and processing from wells located on both Ellen and Eureka. Platforms Elly and Ellen are connected by a bridge walkway and various pipes including production pipes, injection well pipes, and piping conductors carrying electrical cables. The wells on Ellen produce crude oil, water, natural gas, and associated by-products, namely hydrogen sulfide.

Platform Elly is connected to shore by a pipeline delivering crude oil for sale and by an electrical power feed. Elly then distributes power to Ellen and Eureka. Elly is also able to produce its own power through turbines powered by natural gas collected from the oil extraction process.

The Platforms are independently covered under the Master General Permit CAG280000 with individual facility numbers (see above). Given the connectivity and proximity of the two platforms, this report describes and evaluates wastewater discharges on both platforms as they relate to the CAG280000 permit.

II.2 Wastewater Sources

At the time of the inspection and within the past three years, the Platforms discharged at least four types of wastewater:

- Produced Water (Discharge 002) (Platform Elly)

- Domestic and Sanitary Wastes (Discharge 005) (Platform Ellen)
- Fire Control System Water (Discharge 008) (Platform Elly)
- Noncontact Cooling Water (Discharge 009) (Platforms Elly and Ellen)

Note: The number that follows the type of wastewater above refers to the numbering scheme for the different discharges outlined in the Permit.

Produced water is a by-product of crude oil and natural gas extraction on Platform Ellen. Produced water flows up through the producing well heads and on to Platform Elly for treatment and discharge. Typically, treated produced water returns to Platform Ellen for reinjection into the geological formation. Platform Elly has monitoring requirements for produced water for oil and grease, zinc, and toxicity. Platform Elly has effluent limits for oil and grease for produced water. Part II.B of the Permit discusses effluent limits and monitoring requirements associated with produced water discharges.

Depending on the activity on the Platforms, there are about 30 resident employees on Platform Ellen who contribute to Domestic and Sanitary Wastes. The number of people on board typically increases during daylight hours as non-resident employees, contractors, regulators, and other visitors travel to the Platforms. On March 8, 2017, there were 28 residents and 26 non-residents on the Platforms. Most domestic waste, sink, shower, and toilet water, is commingled with the sanitary waste stream and routed to a Marine Sanitation Device (MSD) for treatment and discharge. Other domestic waste, namely wastewater from laundry, is commingled with produced water. Part II.E of the Permit discusses effluent limits and monitoring requirements associated with Domestic and Sanitary Wastes.

Fire Control System Water originates as seawater pumped through the main seawater intake and routed through the fire control system. If this water is discharged on deck during testing, then it is comingled with deck drainage. During testing at Platform Elly, fire water sometimes discharges directly to the Pacific Ocean. Part II.F of the Permit discusses effluent limits and monitoring requirements associated with Fire Control System Water.

Noncontact Cooling Water discharges from both Platform Ellen and Platform Elly. This water originates as seawater pumped through the main seawater intake and is pumped through various pipes to cool equipment. Operators add between 0.2 – 0.5ppm of chlorine to the seawater pumps as a biofilm inhibitor. Both Platform Elly and Platform Ellen have specific chlorine effluent limits regarding noncontact cooling water. Part II.F and Appendix C, Table C-1 of the Permit discusses effluent limits and monitoring requirements associated with noncontact cooling water.

The following are notable permitted discharges that do not appear to have been discharged in the past three years:

- Drilling Muds and Cuttings (Discharge 001) (Platform Ellen)
- Well Treatment Completion and Workover Fluids (Discharge 003) (Platform Elly)
- Deck Drains (Discharge 004) (Platform Ellen and Platform Elly)

Drilling Muds and Cuttings occur during well drilling. For each well drilled in the last three years, all drilling muds and cuttings appear to have been discharged in a waste facility onshore.

Beta produces Well Treatment Completion and Workover Fluids when Beta operators conduct well treatments and workovers. Those fluids that are not lost downhole are surfaced at Platform Ellen and can be routed to the produced water treatment train on Platform Elly or captured and sent onshore for disposal. Beta claims no discharge of these fluids.

Deck Drains on Platform Ellen and Platform Elly capture fluids and solids on the decks mobilized by precipitation, fire test water or another source. Deck drains are routed to sumps that in turn are pumped to a disposal well.

II.3 Wastewater Treatment

II.3.i Produced Water

Platform Elly treats produced water through a three-step process. First, produced water flows to a free-water knockout for oil-water separation. Then, water flows to a heater treater for further separation and treatment. Finally, produced water travels to a flotation cell (WEMCO model 120) for finishing treatment (see Appendix 3). The crude oil product is separated for delivery after the first and second steps.

From the WEMCO, the produced water flows to tank S-03, Filtered Produced Water Surge Tank. This tank flows to two possible destinations: injection wells or to the Pacific Ocean, but contained in an open-bottomed vessel called the "Emergency Sump" (see the engineering flow diagram Appendix 4 and the simplified schematic Appendix 5). Platform Elly has three booster pumps (P-21A, P-20A, and P-20B) that pump produced water to the injection wells. When injection pumps fail and tank S-03 exceeds capacity, treated produced water is routed to the Pacific Ocean/Emergency Sump. The Emergency Sump begins 16 feet above sea-level and extends 177 below sea level. Flow from tank S-03 enters the Emergency Sump at 120 feet below sea level.

The Emergency Sump has a pump that operates four times every 24 hours which is connected to tank S-06, Disposal Tank. The Disposal Tank pump then pumps down the Disposal Tank and discharges to the disposal well.

II.3.ii Sanitary Waste

The Marine Sanitary Device (MSD) is located on Platform Ellen and it treats sanitary waste from both Elly and Ellen. All sanitary waste from the Platforms flow to the MSD. Beta employs a Type II MSD manufactured by Omnipure. A mixture of waste and seawater enters a receiving tank and flows through a macerator pump to create a slurry. The slurry then flows through the book cells for oxidation and disinfection through electrochlorination. Residual chlorine is measured daily.

II.4 Compliance History

The following table is a list of Beta's self-reported effluent limit violations on Discharge Monitoring Reports (DMRs) submitted to EPA from January 2014 to January 2017.

DMR Date	Parameter / Discharge #	Reported Value	Permit Limit
August 2016	Oil and Grease / 002	15,300 mg/L	42 mg/L (daily max)
August 2016	Oil and Grease / 002	15,300 mg/L	29 mg/L (monthly avg.)
July 2015	Oil and Grease / 002	34.2 mg/L	29 mg/L (monthly avg.)
July 2014	Oil and Grease / 002	30.3 mg/L	29 mg/L (monthly avg.)

SECTION III – NARRATIVE & OBSERVATIONS

Drilling fluids and Cuttings (Discharge 001)

1. No drilling occurred while EPA inspectors Colby Tucker and Elizabeth Aubuchon (we) were on board.
2. According to Christian Zumaran, depending on the formation and technical issues, drilling a well can take around five weeks to complete.
3. Beta maintains documents related to drilling fluids and cuttings. We conducted a spot check of the documents relating to Discharge 001 between 2014 and 2017. All documents viewed showed no discharge of fluids and solids relating to Discharge 001.
4. We observed chemical inventories relating to drilling fluids.
5. According to Diana Lang, drilling fluids not lost downhole and cuttings are captured and sent on shore for disposal.

Produced Water (Discharge 002)

6. According to Jamie Cool and Mr. Zumaran, the Produced Water Surge Tank (S-03) receives treated produced water and make-up water. According to DMR cover letters, sources of domestic waste that do not flow to the disposal well also flow to S-03.
7. Beta maintains records of the effectiveness of the WEMCO by taking daily measurements of the concentration of oil entering the WEMCO and oil exiting the WEMCO. These measurements are conducted using a non-approved EPA method.
8. According to piping and instrumentation diagrams (P&ID), the capacity of tank S-03 is 600 barrels.
9. According to Mr. Cool and Mr. Zumaran, produced water and make-up water is responsible for most of the flow entering tank S-03.
10. Platform Elly has three injection pumps, and according to Mr. Cool, normal operations are when two pumps are operating and one is off, serving as a backup. The pumps can be run on either produced gas or diesel.
11. During normal operations, the produced water mixture in tank S-03 is pumped from Platform Elly to the injection wells on Platform Ellen.
12. P&IDs indicate there are two high level alarms in the Produced Water Surge Tank (S-03). One alarm serves as a warning, and the second alarm occurs when the tank is 95% full. According to the control room operator working during the time of the inspection, this second alarm means that discharge is imminent. He said that when this alarm goes off, he

instructs an operator via radio to begin the sampling protocol. Control room operators are responsible for watching for and communicating process alarms to field operators.

13. According to an operator who has sampled in the past, when he receives notice to sample from the control room, he goes to the laboratory to retrieve four glass amber bottles with H_2SO_4 preservative in the bottles. Then, he goes to the sampling point and fills all the bottles.
14. We observed glass amber bottles and plastic bottles (for metals) in the laboratory (see Appendix 1, Photo 6).
15. According to this operator, most discharge events occur between 15 and 20 minutes. He does not recall any event lasting more than one hour.
16. Beta's sampling protocol for Discharge 002 dated 2/11/2015 indicates that oil and grease samples should be placed in ice for preservation (see Appendix 6).
17. According to Ms. Lang, ice is not used after sample collection to avoid contamination of sample.
18. Beta's sample protocol for Discharge 002 dated 2/11/2015 states:

    > "Preferably during the actual discharge, collect four 1-liter samples of produced water from the outlet of the last treatment vessel (the official NPDES sample point) following the procedure outlined herein…
    >
    > 1. Purge the sample point for 1 full minute and then reduce the stream to avoid splashing the preservative out of the sample jar. Slowly fill each bottle to the top and do not overfill." (see Appendix 6).

19. Chain of Custody forms are prefilled and have four samples spaces prefilled (see Appendix 7). Three of the prefilled samples have "***Hold***" written in the "Analyses Requested" column. In the GRAB/COMP. column, all prefilled rows have "grab" written.
20. Ms. Lang said that typically only one sample gets analyzed and the other three are discarded by the laboratory if no other analyses are requested by Beta. Ms. Lang said that she considers these samples to be duplicates.
21. We requested documents relating to sampling standard operating procedures (SOP) and Ms. Lang produced a sampling SOP dated December 2007 for Discharge 002 (see Appendix 8). It states, "On the c-o-c, request that <u>only the first sample be analyzed and hold the other three until further notice: (per ESH Manager.)</u>. [emphasis not added] (If the first sample is less then [*sic*] the permit limit, the other three will not need to be analyzed. If it is over the limit, the compliance group will notify the lab to have all remaining samples analyzed to get an actual composite value.)"
22. We observed at least three differently dated versions of the sampling protocol, some located on the platform (laboratory and control room) and the on-shore office. These protocols are different in length and content.
23. According to Mr. Cool and Mr. Zumaran, the only technically feasible way for tank S-03 to exceed capacity and overflow is if one or more injection pumps fail.
24. The Discharge 002 sampling point is located after S-03 (see Appendix 1, Photos 3 & 4). The sampling point is located behind several pipes and requires bending and shifting to access.
25. Mr. Lang produced a document summarizing produced water discharges (Discharge 002). Of note, the document states that on 7/4/2015 there was a discharge with a concentration

of 30.7 mg/L oil and grease and on 7/23/2015 there was a discharge with a concentration of 30.7 mg/L oil and grease. (see Appendix 9). The relevant section of the July 2015 DMR submitted to EPA by Beta states that Beta's discharge at 002 had a monthly average of 34.2 mg/L oil and grease which is an exceedance of the NPDES permit effluent limit (see Appendix 10). The effluent limit for Discharge 002, monthly average, is 29 mg/L oil and grease.

26. The summary document of Produced Water (Discharge 002) indicates that on August 9, 2016, there was a discharge of 15,300 mg/L, which is the same value recorded on the DMR for the month of August 2016.

Events on August 9, 2016 relating to Discharge 002

27. We asked about the exceedance on August 9, 2016 and Ms. Lang produced a document titled "Beta Offshore (P-0300) Produced Water Discharge August 9, 2016 24-hour reporting of permit limit exceedance – NRC #1156753" (see Appendix 11). The document describes the events on August 9, 2016; injection pumps failed, then S-03 exceeded capacity, and produced water flowed to the Pacific Ocean/open-bottomed emergency sump.
28. The document states, "Lab results reviewed on 8-18-16 at 2:05 pm. Note: *Lab used 500 ml; on 8-19-16 Beta HSE Manager requested the 3 HOLD samples be tested for O&G. Results forthcoming."
29. Ms. Lang produced a chain of custody form for the samples of this event that suggests that the data of the "3 HOLD" samples were discarded; an arrow from the relevant rows points to a handwritten note on the chain of custody form that reads: "Lab data discarded: Not trustworthy" (see Appendix 12).
30. On the chain of custody form submitted by Beta to EPA as part of its August 2016 DMR there is no handwritten note: "Lab data discarded: Not trustworthy" (see Appendix 13).
31. Ms. Lang stated that the results from the three hold samples were "not believable" and were higher than the reported result. She did not say what the results were.
32. Ms. Lang stated that she has decided to use a different company to analyze future oil and grease samples because of the analyses relating to the event on August 9, 2016. The new contracted company is named Positive Lab Service and uses Method 1664B to determine oil and grease concentrations.
33. An email from Eurofins Calscience, the laboratory Beta contracted with to run the oil and grease and metals analysis, stated that Beta gave approval to deviate from the EPA approved methods when analyzing discharge samples from August 9, 2016 (see Appendix 14).
34. After the inspection, we acquired the analytical results of the discarded data (see Section III.29 above) from Eurofins Calscience which were analyzed using Method 1664A. The analysis showed that the concentrations of oil and grease in these bottles were: 64,200 mg/L, 64,300 mg/L, and 86,000 mg/L (Appendix 15).

Domestic and Sanitary Wastes (Discharge 005)

35. We observed the MSD and the Coast Guard certification of the MSD.
36. Signs on the MSD suggest maintenance should occur both daily and weekly.

37. An operator describing how the MSD works said that maintenance occurs daily and weekly.
38. Daily maintenance consists of backflushing the macerator pump.
39. Weekly maintenance consists of opening the book cell (see Photo 12) and scrubbing the electrode plates with a brush. An operator said this typically takes a couple of hours and starts around 12:00 am when the sanitary system use is low.
40. The residual chlorine is tested daily using CHEMets (see Photo 11). An operator demonstrated how he would fill the glass pipette and compare the color within the pipette to a standard in the box.
41. The residual chlorine discharge for March 7, 2017 was 3.5 mg/L.
42. There is an offline MSD unit adjacent to the MSD unit online.

Preventative Maintenance

43. Mr. Cool demonstrated the Avantis preventative maintenance (PM) system to EPA inspectors Colby Tucker and Elizabeth Aubuchon.
44. We observed that Avantis serves as a way to manage and schedule PM and to issue, document, and report work orders.
45. Mr. Cool said that Beta has changed PM systems three times in the last three years due to various management decisions.
46. Mr. Cool said that all assets with moving parts (i.e. pumps) were currently listed with PM schedules. Other assets (i.e. tanks) are listed in the Avantis system, but do not currently have any PM scheduled. The required certification schedule for tanks is maintained elsewhere.
47. Mr. Cool said that when injection pumps fail there would be a work order associated with the repair of the pump.
48. In an email after the inspection, Ms. Lang clarified Mr. Cool's statement (noted above, Section III.47) that pump failures do not trigger work orders and any indication of pump failures be noted on the Daily Morning Report (i.e. Appendix 16).

SECTION IV – AREAS OF CONCERN

The presentation of areas of concern does not constitute a formal compliance determination or violation by EPA.

1. Permit Part III.A states, "Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in the permit."

   EPA Method 1664 ("Oil and Grease") states, "A 1-L sample is acidified to pH<2 and serially extracted three times with…" This statement indicates that the entire 1-L sample needs to be extracted and used for the oil and grease analysis to be consistent with method protocol.

   The chain of custody sheet from the August 9, 2016 sampling event (Appendix 12) indicates that one glass amber bottle, marked on the chain of custody sheet as sample 1, was used to analyze the concentrations of both oil and grease and zinc, two parameters

that have different sample collection requirements. EPA also received an email from Eurofins Calscience, Beta's contracted laboratory, which confirmed that Beta requested that the sample analysis for both oil and grease and zinc originate from the same bottle, which deviated from Method 1664 for the oil and grease analysis (Appendix 14). The entire one liter should have been devoted to analyzing oil and grease and a different vessel should have been used to collect a sample for zinc analysis.

2. Beta Sampling Procedure (Appendix 6, page 8), states that the sampling procedures for metals, including zinc, includes using a two-quart plastic bottle and preservation with HNO_3, and cooling to a temperature of 4°C. EPA approved sampling methodology listed in 40 CFR Part 136 for metals, including zinc, includes requirements to use nitric acid (HNO_3) for preservation.

   The chain of custody sheet from the August 9, 2016 sampling event (Appendix 12) indicates that for sample 1, one glass amber bottle with H_2SO_4 as a preservative was used to analyze both the concentrations of oil and grease and zinc. Beta's contracted laboratory, Eurofins Calscience, also submitted a Sample Anomaly Report with their analysis report to Beta Offshore, which states, "Metals container not received" (Appendix 17). The potential issues with this sampling analysis are:
   - The sample used for zinc analysis was preserved with H_2SO_4 instead of HNO_3, and
   - The sample used for zinc analysis was collected with a glass bottle instead of a plastic bottle.

   It is not clear why Beta elected to split one sample between two analyses (oil and grease and zinc) when three other samples were available and not initially used for analysis.

3. In its August 2016 DMR, Beta reported 15,300 mg/L of oil and grease for Discharge 002, the analytical result of sample 1, collected on August 9, 2016 and analyzed as described in Areas of Concern 1 and 2 above.

4. The Eurofins Calscience report indicates the concentration of zinc in the August 9, 2016 sample was 0.0610 mg/L (60.10 µg/L) (Appendix 18).

   Beta's August 2016 DMR reports that the zinc concentration was 8 µg/L (Appendix 19) for "Monitoring Period" of "01/01/2016 - 12/31/2016". There does not appear to be any reported monitoring of zinc with respect to Discharge 002 in any other month in 2016. It appears that Beta's August 2016 DMR should have indicated a zinc concentration of 60.10 µg/L for Discharge 002.

5. Permit Part III.D states, "If the permittee monitors any pollutant more frequently than required by this permit, using test procedures approved under 40 CFR Part 136 or as specified in this permit, the permittee shall include the results of this monitoring in the calculation and reporting of the data submitted in the DMR."

   During the records review, Ms. Lang stated to us that a total of four samples were obtained on August 9, 2016 and were analyzed using Method 1664 for oil and grease

analysis. Laboratory reports (Appendices 15 and 18) confirm that all four samples were analyzed for oil and grease. The results were 15,300 mg/L for sample 1, 64,200 mg/L for sample 2, 62,300 mg/L for sample 3, and 86,000 mg/L for sample 4. Based on review of the chain of custody sheet and Eurofins Calscience laboratory report, it appears that Eurofins followed proper procedures for the oil and grease analysis for samples 2, 3, and 4. Beta did not report the results of samples 2, 3, and 4 in the August 2016 DMR sent to EPA and instead reported only the result from sample 1. The analytical data suggests that the DMR entries for oil and grease for August 2016 should have been 71,500 mg/L as the daily maximum and 71,500 mg/L as the monthly average, the average of samples 2, 3, and 4, which were analyzed properly.

6. Permit Part III.A states, "Monitoring must be conducted according to test procedures approved under 40 CFR Part 136." 40 CFR 136 Table II states that samples taken to be analyzed for oil and grease must be cooled to ≤6°C. Best practices for sample collection include labeling sample containers.

   Ms. Lang stated that ice was not regularly used to preserve samples, however, many chain of custody forms indicated a satisfactory arrival temperature below 6°C, as required by Method 1664.

   Beta sampled Discharge 002 on July 3, 2014 and sent samples to Eurofins Calscience, the laboratory contracted to complete the analysis. The chain of custody form from this sampling event does not include a relinquished signature and is unclear in its notation what samples were included in the shipment to the laboratory. Eurofins Calscience produced a "Sample Anomaly Report" indicating that no containers in the shipment were labeled (Appendix 21).

7. Beta has produced documents with conflicting messages regarding the representativeness of the sampling location for Discharge 002. A sampling SOP dated December 2007 for Discharge 002 states, "Confirm with Operations that all conditions are safe and the NPDES sample point is in service…All samples are to be collected downstream of the last treatment vessel and prior to ocean discharge. If there is another source of water (i.e. cooling water) mixed with the produced water, the produced water sample must be sampled prior to the commingling of the fluids" (Appendix 8). Here Beta appears to recognize that the NPDES compliance point is on the platform, accessible for sampling, and before commingling of any fluids, including seawater. In a letter to EPA dated on August 23, 2016, Beta writes, "The sample point where the oil and grease samples were collected was downstream of the produced water tank S-03 and prior to an emergency sump U-06. The emergency sump is located on the lower deck and extends to the ocean. It is a vertical pipe type structure used to capture any free oil twice per day. The sump extends -177 ft. and it was not possible to sample the water discharged at the bottom of the sump's outlet. Instead, the sample was collected upstream of the sump (which is technically the last treatment vessel) and may not necessarily be representative of the water that was actually discharged from the sump outlet" (Appendix 22). Here Beta suggests that the appropriate place to sample discharge for compliance is at the sump outlet.

We believe that the previously established compliance point (see Photos 3 and 4) is indeed the appropriate compliance point for the Platforms. Any attempt to sample discharge at the bottom of the emergency sump would be sampling the discharge after comingling and dilution with seawater.

8. Permit Part III.B states, "Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity." And Permit Part II.B.5.b states, "The term maximum for any one day as applied to BPT, BCT and BAT effluent limitations for oil and grease in produced water shall mean the maximum concentration allowed as measured by the average of four grab samples collected over a 24-hour period that are analyzed separately. Alternatively, one grab sample may be taken instead of four samples. If only one grab sample is taken for any one week, it must meet the maximum for any one-day limit. If four samples are taken for oil and grease over a 24-hour period, the maximum value for reporting purposes under Part III.A.2.a.i. of the permit is the average of the four samples rather than the maximum of the four samples."

   Beta's sampling protocol for produced water (Discharge 002) may not be representative of the discharge. Section III.18-21 of this report outlines Beta's sampling protocol and chain of custody practices.

   The permit states, "If four samples are taken for oil and grease over a 24-hour period, the maximum value is the average of four samples." This indicates that when Beta takes four samples Beta may be obligated to analyze and report the four samples taken. Beta is in the practice of collecting four samples during each sampling event, but not analyzing each sample.

   It appears that Beta is in the practice of collecting samples with the intention of analyzing some of the samples only after the results of one container is obtained. This practice is outlined in Beta's sampling SOP updated on December 2007 (Appendix 8). A review of DMRs shows that in some cases Beta analyzed all samples collected and in other cases only analyzed one sample. While Beta's chain of custody forms indicate that sample 1 is the bottle that is analyzed first, there are instances where it is unclear which sample is considered to be sample 1. There is evidence that Beta does not always label their bottles (Appendix 21, page 16) and there is evidence that samples are reportedly filled at the same time (Appendix 12).

9. Based on a review of Beta chain of custody forms and Beta DMR submissions to EPA, we noted that between July 2014 and March 2017 on five different dates[1] Beta collected four samples of Discharge 002 and analyzed only one.

SECTION V – CONCLUSION

The National Pollution Discharge Elimination System (NPDES) relies on self-monitoring to ensure compliance with the rules and regulations of the Clean Water Act. We noted several areas

[1] The five dates are: 11/08/2014, 03/17/2015, 09/24/2016, 09/26/2016, and 03/15/2017.

of concern that call into question the reliability of Beta's monitoring protocols and reporting of discharge. Our March 8 and 9, 2017 inspection and subsequent record review concludes that it remains unclear whether Beta's apparent and stated produced water sampling methodology is consistent with permit and Clean Water Act regulation requirements.

SECTION VI – DOCUMENTS REQUESTED DURING INSPECTION AND ANALYTICAL RESULTS

Received:

1. Engineering Flow Diagram – Production Water Surge – NO. C6 – 1757
2. Engineering Flow Diagram – Emergency Drains and Sump – NO. 008-10-201
3. Produced Water Discharge Sampling and Monitoring Procedure (Updated 2/11/2015) (1 page)
4. OCS NPDES Monitoring Procedures for the Dec. 2004 General NPDES Permit CAG 2800000 (Updated 12/07) (8 pages)
5. Beta Offshore Spill History (Revised 5/4/2016) (4 pages)
6. Daily Morning Reports March 1 – March 9, 2017 (4 pages each)
7. Laboratory results for produced water discharges on:
    - 7/31/2014
    - 11/8/2014
    - 11/12/2014
    - 12/10/2014
    - 3/17/2015
    - 7/4/2015
    - 7/23/2015
    - 8/9/2016
    - 9/24/2016
    - 9/26/2016
8. Work Orders associated with water discharges on:
    - 7/23/2015
    - 8/9/2016
    - 9/24/2016

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APPENDICES

Appendix 1 – Photograph Log

Appendix 2 – Sign in Sheet

Appendix 3 – Piping and Instrumentation Drawing of Produced Water Treatment Train

Appendix 4 – Piping and Instrumentation Drawings of Produced Water Surge Tank and Emergency Sump

Appendix 5 – Simplified Schematic of Produced Water Surge Tank and Emergency Sump

Appendix 6 – Sampling protocol for Discharge 002 dated 2/11/2015

Appendix 7 – Blank Chain of Custody form

Appendix 8 – Appendix C Sampling Information (Sampling SOP December 2007)

Appendix 9 – Summary of Discharge 002 sample dates and results

Appendix 10 – July 2015 DMR Discharge 002 Entry

Appendix 11 – 24-hour reporting of permit limit exceedance – NRC #1156753

Appendix 12 – Chain of Custody of samples from August 9, 2016 Discharge 002 (received during inspection)

Appendix 13 – Chain of Custody of samples from August 9, 2016 Discharge 002 (as submitted in August 2016 DMR)

Appendix 14 – Email from Eurofins Calscience to EPA on March 20, 2017

Appendix 15 – Eurofins Calscience Analytical Report 16-08-0626_s1

Appendix 16 – Daily Morning Report: August 9, 2016

Appendix 17 – Eurofins Calscience Sample Anomaly Report, August 9, 2016

Appendix 18 – Eurofins Calscience Analysis Report for Zinc, August 9, 2016

Appendix 19 – August 2016 DMR Entry for Zinc

Appendix 20 – August 2016 DMR Entry for Oil and Grease

Appendix 21 – Eurofins Calscience Analysis Report Dated July 30, 2014

Appendix 22 – Beta Exceedance Letter to EPA dated August 23, 2016

Appendix 1 – Photograph Log

The photographs were taken during the inspection by Colby Tucker. Original copies of the photos are maintained by EPA Region 9.

Photo 1: Platform Ellen (left) and Elly (right) are connected by a walkway. Platform Edith (owned and operated by DCOR LLC) is in the background.

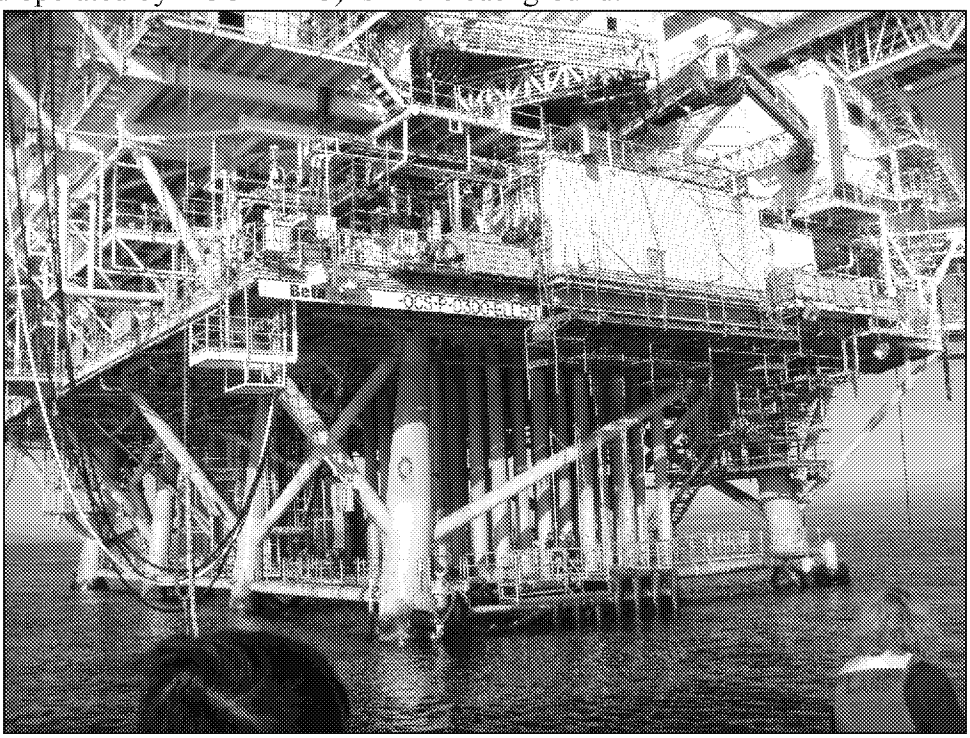


Photo 2: Platform Ellen. Note the several conductors entering the Pacific Ocean and rising to the well bay. Produced water is pumped up through the wells encased in the conductors and reinjected through other wells. The seawater intake and outflow is among the conductors. Conductors for wells extend into the sea floor and seawater intake and outflow pipes are at a depth of -42 feet.

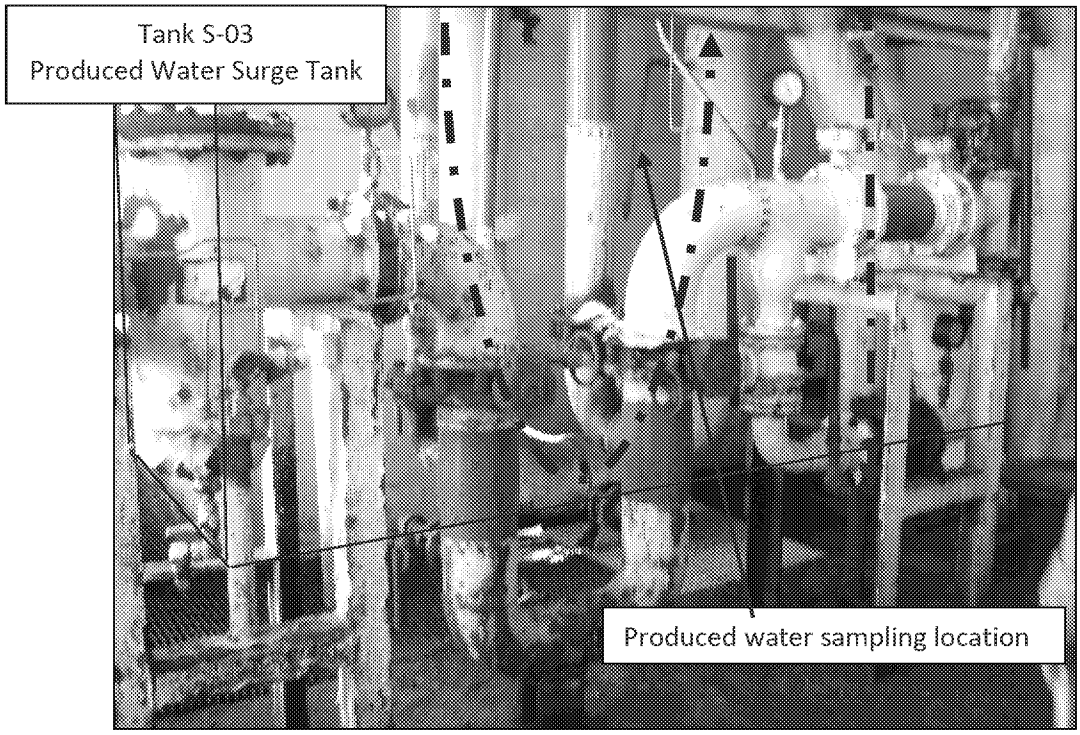


Photo 3: Tank S-03 (outlined in red and extending above and off to the right of the image) and associated piping and sampling location for produced water (Discharge 002). Produced water follows the dotted line in the 14" pipe that leads from tank S-03, through the floor in the image and to the sump in Photo 6. Treated produced water follows this path only if capacity of tank S-03 is exceeded. See Appendix X for simplified schematic.

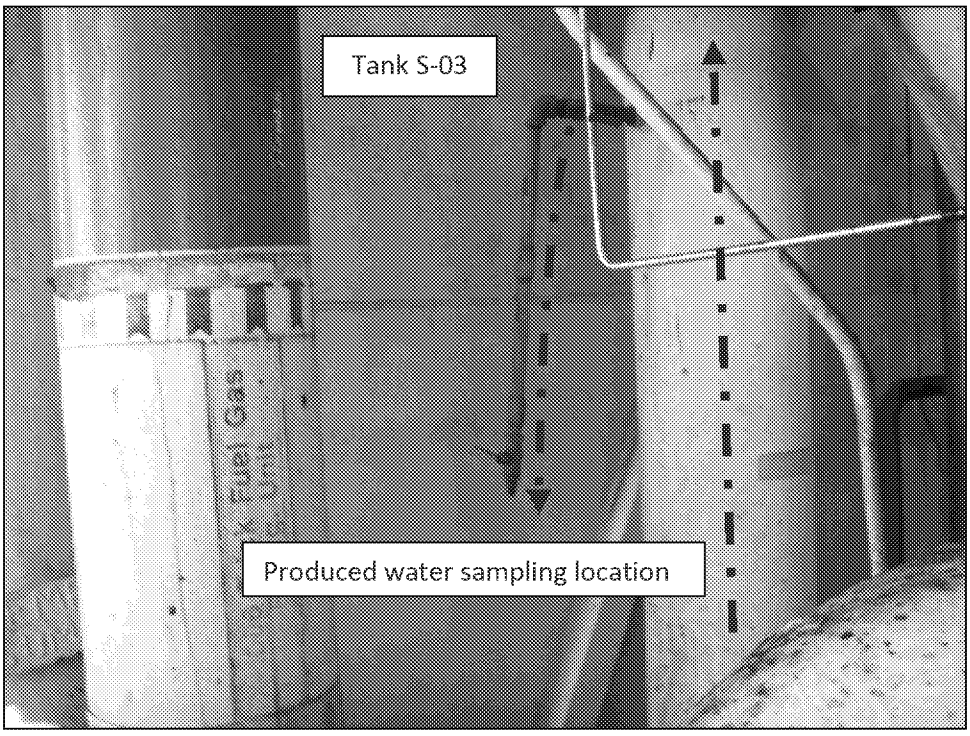


Photo 4: Close-up of sampling location for produced water.

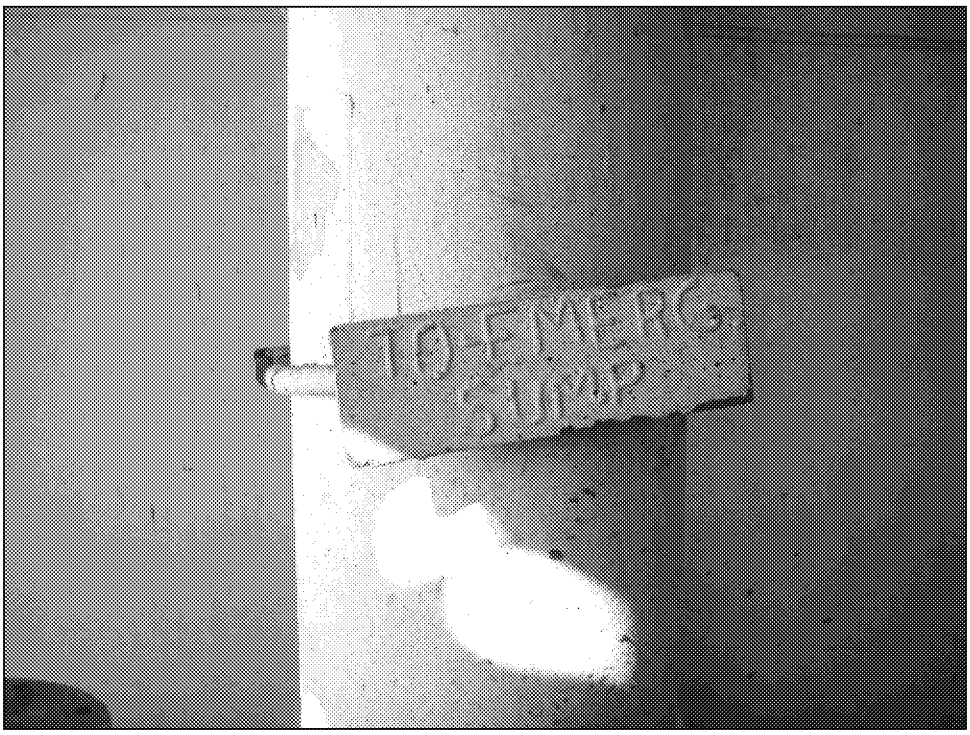


Photo 5: Close up of sign posted on 14" pipe leaving tank S-03 and leading to the open-bottomed Emergency Sump.

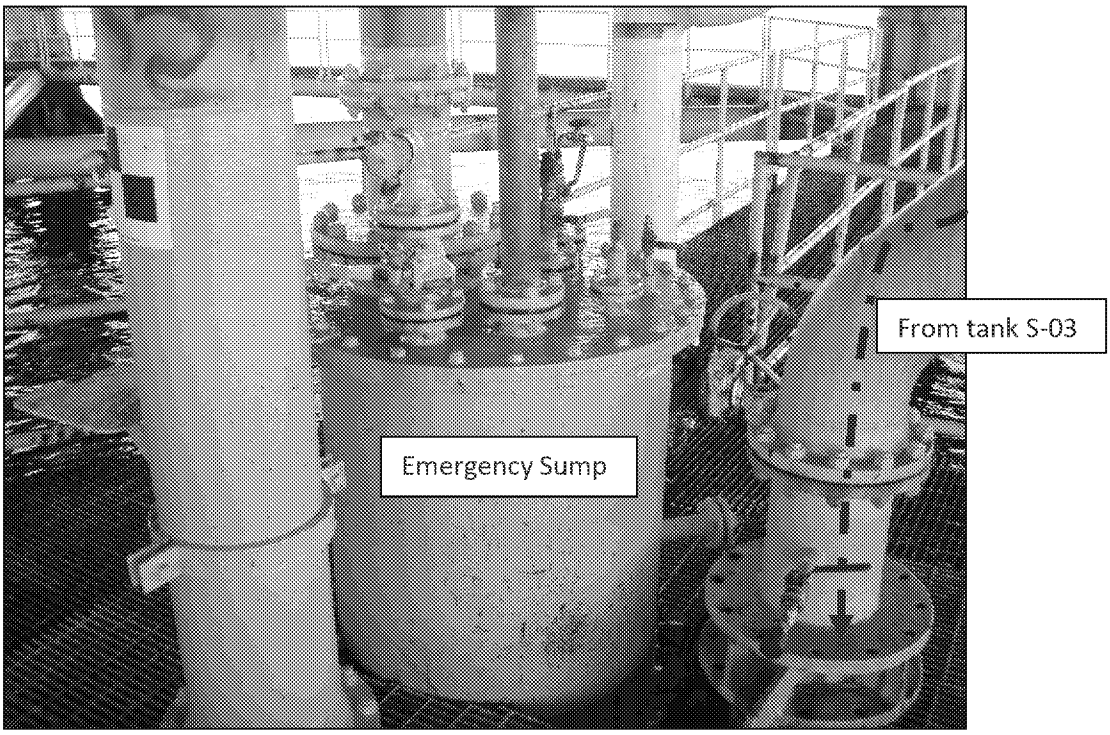


Photo 6: Open-bottomed emergency sump and pipe leading from tank S-03. Pipe will connect to the open-bottomed emergency at -120 feet.

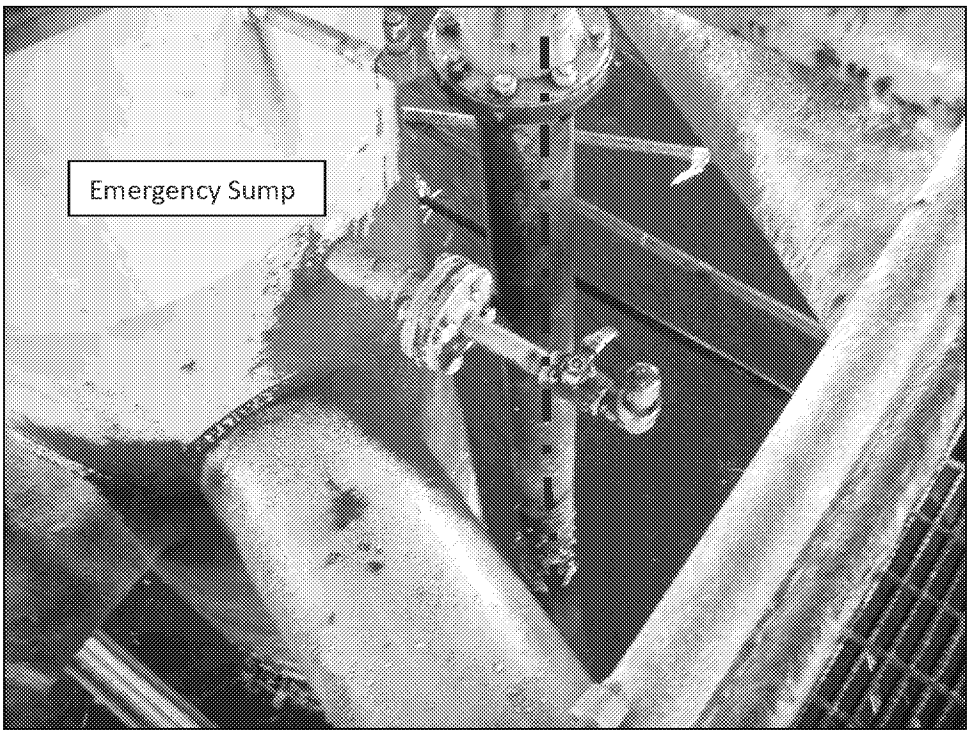


Photo 10: Open-bottomed Emergency Sump and pipe leading from tank S-03 entering the Pacific Ocean. P&IDs indicate that the pipe connects with the sump at -120 feet and the open-bottom of the sump is at -177 feet.

Photo 6: In Laboratory, box of glass amber bottles for oil and grease sampling of Discharge 002.

Photo 7: In Laboratory, box of plastic sample jars for metals sampling of discharge 002.

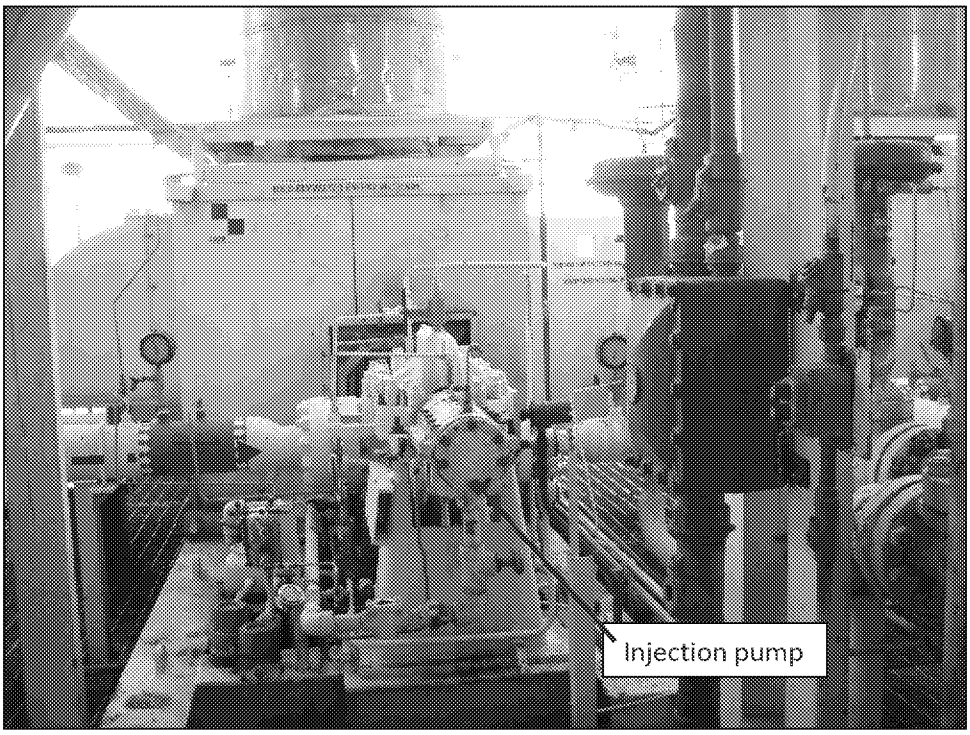


Photo 8: Injection pumps system. One of three injection pumps on Platform Elly. Dotted arrow shows flow direction of produced water.

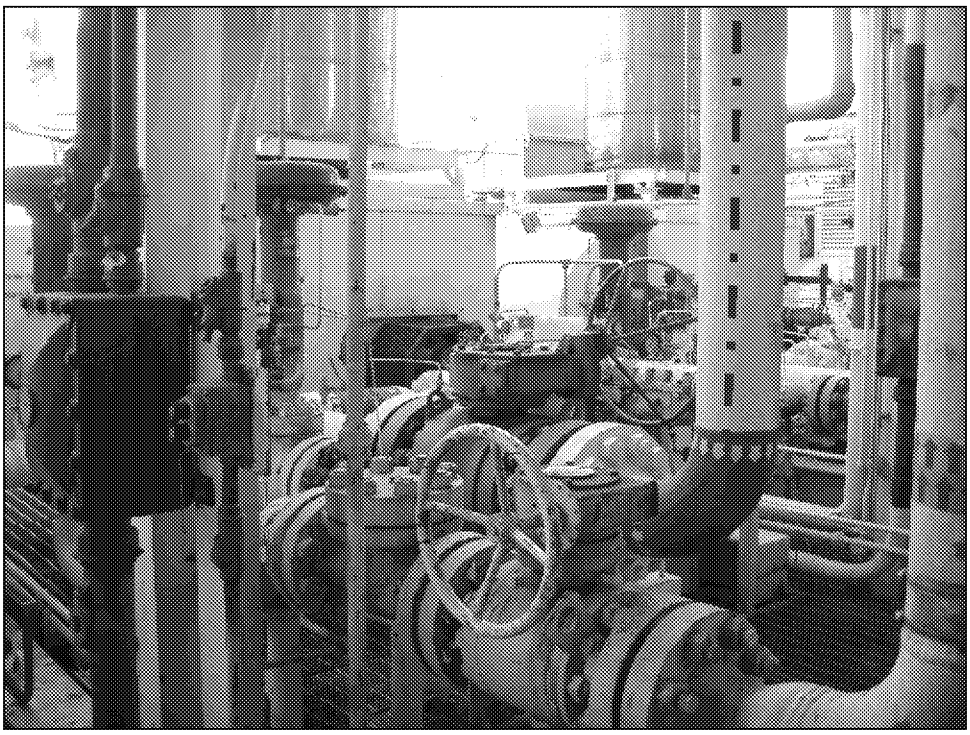


Photo 9: Injection pumps system. Treated produced water follows red dotted line.

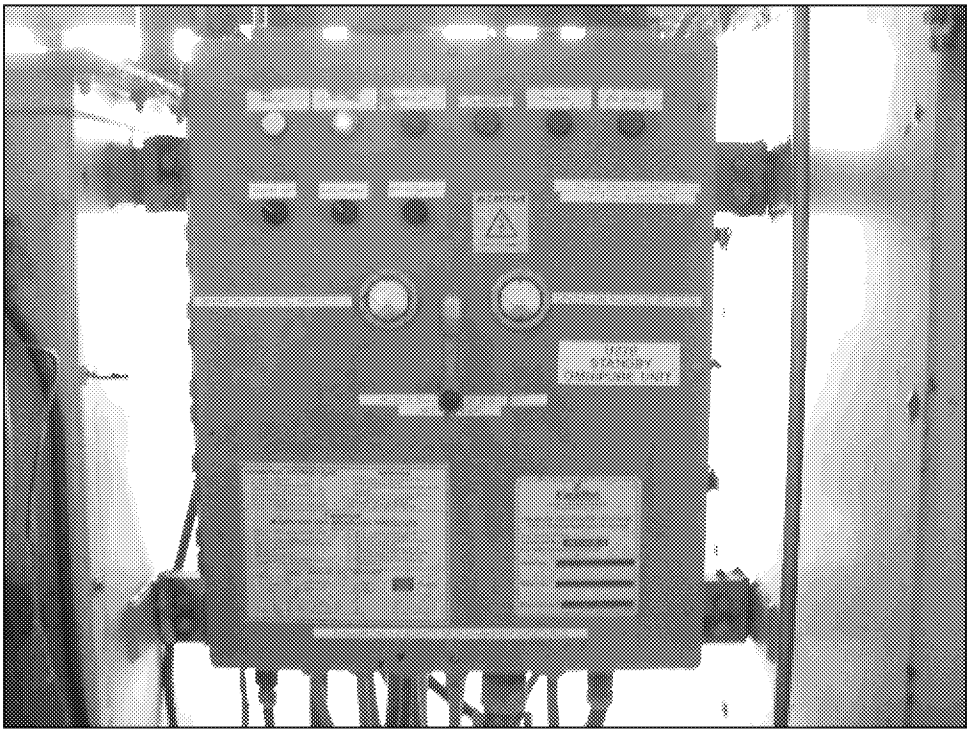


Photo 10: Panel of the Marine Sanitation Device (MSD) Omnipure system.

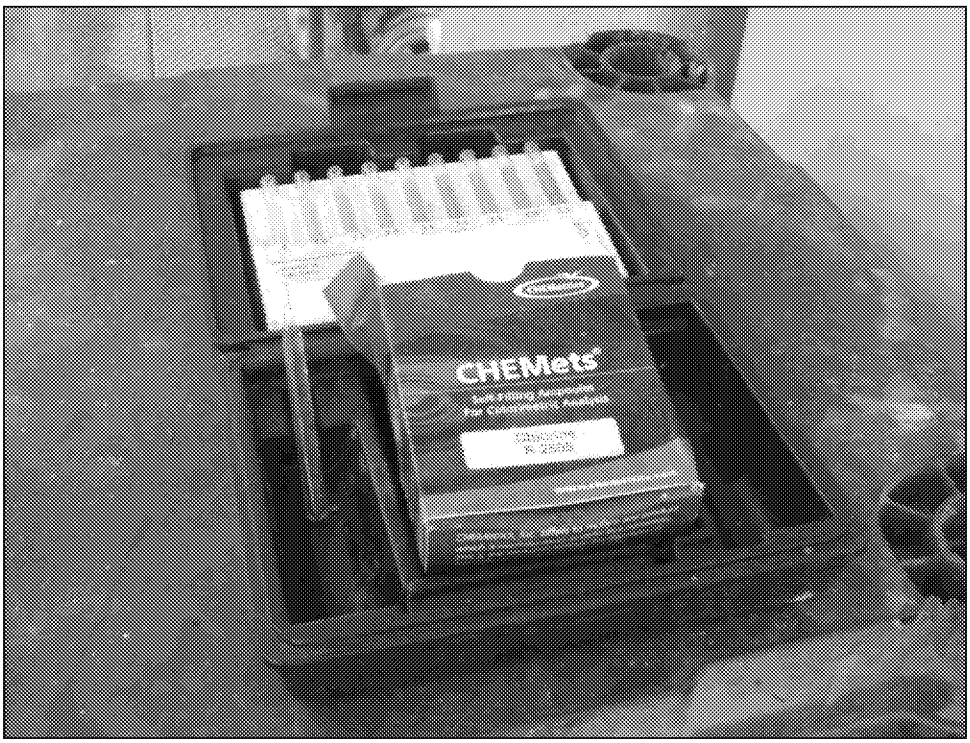


Photo 11: Residual chlorine test kit. Note the ampule with purple fluid on the left—part of the demonstration of how residual chlorine is tested.

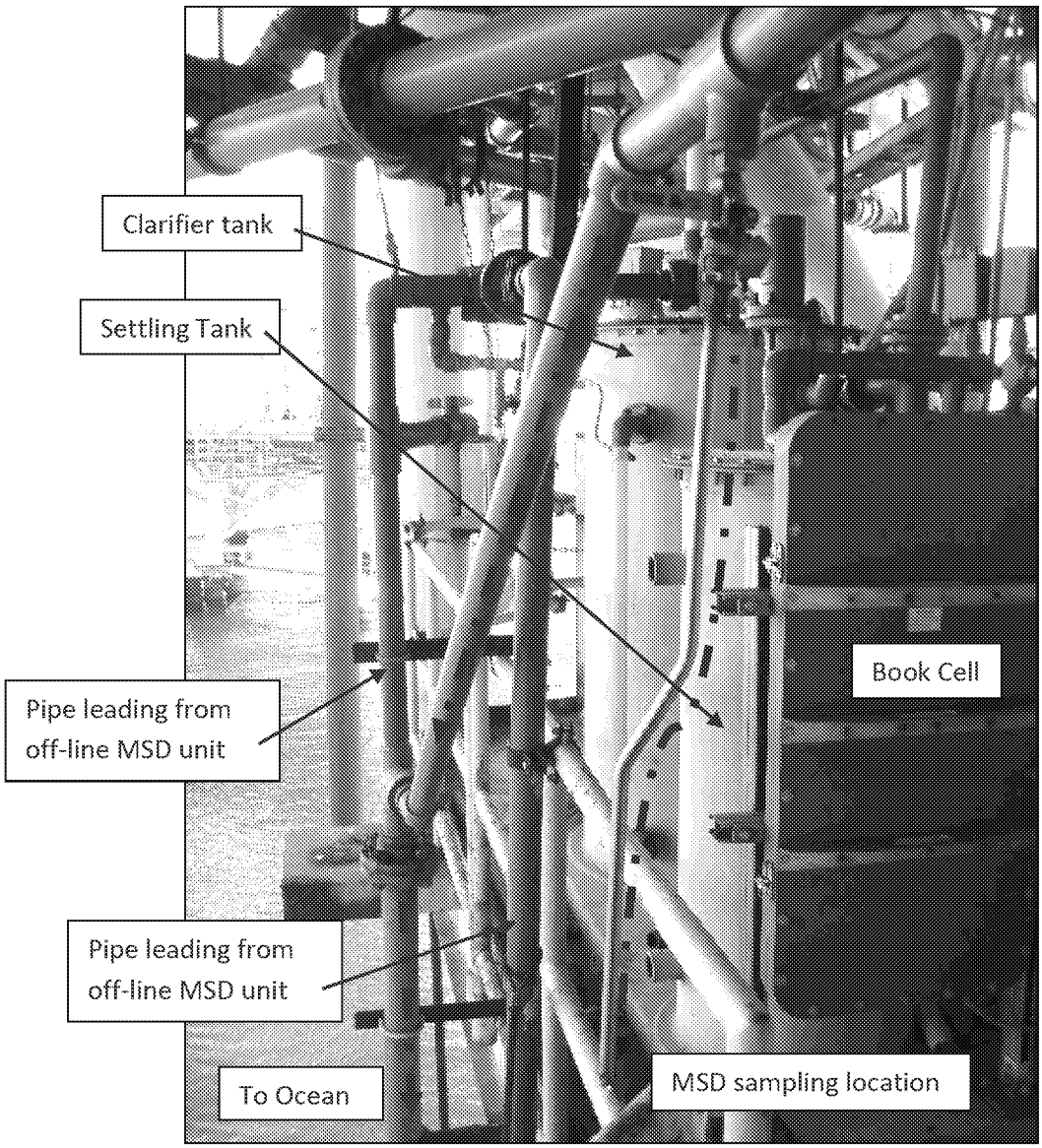


Photo 12: MSD Omnipure system. Blackwater enters the receiving tank, flows through the macerator pump (not shown), flows through the book cell for oxidation and chlorination. Not shown in this photo is the offline MSD unit which is next to this unit.

Appendix 2 – Sign in Sheet

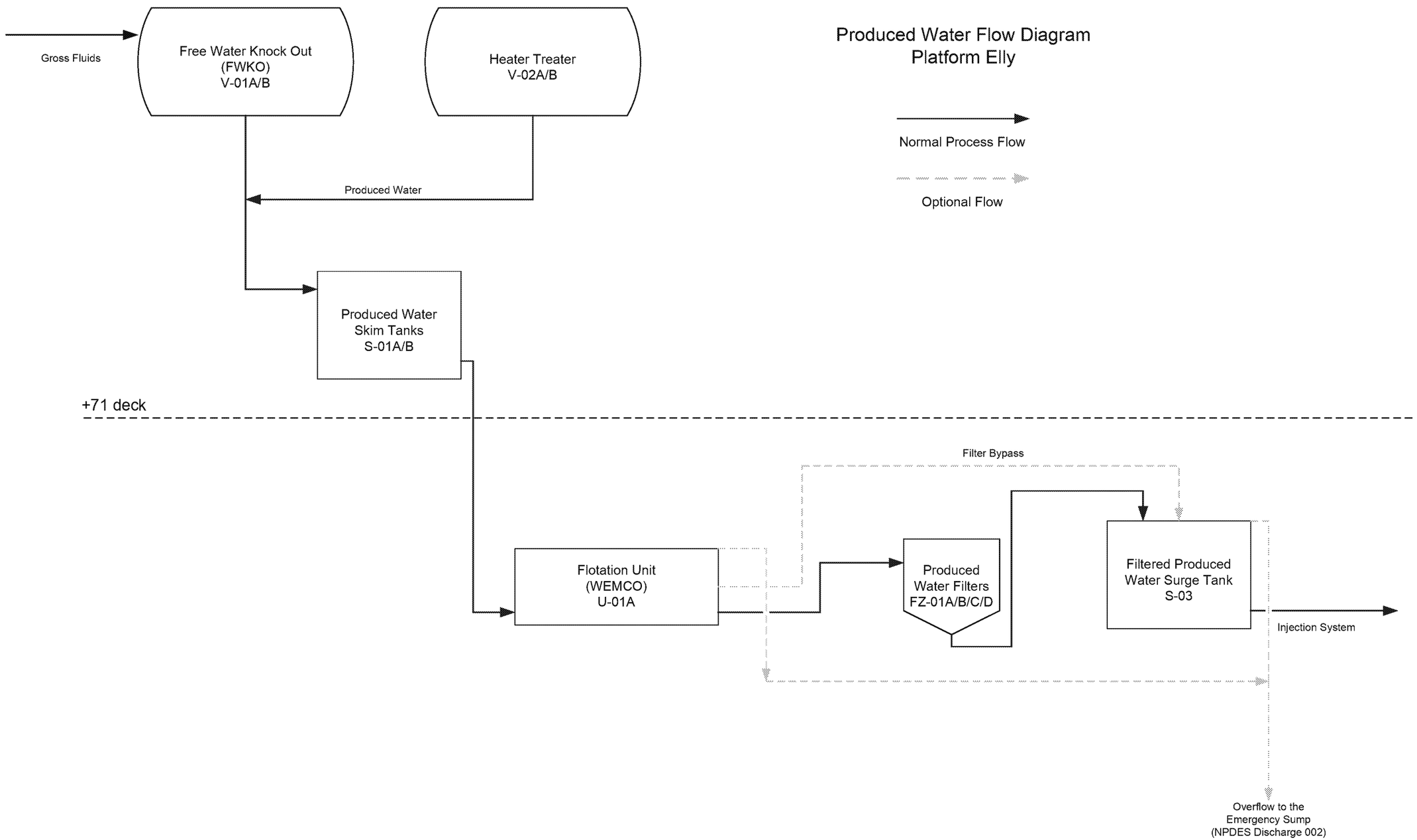
Attendance Sheet

Date: 3-8-17

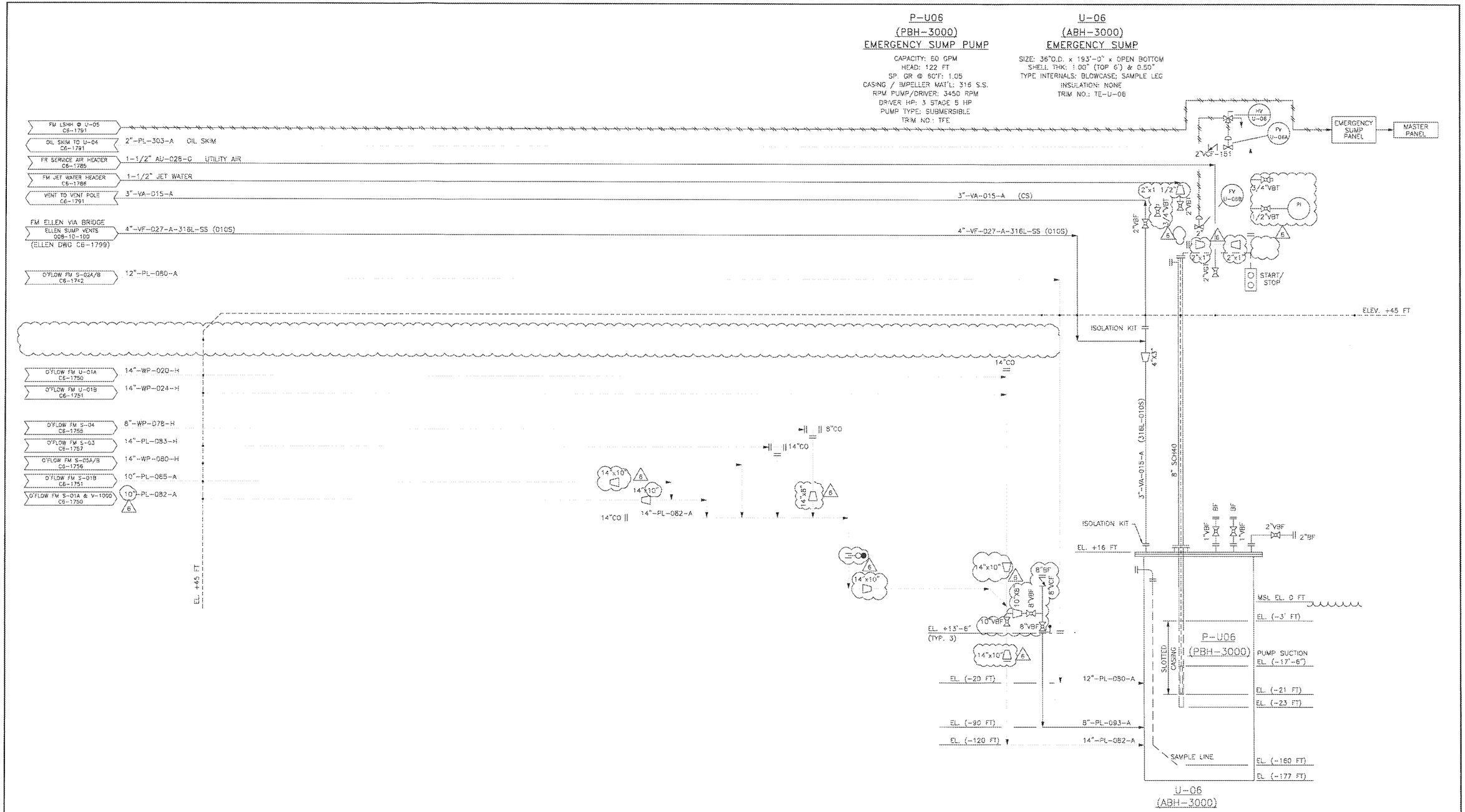
Location: Beta offshore, Platform Elly + Ellen

Name	Organization	Title	Phone	Email
Colby Tucker	EPA R9	Inspector	415 972 3556	Tucker.WilliamC@epa.gov
Beth Aubuchon	EPA R9	Inspector	415 972 3827	aubuchon.elizabeth@epa.gov
Christian Zumaran	Beta Offshore	Facilities Engineering	562-628-1526	czumaran@memorialpp.com
Diana Lang	Beta Offshore	HSE Mgr	562 628-1529	dLang@memorialpp.com
Jamie Cool	BETA	Prod. Manager	562-628-1550	jcool@memorialpp.com

Appendix 3 – Piping and Instrumentation Drawing of Produced Water Treatment Train


Produced Water Flow Diagram
Platform Elly
Normal Process Flow
Optional Flow
Gross Fluids
Free Water Knock Out
(FWKO)
V-01A/B
Heater Treater
V-02A/B
Produced Water
Produced Water
Skim Tanks
S-01A/B
+71 deck
Filter Bypass
Flotation Unit
(WEMCO)
U-01A
Produced
Water Filters
FZ-01A/B/C/D
Filtered Produced
Water Surge Tank
S-03
Injection System
Overflow to the
Emergency Sump
(NPDES Discharge 002)

Appendix 4 – Piping and Instrumentation Drawings of Produced Water Surge Tank and Emergency Sump



C6-2813	TITLE SHEET - DRAWING INDEX
DWG NUMBER	TITLE

REFERENCE DRAWINGS

NOTES
1. FOR GENERAL NOTES & SYMBOLS, SEE DWG. NO. C6-1729.

IQA SOLUTIONS, Inc.
4089 East Conant St.
Long Beach, CA 90808
TEL: 562-420-1000
FAX: 562-420-1011

REV	DATE	DESCRIPTION	BY	CKD.	APPR
0	3/10	U-06 MOVED FM DWG C6-1791	JE		RC
1	5/10	VALVE REVISED	JE		RC
2	11/10	REPLACED 14" OVERFLOW HEADER	GV		RC
3	10/12	REMOVED LEVEL INSTR. PER MOC-2012-BAF-15	JK	BAF	KT/ER
4	11/12	DEMO WATER LEGS PER MOC-2012-BAF-20	JC	BAF	KT/ER
5	6/15	2015 14C/BSEE REVIEW	GR		GR
6	8/15	AS-BUILT DRAINS AND SUMPS	PH		ML

Beta OFFSHORE

UTILITY FLOW DIAGRAM
EMERGENCY DRAINS AND SUMP
PLATFORM ELLY
BETA FIELD FACILITIES, CALIFORNIA

ENGINEER: KENT THOMPSON	DATE: 03/12/10	SCALE: NONE	
CO. ENGINEER:	ORIGINAL DWG NO.		
PROJ. MGR:	NO. 008-10-201		REV. 6
DRAFTED BY: JTE			
DOCUMENT TYPE: FLOW DIAGRAM	CAD FILE NO. 008-10-201_r4G		

WCT 3-8-17

S-03 (MBJ-8001) FILTERED PRODUCED WATER SURGE TK.

SIZE: 15'-0"W X 23'-0"L X 12'-0"
SHELL THK: 0.375" (WALLS & ROOF)
CORR. ALLOW: NONE
MATERIAL / SR: C.STL/NO
DESIGN P/T: 2.5PSIG / 200°F
TYPE INTERNALS: NONE
INSULATION: NONE
HYDRO: FULL OF WATER + 2.5PSIG
CAPACITY (TANKS): 600BBLS
TRIM NO: TE-S-03

P-21A (PAZ-8000) PRODUCED WATER BOOSTER PUMPS

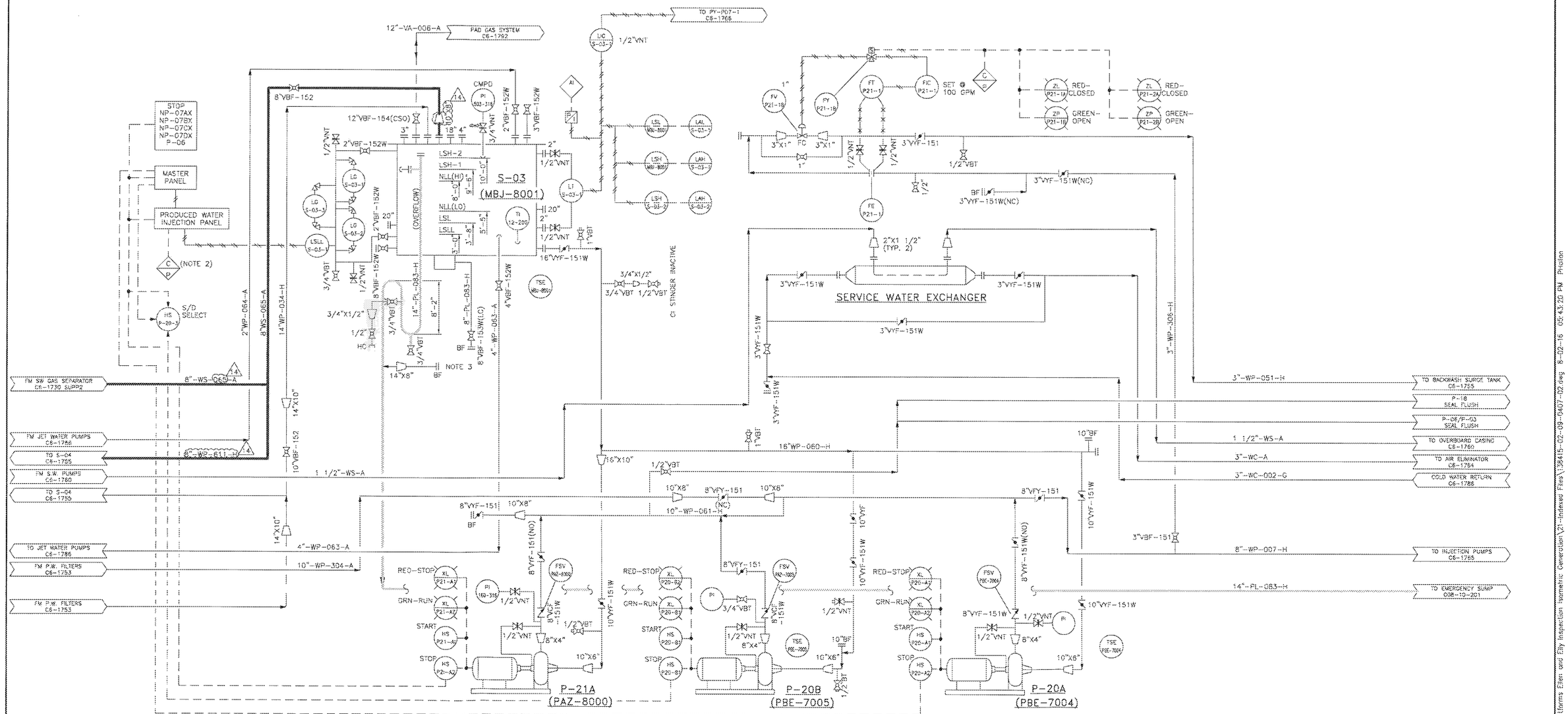
CAPACITY (GPM @ °F): 1000 @ 125-150°F
HEAD (FT): 150
SP. GR. @ °F/ @ 60°F: 0.98-1.025/1.0-1.025
CASING MAT'L: A-296 CF-8M (316 SS)
IMPELLER MAT'L: A-296 CF-8M (316 SS)
NPSH REQ'D (FT. H20): 8
RPM PUMP/DRIVER: 1770/1770
DRIVER HP: 60
DRIVER ITEM NO.:MP-21A
PPG. DTL. SEAL/CW: API PLAN 11/NONE
TOTAL CW TEQ (GPM): -------
PUMP DESIGN SIZE/TYPE:4X5-13 / HOR. CENT.
TRIM NO:TE-2-21A

P-20A (PBE-7004) SOURCE WATER BOOSTER PUMPS

CAPACITY (GPM @ °F): 1000 @ 55-150°F
HEAD (FT): 150
SP. GR. @ °F/ @ 60°F: 0.98-1.025/1.0-1.025
CASING MAT'L: A-296 CF-8M (316 SS)
IMPELLER MAT'L: A-296 CF-8M (316 SS)
NPSH REQ'D (FT. H20): 8
RPM PUMP/DRIVER: 1770/1770
DRIVER HP: 60
DRIVER ITEM NO.: MP-20A-20B
PPG. DTL. SEAL/CW: API PLAN11 / NONE
TOTAL CW TEQ (GPM): -------
PUMP DESIGN SIZE/TYPE:4X6-13 / HOR CENT
TRIM NO: TE-P-20A

P-20B (PBE-7005) SOURCE WATER BOOSTER PUMPS

CAPACITY (GPM @ °F): 1000 @ 55-150°F
HEAD (FT): 150
SP. GR. @ °F/ @ 60°F: 0.98-1.025/1.0-1.025
CASING MAT'L: A-296 CF-8M (316 SS)
IMPELLER MAT'L: A-296 CF-8M (316 SS)
NPSH REQ'D (FT. H20): 8
RPM PUMP/DRIVER: 1770/1770
DRIVER HP: 60
DRIVER ITEM NO.: MP-20A-20B
PPG. DTL. SEAL/CW: API PLAN11 / NONE
TOTAL CW TEQ (GPM): -------
PUMP DESIGN SIZE/TYPE:4X6-13 / HOR CENT
TRIM NO: TE-P-20B



C6-2813	TITLE SHEET - DRAWING INDEX
DWG NUMBER	TITLE

REFERENCE DRAWINGS

NOTES:

1. FOR GENERAL NOTES AND SYMBOLS, SEE C6-1729
2. SIGNAL FROM PRODUCED WATER FILTER LOGIC CONTROL CENTER TO START DESIGNATED PRODUCED WATER BOOSTER PUMP FOR BACKWASH SURGE TANK FILL DURING EARLY PRODUCTION PERIOD.
3. LINE 8"-PL-083-H IS DISCONNECTED.

REV	DATE	DESCRIPTION	BY	CKD.	APPR
12	6/15	2015 14C/BSEE REVIEW	MP	ML	MP
13	09/15	AS BUILT DRAINS & SUMPS	NS	PH	ML
14	7/16	AS-BUILT	AS	PH	ML
4	11/97	P-20/21 DISC HDR RPLC	MBW		LAM
5	5/04	AS-BUILT	KWG		LAM
6	4/06	AS-BUILT	JRS		LAM
7	8/07	REVISED FOR SMART PIG JUMPER	CV	JGW	RP
8	9/07	2009 API RP 14C REVIEW	JE		RC
9	3/10	GENERAL REVISION	GEM		JE
10	12/10	SATURN SUCTION LINE MODIFICATION	GV	JGW	RC
11	6/11	FOR ELLY 2011 PHA COMMENTS	CV	JGW	JE

IQA SOLUTIONS, Inc.
4089 East Conant St.
Long Beach, CA 90808
TEL: 562-420-1000
FAX: 562-420-1011

Beta OFFSHORE

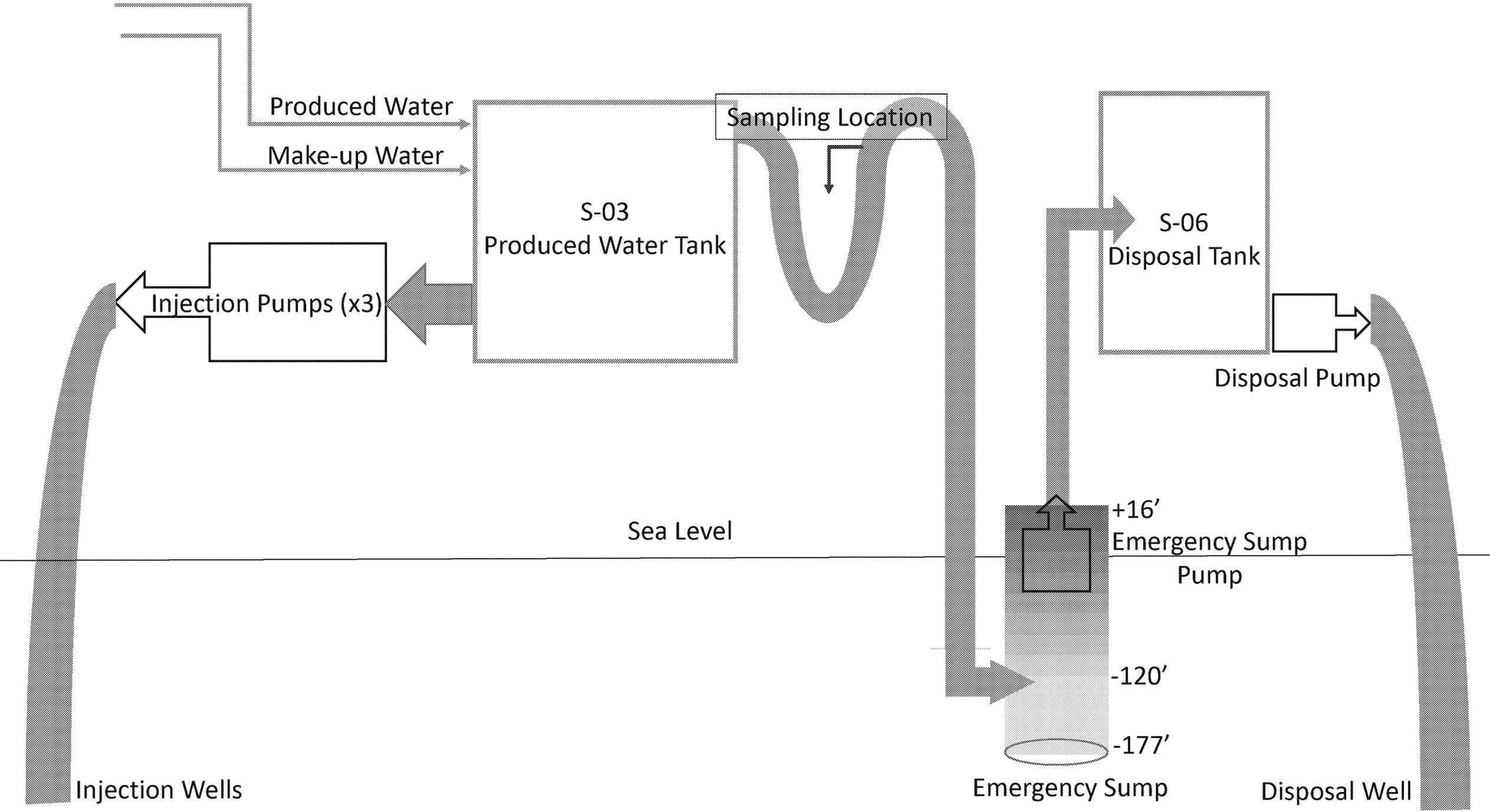
ENGINEERING FLOW DIAGRAM
PRODUCTION WATER SURGE
PLATFORM ELLY
BETA FIELD FACILITIES, CALIFORNIA

ENGINEER:		DATE: 04/04/78	SCALE: NONE
CO. ENGINEER:		ORIGINAL DWG NO. 89300103.dwg	
PROJ. MGR:		NO. C6-1757	REV. 14
DRAFTED BY:	LS		
DOCUMENT TYPE:	FLOW DIAGRAM	CAD FILE NO. C6-1757r12.dwg	

M:\3-Projects\135415_Beta Offshore Platforms Ellen and Elly Inspection\Isometric Generation\21-Indexed Files\135415-02-09-04D7-02.dwg 8-02-16 05:43:20 PM Pickton

WCT 3-8-17

Appendix 5 – Simplified Schematic of Produced Water Surge Tank and Emergency Sump


Produced Water
Make-up Water
Sampling Location
S-03
Produced Water Tank
Injection Pumps (x3)
S-06
Disposal Tank
Disposal Pump
Sea Level
+16'
Emergency Sump
Pump
-120'
-177'
Injection Wells
Emergency Sump
Disposal Well

Appendix 6 – Sampling protocol for Discharge 002 dated 2/11/2015

WCT 3-9-17

PRODUCED WATER DISCHARGE SAMPLING AND MONITORING PROCEDURE

Updated 2/11/2015

Anytime there is a discharge of produced water from Elly, make sure the start and end times of discharge and total volume discharged is documented and provided to Marina Robertson.

Preferably during the actual discharge, collect four 1-liter samples of produced water from the outlet of the last treatment vessel (the official NPDES sample point) following the procedure outlined herein.

Sample containers consist of amber liter jars. They are stored in the water lab at Platform Elly. The jars contain a sulfuric acid preservative. CAUTION: wear proper PPE (goggles and rubber gloves) – the sulfuric acid can and will chemically burn the handler if not protected, so be careful.

1. Purge the sample point for 1 full minute and then reduce the stream to avoid splashing the preservative out of the sample jar. Slowly fill each bottle to the top and do not overfill.

2. Cap the bottle and label it with **date, time of sampling, sample name** (typically ***"Produced Water")*** and **company name.** Use a waterproof pen or Sharpie. Place the four jars in a sample cooler. Gradually add ice to cool the samples and ultimately chill them. If needed, use packing in the cooler to prevent bottles from breaking during transit.

3. Complete the chain of custody form (Q:\NPDES\Chain-of-custody forms for sampling \Chain of Custody - Produced water discharge oil & grease.xlsx). Oil & Grease is the only parameter needing to be analyzed – using EPA Method 1664. The Chain of Custody form must be signed and dated by the operator sampling the water. Place your name in the "Sampled by" area and sign with date and time on the line that says "Relinquished by", highlighted yellow. The receiver (the courier or Marina) will in turn sign the "Received by" and then further relinquish it to the Lab receiver. Remember, the Chain of Custody is a legal document and must be completed accurately by all persons handling the cooler – a) you, b) the pickup person and c) the lab. Place the Chain-of-custody in a sealed plastic bag inside the cooler, or envelope outside the cooler, otherwise it gets soaked and disintegrates.

4. **The next step is important: Either call or email Marina Robertson (24/7 at 714-309-9481) or, if unavailable, leave her a message as a notification then contact Amanda Porter at Eurofins** (formerly Cal Science) **at (714) 895-5494 to arrange for sample pick up at Ship Services at a pickup time when you know for sure the sample will be there. If this occurs on a weekend or holiday, arrange for sample pickup on morning of next business day. Do not send the sample in until it is determined who will pick up the sample.** Once this is confirmed, attach a tag to the cooler specifying who will pick it up: i.e. "***HOLD FOR PICK-UP by EUROFINS LAB COURIER***" If the lab is not specified, it will probably be brought to the office.

5. If you have questions about this procedure, please contact Marina Robertson or Steve Lawry of LTS Environmental at (805) 644-4560.

- End -

Appendix 7 – Blank Chain of Custody form

WS 7-9-17

LTS Environmental Inc. 704 Adirondack Avenue Ventura, CA 93003 805-644-4560	**Report to:** Diana Lang 111 W. Ocean Blvd. Suite 1240 Long Beach, CA. 90802	**Bill to:** Diana Lang 111 W. Ocean Blvd. Suite 1240 Long Beach, CA 90802

FACILITY: *Platform Elly*
SAMPLER NAME:
PROJECT/CHARGE # ***Weekly NPDES Produced Water Monitoring***
RESULTS REQUIRED: **48 hr RUSH**
RESULTS BY: PHONE: _____ E-MAIL **X** DLang@memorialpp.com *704 Adirondack, Ventura, CA 93003*

SUBMITTED TO: Eurofins *(Calscience)* PHONE: *714-895-5494*
REPORT TO: *Diana Lang* PHONE: *562-628-1529*
COPIES TO: *Diana Lang* PHONE: *or* ***562-522-5095***
lawrvlts@sbcglobal.net PHONE: *805-644-4560*

SAMPLE NO.	SAMPLE ID	GRAB/ COMP.	VOLUME	DATE/TIME COLLECTED	PRESERV.	ANALYSES REQUESTED (METHOD)
1	NPDES Prod.Water	grab	1 L amber		H2SO4	***Oil & Grease (EPA 1664)***
2	NPDES Prod.Water	grab	1 L amber		H2SO4	***Oil & Grease (EPA 1664)*** ***Hold***
3	NPDES Prod.Water	grab	1 L amber		H2SO4	***Oil & Grease (EPA 1664)*** ***Hold***
4	NPDES Prod.Water	grab	1 L amber		H2SO4	***Oil & Grease (EPA 1664)*** ***Hold***
	Caution to Sample Collector: All sample bottles contain a concentrated ***acid*** *preservative.*					
	Use proper PPE including gloves and goggles when collecting the samples.					

To Lab: ***For Samples 1-4: Analyze Sample #1 only - hold other samples until further notice.***

Relinquished by:	Date:
Received by:	Time:

Relinquished by:	Date:
Received by:	Time:

Relinquished by:	Date:
Received by:	Time:

Relinquished by:	Date:
Received by:	Time:

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Appendix 8 – Appendix C Sampling Information (Sampling SOP December 2007)

WCT 3-9-17

APPENDIX C

SAMPLING INFORMATION

This section contains the LTS Environmental, Inc. NPDES Monitoring Procedures to assist Operations in the event there is a need for the collection of NPDES samples. Please review the procedures prior to collecting any NPDES samples. Contact Steve Lawry with LTS at (805) 644-4560 if you have any questions relating to NPDES sampling.

Sampling kits with laboratory-provided bottles should be kept on the platforms (primarily Platform Elly for Produced Water discharge). These bottles contain acid preservatives and should be handled only with proper PPE.

Updated 12/07

LTS Environmental Inc.
OCS NPDES Monitoring Procedures for the Dec. 2004 General NPDES Permit CAG 280000:

Part I: Requirements for each Individual Discharge

The following is a detailed list of LTS procedures needed to implement the NPDES monitoring program beginning in December 2004. Always call ahead to arrange sample transportation and pick up from the lab listed on the chain of custodies. More detailed procedures for preservation, sampling and safety issues are covered in Part II and past correspondences:

I . Drilling Activities (discharge #001) / Including Well Treatment and Completion Fluids (discharge #003):

Drilling representatives are responsible for completing the attached "Monthly Drilling Report" form. Please keep a copy with your NPDES files for any facility engaged in any drilling or well workover activities. Review what is required in this report and become familiar with it before discussing it with any drilling representatives. If drilling is active, perform the following tasks:

- Meet with the "drilling representative" and/or lead operator and confirm that they have a copy of the attached Monthly Field Drilling Report. *(at smaller platforms, the lead operator may be the drilling representative for that facility).*
- Go over the report with the drilling representative and identify any of their questions and report to me. They should be aware that this form must be completed correctly by month end and reported to the compliance department at the end of each month as long as there is any activities done on the wells that are listed in the Monthly Field Report. They should also attach drilling reports or logs that will help as support their data for any future EPA audits.
- Drilling will perform their own static sheen tests and pollution checks, and other required monitoring requirements listed in their monthly report.

1. LTS will however intercept an occasional Drilling fluid toxicity sample *(collected by the drilling representative)* during certain periods of drilling fluid discharges. If drilling activities are occurring, meet with the drilling representative. Samples are to be collected in 2-4 qt. (i.e. 1 gallon) wide mouth containers and iced down. Follow all normal sample handling procedures *(refer to your training literature on sample handling procedures if any questions).* Complete chain-of-custody (c-o-c), preserve the samples and call LTS at (805) 644-4560 for sample transport to ABC Labs in Ventura. Once iced, the samples are good for about 28 days. Instruct ABC Labs to perform an "Acute" SPP Toxicity test using Mysidopsis bahia (Mysid shrimp). LTS will instruct the lab to set up their test concentrations above and below the NPDES LC50 limit of 3% by volume (30,000 ppm).

2. Well Treatment, Completion and Workover Fluids (discharge #003) are separate from actual drilling fluids (muds and cuttings), but since they are part of the well work program, they are included herein. During the period that these types of fluids are discharged separately, *(a grab sample for oil and grease is required).* Try to schedule during normal NPDES sampling, make a clear note on the chain-of-custody (c-o-c) by listing the well number and type of job

ED_006450_00013032-00040

that was performed (i.e. acid job returns from well #B2). In most cases, if the fluids were commingled with produced water, note on the chain that O&G samples were collected during the return of WTCF from the well # being treated or worked on.

II. Produced Water (discharge # 002):

The produced water monitoring is broken into two categories. The first is "Reasonable Potential" (RP). RP consists of **grab** samples taken **monthly** for the first 12 months of the permit for the constituents listed below. This has been completed for Platform Elly. *(refer to the individual platform monitoring schedule below)*. The second category is oil and grease (O&G). Oil and grease is to be sampled **weekly when discharging to the ocean**.

1. Reasonable Potential (RP): Currently completed. No further action necessary unless, there are significant changes in the production system (ie. New wells or Eureka influences), in case RP for produced water may be necessary again. The following is required during the RP monitoring phase of the program. The compounds listed below should be collected at the same time. Please list all constituents on the chain-of-custody and include the required Method Detection Limits (MDL) and test methods listed below: *(refer to the pre-completed c-o-c copy and be sure that all footnotes below are recorded on the c-o-c)*

Parameter:	MDL (ug/l)	EPA Test Method
Ammonia	--	350.3
Arsenic	20	200.7
Cadmium	1	200.7
Copper	30	200.7
Cyanide	30	200.7
Lead	80	200.7
Manganese	50	200.7
Mercury	0.5	200.7
Nickel	80	200.7
Selenium	10	200.7
Silver	2	200.7
Zinc	60	200.7
Benzene	3	602
Benzo (a) Anthracene	10	625
Benzo (a) pyrene	10	625
Chrysene	10	625
Benzo (k) Fluoranthene	10	625
Benzo (b) Fluoranthene	10	625
Dibeno (a,h) Anthracene	10	625
Hexavalent or Total Chrome	5	200.7
Phenol	100	625
Toluene	3	602
Ethylbenzene	1	602
Naphthalene	10	625
2,4-dimethylphenol	10	625
Undissociated Sulfides (1)	20	376.1
Whole effluent toxicity (2),(3)	--	Chronic Bioassay

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(1) Use a Total Sulfides preserved container, and also collect a sample of produced water for pH, Temperature, and salinity once per discharge or twice per year which ever is less. Record the onsite temperature for the produced water on the c-o-c.

(2) Chronic Toxicity – test for Red Abalone: Collect a one quart 24 hour composite, with aliquots at 3 hour intervals (no fewer then 8 samples). Instruct ABC lab to set up the following concentrations (as listed in Table MAMT / DMMT concentrations obtained from LTS).

(3) Annual bioassay toxicity monitoring: On the fourth quarter (from the start date of the permit) collect separate 1 gallon composite samples for Red abalone, Top Smelt and Giant Kelp. Continue the annual toxicity sampling every 5th quarter until all four seasons have been collected (see schedule below). *Note: this was completed in Dec. 2007 and is due again in the spring of 2009.* Summer 2010 & Fall 2011.

Toxicity - Additional Monitoring: As listed in the permit, if a toxicity result exceeds one of the monitoring triggers, additional monitoring will be required. Sampling will be required every 3 weeks for 18 weeks. Additional monitoring notices will be given pending test results each month.

III. NPDES Monitoring Schedule per Platform:

Ellen / Eureka: Record Daily Pollution checks for sheen foam or floating solids in the receiving water near the point of all NPDES discharges. This includes sanitary and domestic, fire water and non-contact cooling water. If Drilling is taking place, receiving water observations are also required as listed above as well as sheen tests prior to muds or cuttings discharges. Samples will also be required for toxicity and barite metals analysis. Contact your HSE Manager to obtain detailed drilling discharge requirements.

Elly: Record Daily Pollution checks for sheen foam or floating solids in the receiving water near the point of all NPDES discharges. This includes sanitary and domestic, fire water and non-contact cooling water. Additionally, if produced water is discharged notify Marina Roberts at (562) 683-3497 or alternatively, LTS at (805) 644-4560 for sampling requirements. In all cases, an oil and grease sample must be collected as well as recording the duration and amount of water discharged (in barrels). Then based on historical data and discharge dates, additional analyses may be required such as organics, inorganics and toxicity. If you can't reach any of the two contacts above, fill one set of the sample containers in the NPDES sample kit in the cut lab (for all constituents listed under RP abpve) and place samples on ice until it can be determined exactly what constituents will need to be tested for.

Oil and Grease Sampling Procedure:
(NPDES limit: 29 ppm Monthly Average / 42 ppm Daily maximum)

The new permit allows for one single oil and grease (O&G) grab sample as an alternative, instead of the four sample composite, but we would like to still collect the four sample composite. The four samples will be taken at a minimum of 15 minute intervals. If time allows, the intervals may be increased based on the duration of the discharge, but try to collect four samples spaced evenly over the time that the discharge takes place. (ie. If there is a four hour discharge, collect a separate sample ever hour).

- Follow all sampling procedures and PPE issues listed in your safety manual regarding O&G sampling and IR testing (i.e. goggles, gloves, proper ventilation). Bottles are preserved with

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hydrochloric acid and extreme caution is recommended. Review MSDS for HCl and do not overfill the container.

- Confirm with Operations that all conditions are safe and the NPDES sample point is in service. Purge sample for one full minute.
- Collect the first sample and run an onsite O&G test on a duplicate sample (and/or turbidity if no O&G monitor).
- Report the result of the field test on the c-o-c and also to the lead Operator.
- Continue to sample the other three O&G samples at a minimum of 15 minute intervals and record the duplicate field test as done on the first sample above.
- Always inform the lead operator of the monitoring progress and the sampling intervals.
- Notify and Submit the samples to Cal.Science (714) 895-5494
- Request O&G by EPA method 1664.
- On the c-o-c, request that only the first sample be analyzed and hold the other three until further notice: (per ESH Manager.). (If the first sample is less then the permit limit, the other three will not need to be analyzed. If it is over the limit, the compliance group will notify the lab to have all remaining samples analyzed to get an actual composite value).
- Also on the c-o-c make note that the analysis is to be rushed (24 hour TAT) and note on the c-o-c that Preliminary and Final results are to be called in to Marina Robertson ((714 683-3497. Additionally note on the c-o-c to fax a copy of the results to the platform supervisor. A rush will be given to the other three samples should they need to be analyzed.
- On the c-o-c request the Report go to Marina Robertson with copies the Platform Supervisor.

Chain-of-Custody: LTS has prepared generic chains to be used for all of the above sampling and are filed with the NPDES Manual. Due to the complexity of the sampling program, please make copies and keep them with you at all times. Use these forms during your NPDES monitoring and call LTS to identify what needs to be analyzed.

- One sample per quarter shall be analyzed for zinc (Method 200.8) if produced water was discharged during the quarter.

IV. Non-contact Cooling / Fire Water / Hydrotest Water - Chlorine Monitoring:

If there is chlorination any time associated with either Non-contact cooling water, Fire water, or Hydrotest water that is discharged to the ocean, they each must be tested for Total Residual Chlorine (TRC) monthly for one year (per the RP schedule).

- Use the EPA 330.5 Spectrophotometer method. They should target 0.5 ppm).
- Record results on the chlorine report form and submit to ESH for final reporting.
- Note on the field report, the type of chlorination used (i.e. hypochlorite generator).

Part II - Sample Preservation: Sampling Procedurees for the New General NPDES Permit - Produced Water:

1. General Sampling Requirements:

    - Sampling shall be representative of the monitored activity.
    - Samples shall be grab (i.e., discrete) samples.
    - The analyses shall be conducted by a California certified laboratory.
    - Records of each monitoring event shall include:

the date, exact place, and time of sampling,
the individual(s) who performed the sampling,
the date(s) analyses were performed,
the individual(s) who performed the analyses,
the analytical techniques or methods used,
the results of such analyses, and
the detection levels.

2. Facility Sample Locations:

All samples are to be collected downstream of the last treatment vessel and prior to ocean discharge. If there is another source of water (i.e. cooling water) mixed with the produced water, the produced water sample must be sampled prior to the commingling of the fluids.

3. General Sampling Procedures:

The following requirements relate to all samples being collected:

a. Use new, "EPA Clean" sample containers from a State certified lab. The containers shall contain the appropriate preservatives and have waterproof label's. Alternatively, preservatives may be added onsite at the facility being sampled. This will be necessary for facilities reached by helicopter where preservation must be made at the facility.

b. The duration of sampling for each sample shall be less than 15 minutes (i.e., grab samples or discrete samples).

c. Use rubber gloves and safety goggles (not just glasses) while collecting samples. Remember, some of the empty sample containers contain hazardous preservatives (i.e., sulfuric acid, nitric acid, etc.) which are used to help preserve the samples during their holding times. These containers will be properly marked and labeled consistent with applicable DOT regulations.

d. Prior to sampling, confirm with the lead operator that produced water is being discharged and that conditions are representative of the nature of the discharge.

e. Prior to collecting a sample, purge the sample line using produced water for at least one to two minutes. For facilities with in-line sample coolers, allow two to three minutes of purging. It is important to be sure that all of the stagnant fluid is adequately purged and flushed from the line prior to collecting a sample.

f. While the sample tubing is purging, neatly complete the label for the sample container(s) using a waterproof pen. On each label, include the company name, facility name, sample location, sample date, sample time, your name, the analysis required, and the preservation.

g. After purging the sample tubing, reduce the flow through the sample point to a non-turbulent state and slowly fill the container, being careful not to insert the tip of the sample tubing into the containers. This will help preventing the preservatives from splashing out of the containers and it reduces the likelihood of any contamination from the sample tubing itself.

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h. Do not over fill sample containers (the two exceptions are the containers for volatile and semi-volatile organic compounds). Overflowing a container may flush out preservatives and any oily residue that may be present in the upper layer of the sample. For volatile and semi-volatile organics, fill the sample containers completely so that there is no head space.

i. Place "custody seal" tape around the cap and top of the closed sample containers. This will guard against unauthorized sample tampering. If a sample is in a VOA vial, wrap the custody seal around the cap and bottle while avoiding contact between the tape and the septum.

j. Hot samples collected in glass containers must be cooled before placing them on ice. Placing a hot sample directly on ice can crack the glass container. To start the cooling process, samples can be insulated from the ice with bubble packaging and placed in proximity to the ice rather than allowed to cool at room temperature.

k. Always use proper packing (i.e bubble packing) with each separate sample to avoid breakage during transportation. This is very important since cooler are often dropped or handled improperly by transport personnel (cranes, boats, landings, etc.).

l. Place the cooled sample containers in a cooler full of either blue ice or regular ice to achieve a storage temperature of 4 degrees C (39 degrees F). Do not store in a refrigerator that holds food for human consumption.

m. Clearly and accurately complete a chain-of-custody for each sampling event using the attached example as a guide. A chain-of-custody must accompany the samples from the sample location, all the way to the lab. Each individual who takes control of the sample during transport must sign, date and time the chain-of-custody in the space provided. When a sample changes custody, both the relinquishing party and the receiving party must sign. Once signed off at the lab, retain a copy of the chain-of-custody for filing.

4. Constituent Sampling Procedures:

a. Ammonia -
   - Sample Container: one quart, glass or plastic.
   - Preservation: add sulfuric acid (H_2SO_4) until the pH of the sample is less than two.
   - Cool to a temperature of 4 degrees C.
   - Holding Time: 28 days.

b. Metals - *(Arsenic, Cadmium, Copper, Lead, Manganese, Mercury, Nickel, Selenium, Silver, Zinc, total chromium)*
   - Sample Container: two quarts, plastic.
   - Preservation: add nitric acid (HNO_3) until the pH of the sample is less than two.
   - Cool to a temperature of 4 degrees C.
   - Holding Time: six months (except mercury, which is 28 days).

c. *Hexavalent Chromium – Not required unless specifically asked for (total chrome can be done instead of hex chrome)..*
   - *Sample Container: one quart, plastic.*

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- *Preservation: cool to a temperature of 4 degrees C.*
- *Holding Time: 24 hours.*

d. Cyanide -
- Sample Container: 500 to 1,000 milliliters, plastic/glass.
- Preservation: use lead acetate paper to check for the presence of sulfides in the sample. If sulfides are present, add cadmium nitrate powder to remove the sulfides, then add sodium hydroxide (NaOH) until the pH of the sample is greater than 12. If sulfides are not present, just add NaOH until the pH of the sample is greater than 12. Cool to a temperature of 4 degrees C.
- Holding Time: 24 hours if sample was only cooled. The holding time is 14 days if the sample has been fixed with cadmium nitrate and NaOH.

e. Volatile Organic Compounds - *(Benzene, Toluene, Ethylbenzene)*
- Sample Container: two 40 milliliter glass VOA vials with Teflon-lined septums.
- Preservation: cool to a temperature of 4 degrees C.
- Do not add HCl preservative due to high bicarbonate and CO2 release. Instead seal with no head space, ice and on c-o-c instruct lab of the short hold time.
- Holding Time: seven days.

Special Handling Instructions: Fill each VOA vial slowly to the top until there is a positive meniscus. Then secure the cap so that no air bubbles are present in the vial (turn the sealed vial upside down to check for bubbles).

f. Semi-Volatile Organic Compounds – *(Benzo (a) Anthracene, Benzo (a) Pyrene, Chrysene, Benzo (k) Fluoranthene, Benzo (b) Fluoranthene,Dibenzo (a,h) Anthracene, Naphthalene, 2,4-Dimethylphenol)*
- Sample Container: one liter, glass with Teflon lined cap.
- Preservation: cool to a temperature of 4 degrees C.
- Holding Time: seven days.

Special Handling Instructions: Fill container completely so that there is no head space and make note for lab that the sample is not to be preserved with HCl.

g. Phenolic Compounds -
- Sample Container: 500 to 1,000 milliliters, glass with a Teflon lined cap.
- Preservation: add sulfuric acid (H_2SO_4) until the pH of the sample is less than two.
- Cool to a temperature of 4 degrees C.
- Holding Time: 28 days.

h. Oil and Grease -
- Sample Container: one liter, glass with Teflon lined cap.
- Preservation: add sulfuric acid (H_2SO_4) or hydrochloric acid (HCl) until the pH of the sample is less than two. Cool to a temperature of 4 degrees C.

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- Holding Time: 28 days.

Please follow the above procedures precisely and call me at any time if you have any questions.

S.G. Lawry
Environmental and NPDES Compliance Specialist
LTS Environmental Inc. (805) 644-4560

Mydocs/PacEnrgy/NPDESMonitoringSOP2007

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Appendix 9 – Summary of Discharge 002 sample dates and results

WCT 3-8-17

Beta Offshore Platform Elly Produced Water (Discharge 002)		
Date of Discharge	Volume Discharged to Emergency Sump (bbls)	Oil & Grease EPA Method 1664 (mg/L)
2013	No Discharge	
7/31/2014	50	30.3
11/8/2014	1100	25.3
11/12/2014	1100	21.8
12/10/2014	75	13.3
3/17/2015	43.75	19.3
7/4/2015	27	30.7
7/23/2015	400	30.7
8/9/2016	197	15,300
9/24/2016	56	5.1
9/26/2016	342	6.9

Appendix 10 – July 2015 DMR Discharge 002 Entry

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 2040-0004

PERMITTEE NAME/ADDRESS *(Include Facility Name/Location if Different)*

NAME: BETA OFFSHORE PLATFORM ELLY - CAG280000
ADDRESS: 111 West Ocean Blvd., Suite 1240
LONG BEACH, CA 90802
FACILITY: PLATFORM ELLY
LOCATION: LAT 33 35 .25 LO 118 07 37.52
PACIFIC OCEAN, CA 90802

ATTN: Marina Robertson

PERMIT NUMBER	DISCHARGE NUMBER
CAF001148	002A-A

MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
07/01/2015	07/31/2015

DMR Mailing ZIP CODE: 90802
MINOR
(SUBR FW)
Produced Water Monthly
External Outfall

No Discharge ☐

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS			
Oil and grease, hexane extr method	SAMPLE MEASUREMENT	******	******	******	******	34.2	37.6	mg/L	1	Weekly	Grab/ Composite
00552 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	29 MO AVG	42 DAILY MX	mg/L		Weekly	GRAB
Produced water, flow	SAMPLE MEASUREMENT	213.5	******	bbl/d	******	******	******	******	0	Daily	ESTIMA
82600 1 0 Effluent Gross	PERMIT REQUIREMENT	Req. Mon. MO AVG	******	bbl/d	******	******	******	******		Daily	ESTIMA
Produced water, flow	SAMPLE MEASUREMENT	******	470.7	bbl/yr	******	******	******	******	0	Annual	CALCTD
82600 O 0 See Comments	PERMIT REQUIREMENT	******	10950000 YTD TOT	bbl/yr	******	******	******	******		Annual	CALCTD

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER			TELEPHONE		DATE
Jim Guion Executive Vice President, Chief Operating Officer	I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	M. Robertson	(562) 628 1526		10 22 2015
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA Code	NUMBER	MM/DD/YYYY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

1. WTCWF, Deck Drainage, Domestic Waste & Fire Control Water are commingled with production & processed at platform Elly.
2. Produced water annual cumulative flow from March 1st thru Feb 28th each year
3. Oil and grease sampling is weekly during discharge (no sample during weeks with no produced water discharges).
4. Produced water, flow sampling is daily during discharge.

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Appendix 11 – 24-hour reporting of permit limit exceedance – NRC #1156753

Memorial Production Partners

Beta OFFSHORE

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

August 23, 2016

Dear Mr. Bromley,

Subject: Produced Water Oil and Grease Exceedance Notification

The following letter is in response to a 24 hour verbal notification given to EPA on August 19, 2016 regarding a produced water discharge at Platform Elly (reference NRC Notification #1156753). As required in the General NPDES permit - CAG280000 the following is a written notification and explanation of (and/or potential) exceedance of the oil and grease limitations for produced water NPDES discharges:

Standard operating procedures on Platform Elly is to inject all of the produced water back into the oil producing reservoir. On rare occasions if the injection system fails, operators temporarily divert treated produce water to the emergency sump (U-06) and monitor the discharge as required under the NPDES Permit. This occurred on August 9, 2016 for approximately 14 minutes (from 2:38 am to 2:52 am) and an estimated total of 197 barrels of water was discharged to the ocean. The sample point where the oil and grease samples were collected was downstream of the produced water tank S-03 and prior to an emergency sump U-06. The emergency sump is located on the lower deck and extends to the ocean. It is a vertical pipe type structure used to capture and skim off any free oil that makes it to the sump. This sump is currently skimmed of any free oil twice per day. The sump extends -177 ft. and it was not possible to sample the water discharged at the bottom of the sump's outlet. Instead, the sample was collected upstream of the sump (which is technically the last treatment vessel) and may not necessarily be representative of the water that was actually discharged from the sump outlet. In either case a sample was collected during the discharge from the outlet of the S-03 produced water tank. It should also be noted that there was no reported sheen in the receiving water as a result of the discharge.

Data Results are as follows:

Date:	Time:	O&G (mg/l)
8/9/2016	2:38 am	15,300

System Review and Corrective Actions:

As soon as the lab data results were known, EPA was notified and there was a detailed review of the production treatment process. The apparent cause of the oil in the water was closely reviewed to determine what could prevent this from happening again. It was found that the treated produced

111 W. Ocean Blvd., Suite 1240 ● Long Beach, CA 90802 ● Office: 562-628-1526 ● Fax: 562-628-1536

Memorial Production Partners

Beta OFFSHORE

water holding tank (S-03) had been contaminated with oil from an oil dehydration system upset which allowed oil to enter the tank. This tank has limited skimming capability since it is designed as a surge tank for clean filtered produced water. Once the discharge began, it's likely that some of the oil pad that had built up in the tank made its way into the water phase causing the much higher than normal oil and grease levels.

Prior to any more discharges, the S-03 tank will be bypassed and cleaned. Any accumulated tank bottoms and oil will be removed and cleaned from the tank. Additionally an improved oil skimming mechanism will be installed to capture future upsets should they occur. Operations is also looking at installing a sample point in the sump whose additional skimming capabilities would result in a sample closer to the discharge point and more representative of the actual water discharged to the ocean.

At no time did we anticipate there to be any harm to human health or the environment as a result of the discharge.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions please contact me at (562) 628-1526.

Sincerely,

Diana Lang

Diana Lang
HSE Manager
Beta Offshore

111 W. Ocean Blvd., Suite 1240 ● Long Beach, CA 90802 ● Office: 562-628-1526 ● Fax: 562-628-1536

Appendix 12 – Chain of Custody of samples from August 9, 2016 Discharge 002 (received during inspection)

LTS Environmental Inc. 704 Adirondack Avenue Ventura, CA 93003 805-644-4560	**Report to:** Diana Lang 111 W. Ocean Blvd. Suite 1240 Long Beach, CA. 90802	**Bill to:** Diana Lang APD memorial.com 111 W. Ocean Blvd. Suite 1240 Long Beach, CA 90802

FACILITY: *Platform Elly*
SAMPLER NAME: Daniel Pasillas
PROJECT/CHARGE #: ***Weekly NPDES Produced Water Monitoring***
RESULTS REQUIRED: **48 hr RUSH**
RESULTS BY: PHONE: _____ E-MAIL X mrobertson@betaoffshore.com

SUBMITTED TO: Eurofins (*Calscience*) PHONE: *714-895-5494*
REPORT TO: Diana Lang PHONE: 562 628-1529
COPIES TO: Diana Lang PHONE: 562 522-5095
lawrylts@sbcglobal.net PHONE: *805-644-4560*
704 Adirondack, Ventura, CA 93003

SAMPLE NO.	SAMPLE ID	GRAB/ COMP.	VOLUME	DATE/TIME COLLECTED	PRESERV.	ANALYSES REQUESTED (METHOD)
1	NPDES Prod.Water	grab	1 L amber	8-9-16 02:38	H2SO4	**Oil & Grease (EPA 1664)** + Zn (EPA 200.8)
2	NPDES Prod.Water	grab	1 L amber	8-9-16 02:38	H2SO4	**Oil & Grease (EPA 1664)** **Hold**
3	NPDES Prod.Water	grab	1 L amber	8-9-16 02:38	H2SO4	**Oil & Grease (EPA 1664)** **Hold**
4	NPDES Prod.Water	grab	1 L amber	8-9-16 02:38	H2SO4	**Oil & Grease (EPA 1664)** **Hold**
						Lab data discarded - not transmitted
	Caution to Sample Collector: *All sample bottles contain a concentrated acid preservative.*					
	Use proper PPE including gloves and goggles when collecting the samples.					

To Lab: ***For Samples 1-4: Analyze Sample #1 only - hold other samples until further notice.***

Relinquished by: Daniel Pasillas	Date: 8-9-16	Relinquished by:	Date:
Received by: Diana Lang	Time: 11:50 am	Received by:	Time:
Relinquished by: Diana Lang	Date: 1:00 pm	Relinquished by:	Date:
Received by: Elly	Time: 8-9-16	Received by:	Time:

LCT 3-8-17

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Appendix 13 – Chain of Custody of samples from August 9, 2016 Discharge 002 (as submitted in August 2016 DMR)

16-08-0626

LTS Environmental Inc. 704 Adirondack Avenue Ventura, CA 93003 805-644-4560	**Report to:** Diana Lang 111 W. Ocean Blvd. Suite 1240 Long Beach, CA. 90802	**Bill to:** Diana Lang AP@memorial.com 111 W. Ocean Blvd. Suite 1240 Long Beach, CA 90802

FACILITY: Platform Elly
SAMPLER NAME: Daniel Pasillas
PROJECT/CHARGE #: Weekly NPDES Produced Water Monitoring
RESULTS REQUIRED: 48 hr RUSH
RESULTS BY: PHONE: _____ E-MAIL X mrobertson@betaoffshore.com

SUBMITTED TO: Eurofins (Calscience) PHONE: 714-895-5494
REPORT TO: Diana Lang PHONE: 562 628-1529
COPIES TO: Diana Lang PHONE: 562 522-5095
lawrylts@sbcglobal.net PHONE: 805-644-4560
704 Adirondack, Ventura, CA 93003

SAMPLE NO.	SAMPLE ID	GRAB/ COMP.	VOLUME	DATE/TIME COLLECTED	PRESERV.	ANALYSES REQUESTED (METHOD)
1	NPDES Prod.Water	grab	1 L amber	8-9-16 02:38	H2SO4	Oil & Grease (EPA 1664) + Zn (EPA 200.8)
2	NPDES Prod.Water	grab	1 L amber	8-9-16 02:38	H2SO4	Oil & Grease (EPA 1664) Hold
3	NPDES Prod.Water	grab	1 L amber	8-9-16 02:38	H2SO4	Oil & Grease (EPA 1664) Hold
4	NPDES Prod.Water	grab	1 L amber	8-9-16 02:38	H2SO4	Oil & Grease (EPA 1664) Hold
	Caution to Sample Collector: All sample bottles contain a concentrated **acid** preservative. Use proper PPE including gloves and goggles when collecting the samples.					

To Lab: ***For Samples 1-4: Analyze Sample #1 only - hold other samples until further notice.***

Relinquished by: Daniel Pasillas	Date: 8-9-16	Relinquished by: [illegible]	Date: 8/9/16
Received by: Diana Lang	Time: 11:50 am	Received by: [illegible]	Time: 1440
Relinquished by: Diana Lang	Date: 1:00 pm	Relinquished by:	Date:
Received by: [illegible]	Time: 8-9-16	Received by:	Time:

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Appendix 14 – Email from Eurofins Calscience to EPA on March 20, 2017

Tucker, Colby

From: Nicole Scott <NicoleScott@eurofinsUS.com>
Sent: Monday, March 20, 2017 4:20 PM
To: Tucker, Colby
Subject: Beta Offshore August Results
Attachments: removed.txt

Good Afternoon,

Thank you for your patience! I was able to look through all the past emails and chemist work sheets to remember this work order's specifics.

Beta Offshore requested that metals be analyzed along with Oil and Grease for sample #1 from the single bottle that was supplied for that sample. After receiving the client's approval for deviating from the methods, we used part of the sample for the metals analysis, and only 500 mL for the Oil and Grease. After that report went out, Beta Offshore decided that they wanted the rest of the three samples run using the entire bottle, to stay in line with the method. For those samples, the entire bottle was used for Oil and Grease.

If you need any further clarification, please let me know.

Thank you,
Nicole Scott
Project Manager

Eurofins Calscience, Inc.
7440 Lincoln Way
Garden Grove, CA 92841
USA
Phone +1 714 895 5494
Cell +1 714 251 0417
Fax +1 714 894 7501

Email: NicoleScott@EurofinsUS.com
www.EurofinsUS.com/Calscience

The information transmitted is intended only for the person or entity to which it is addressed and may contain confidential and/or privileged material. Any review, retransmission, dissemination or other use of, or taking of any action in reliance upon this information by persons or entities other than the intended recipient is prohibited. If you receive this in error, please contact the sender and delete the material from any computer. Email transmission cannot be guaranteed to be secure or error free as information could be intercepted, corrupted, lost, destroyed, arrive late or incomplete. The sender therefore is in no way liable for any errors or omissions in the content of this message which may arise as a result of email transmission. If verification is required, please request a hard copy. We take reasonable precautions to ensure our emails are free from viruses. You need, however, to verify that this email and any attachments are free of viruses, as we can take no responsibility for any computer viruses, which might be transferred by way of this email. We may monitor all email communication through our networks. If you contact us by email, we may store your name and address to facilitate communication.

Appendix 15 – Eurofins Calscience Analytical Report 16-08-0626_s1

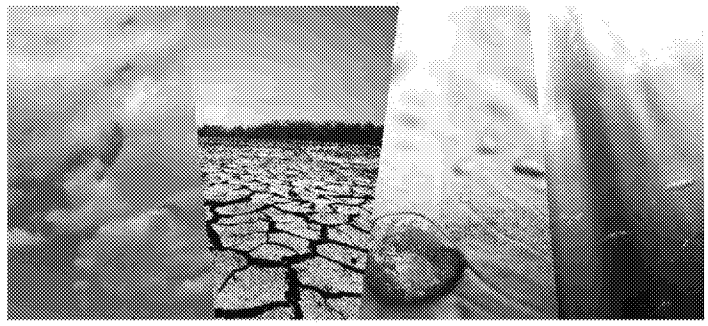
eurofins | Calscience

Supplemental Report 1

Additional requested analyses are reported as a stand-alone report.

WORK ORDER NUMBER: 16-08-0626

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Beta Offshore

Client Project Name: Weekly NPDES Produced Water Monitoring

Attention: Diana Lang
111 W. Ocean Blvd., Suite 1240
Long Beach, CA 90802-4633

Nicole Scott

Approved for release on 08/23/2016 by:
Nicole Scott
Project Manager

ResultLink ▸

Email your PM ▸

Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

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CA ELAP ID: 2944 | ACLASS DoD ELAP ID: ADE-1864 (ISO/IEC 17025:2005) | CSDLAC ID: 10109

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Client Project Name: Weekly NPDES Produced Water Monitoring
Work Order Number: 16-08-0626

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Work Order Narrative

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Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 08/09/16. They were assigned to Work Order 16-08-0626.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

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Analytical Report

Beta Offshore		Date Received:	08/09/16
111 W. Ocean Blvd., Suite 1240		Work Order:	16-08-0626
Long Beach, CA 90802-4633		Preparation:	N/A
		Method:	EPA 1664A
		Units:	mg/L
Project: Weekly NPDES Produced Water Monitoring			Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
NPDES Prod. Water	**16-08-0626-2-A**	**08/09/16 02:38**	**Aqueous**	**N/A**	**08/22/16**	**08/22/16 15:10**	**G0822HEML1**

Parameter	Result	RL	DF	Qualifiers
HEM: Oil and Grease	64200	1000	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
NPDES Prod. Water	**16-08-0626-3-A**	**08/09/16 02:38**	**Aqueous**	**N/A**	**08/22/16**	**08/22/16 15:10**	**G0822HEML1**

Parameter	Result	RL	DF	Qualifiers
HEM: Oil and Grease	62300	1000	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
NPDES Prod. Water	**16-08-0626-4-A**	**08/09/16 02:38**	**Aqueous**	**N/A**	**08/22/16**	**08/22/16 15:10**	**G0822HEML1**

Parameter	Result	RL	DF	Qualifiers
HEM: Oil and Grease	86000	1000	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-05-119-4404**	**N/A**	**Aqueous**	**N/A**	**08/22/16**	**08/22/16 15:10**	**G0822HEML1**

Parameter	Result	RL	DF	Qualifiers
HEM: Oil and Grease	ND	1.0	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Quality Control - Spike/Spike Duplicate

Beta Offshore		Date Received:	08/09/16
111 W. Ocean Blvd., Suite 1240		Work Order:	16-08-0626
Long Beach, CA 90802-4633		Preparation:	N/A
		Method:	EPA 1664A
Project: Weekly NPDES Produced Water Monitoring			Page 1 of 1

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
16-08-0731-1	**Sample**	**Aqueous**	**N/A**	**08/22/16**	**08/22/16 15:10**	**G0822HEMS1**
16-08-0731-1	**Matrix Spike**	**Aqueous**	**N/A**	**08/22/16**	**08/22/16 15:10**	**G0822HEMS1**
16-08-0731-1	**Matrix Spike Duplicate**	**Aqueous**	**N/A**	**08/22/16**	**08/22/16 15:10**	**G0822HEMS1**

Parameter	Sample Conc.	MS Spike	MS Conc.	MS %Rec.	MSD Spike	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
HEM: Oil and Grease	4.170	40.00	35.77	79	40.00	36.92	82	78-114	3	0-18	

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS/LCSD

Beta Offshore		Date Received:	08/09/16
111 W. Ocean Blvd., Suite 1240		Work Order:	16-08-0626
Long Beach, CA 90802-4633		Preparation:	N/A
		Method:	EPA 1664A
Project: Weekly NPDES Produced Water Monitoring			Page 1 of 1

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-05-119-4404	LCS	Aqueous	N/A	08/22/16	08/22/16 15:10	G0822HEML1
099-05-119-4404	LCSD	Aqueous	N/A	08/22/16	08/22/16 15:10	G0822HEML1

Parameter	LCS Spike	LCS Conc.	LCS %Rec.	LCSD Spike	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
HEM: Oil and Grease	40.00	41.00	102	40.00	39.00	98	78-114	5	0-18	

RPD: Relative Percent Difference. CL: Control Limits

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Sample Analysis Summary Report

Work Order: 16-08-0626 Page 1 of 1

Method	Extraction	Chemist ID	Instrument	Analytical Location
EPA 1664A	N/A	784	N/A	1

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Glossary of Terms and Qualifiers

Work Order: 16-08-0626 Page 1 of 1

Qualifiers	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

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16-08-0626

LTS Environmental Inc. 704 Adirondack Avenue Ventura, CA 93003 805-644-4560	**Report to:** Diana Lang 111 W. Ocean Blvd. Suite 1240 Long Beach, CA. 90802	**Bill to:** Diana Lang AP@memorial.com 111 W. Ocean Blvd. Suite 1240 Long Beach, CA 90802

FACILITY: *Platform Elly*
SAMPLER NAME: Daniel Pasillas
PROJECT/CHARGE # ***Weekly NPDES Produced Water Monitoring***
RESULTS REQUIRED: **48 hr RUSH**
RESULTS BY: PHONE: _____ E-MAIL X mrobertson@betaoffshore.com

SUBMITTED TO: Eurofins (*Calscience*) PHONE: *714-895-5494*
REPORT TO: Diana Lang PHONE: 562 628-1529
COPIES TO: Diana Lang PHONE: 562 522-5095
lawrylts@sbcglobal.net PHONE: *805-644-4560*
704 Adirondack, Ventura, CA 93003

SAMPLE NO.	SAMPLE ID	GRAB/ COMP.	VOLUME	DATE/TIME COLLECTED	PRESERV.	ANALYSES REQUESTED (METHOD)
1	*NPDES Prod.Water*	*grab*	*1 L amber*	8-9-16 02:38	*H2SO4*	***Oil & Grease (EPA 1664)*** + Zn (EPA 200.8)
2	*NPDES Prod.Water*	*grab*	*1 L amber*	8-9-16 02:38	*H2SO4*	***Oil & Grease (EPA 1664)*** ***Hold***
3	*NPDES Prod.Water*	*grab*	*1 L amber*	8-9-16 02:38	*H2SO4*	***Oil & Grease (EPA 1664)*** ***Hold***
4	*NPDES Prod.Water*	*grab*	*1 L amber*	8-9-16 02:38	*H2SO4*	***Oil & Grease (EPA 1664)*** ***Hold***
	Caution to Sample Collector: *All sample bottles contain a concentrated* ***acid*** *preservative.*					
	Use proper PPE including gloves and goggles when collecting the samples.					

To Lab: ***For Samples 1-4: Analyze Sample #1 only - hold other samples until further notice.***

Relinquished by: Daniel Pasillas	Date: 8-9-16	Relinquished by: [illegible]	Date: 8/9/16
Received by: Diana Lang	Time: 11:50 am	Received by: [illegible]	Time: 1440
Relinquished by: Diana Lang	Date: 1:00 pm	Relinquished by:	Date:
Received by: [illegible] Elly	Time: 8-9-16	Received by:	Time:

ED_006450_00013032-00070

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WORK ORDER NUMBER: 16-08- 0826

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 1

CLIENT: LTS ENVIRONMENTAL INC.

DATE: 08 / 9 / 2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC2A (CF: 0.0°C); Temperature (w/o CF): 2.4 °C (w/ CF): 2.4 °C; ☑ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

☐ Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: ☐ Air ☐ Filter

Checked by: 676

CUSTODY SEAL:

Cooler	☐ Present and Intact	☐ Present but Not Intact	☑ Not Present	☐ N/A	Checked by: 676
Sample(s)	☐ Present and Intact	☐ Present but Not Intact	☑ Not Present	☐ N/A	Checked by: 1053

SAMPLE CONDITION:

	Yes	No	N/A
Chain-of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Sampling date ☐ Sampling time ☐ Matrix ☐ Number of containers			
☐ No analysis requested ☐ Not relinquished ☐ No relinquished date ☐ No relinquished time			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑ 8-9-16	☑	☐
Sample container(s) intact and in good condition	☑	☐	☐
Proper containers for analyses requested	☑	☐	☐
Sufficient volume/mass for analyses requested	☑	☐	☐
Samples received within holding time	☑	☐	☐
Aqueous samples for certain analyses received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfide ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation chemical(s) noted on COC and/or sample container	☑	☐	☐
Unpreserved aqueous sample(s) received for certain analyses			
☐ Volatile Organics ☐ Total Metals ☐ Dissolved Metals			
Container(s) for certain analysis free of headspace	☐	☐	☑
☐ Volatile Organics ☐ Dissolved Gases (RSK-175) ☐ Dissolved Oxygen (SM 4500)			
☐ Carbon Dioxide (SM 4500) ☐ Ferrous Iron (SM 3500) ☐ Hydrogen Sulfide (Hach)			
Tedlar™ bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE: **(Trip Blank Lot Number: _____)**

Aqueous: ☐ VOA ☐ VOA**h** ☐ VOA**na$_2$** ☐ 100PJ ☐ 100PJ**na$_2$** ☐ 125AGB ☐ 125AGB**h** ☐ 125AGB**p** ☐ 125PB

☐ 125PB**znna** ☐ 250AGB ☐ 250CGB ☐ 250CGB**s** ☐ 250PB ☐ 250PB**n** ☐ 500AGB ☐ 500AGJ ☐ 500AGJ**s**

☐ 500PB ☐ 1AGB ☐ 1AGB**na$_2$** ☑ 1AGB**s** ☐ 1PB ☐ 1PB**na** ☐ _____ ☐ _____ ☐ _____ ☐ _____

Solid: ☐ 4ozCGJ ☐ 8ozCGJ ☐ 16ozCGJ ☐ Sleeve (_____) ☐ EnCores® (_____) ☐ TerraCores® (_____) ☐ _____

Air: ☐ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ _____ **Other Matrix** (_____): ☐ _____ ☐ _____

Container: **A** = Amber, **B** = Bottle, **C** = Clear, **E** = Envelope, **G** = Glass, **J** = Jar, **P** = Plastic, and **Z** = Ziploc/Resealable Bag

Preservative: **b** = buffered, **f** = filtered, **h** = HCl, **n** = HNO_3, **na** = NaOH, **na$_2$** = $Na_2S_2O_3$, **p** = H_3PO_4, **s** = H_2SO_4, **u** = ultra-pure, **znna** = Zn $(CH_3CO_2)_2$ + NaOH

Labeled/Checked by: 1053

Reviewed by: 689

2015-04-10 Revision

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WORK ORDER NUMBER: 16-08- 0626

SAMPLE ANOMALY REPORT

DATE: 08 / 9 / 2016

SAMPLES, CONTAINERS, AND LABELS:

- ☐ Sample(s) NOT RECEIVED but listed on COC
- ☐ Sample(s) received but NOT LISTED on COC
- ☐ Holding time expired (list client or ECI sample ID and analysis)
- ☐ Insufficient sample amount for requested analysis (list analysis)
- ☐ Improper container(s) used (list analysis)
- ☐ Improper preservative used (list analysis)
- ☐ No preservative noted on COC or label (list analysis and notify lab)
- ☐ Sample container(s) not labeled
- ☐ Client sample label(s) illegible (list container type and analysis)
- ☑ Client sample label(s) do not match COC (comment)
  - ☐ Project information
  - ☐ Client sample ID
  - ☐ Sampling date and/or time
  - ☐ Number of container(s)
  - ☑ Requested analysis
- ☐ Sample container(s) compromised (comment)
  - ☐ Broken
  - ☐ Water present in sample container
- ☐ Air sample container(s) compromised (comment)
  - ☐ Flat
  - ☐ Very low in volume
  - ☐ Leaking (not transferred; duplicate bag submitted)
  - ☐ Leaking (transferred into ECI Tedlar™ bags*)
  - ☐ Leaking (transferred into client's Tedlar™ bags*)

* Transferred at client's request.

Comments

(-1) Received 1-liter amber glass bottle w/H_2SO_4 for all analyses. (Metals container not received).

MISCELLANEOUS: (Describe)

Comments

HEADSPACE:

(Containers with bubble > 6 mm or ¼ inch for volatile organic or dissolved gas analysis)

ECI Sample ID	ECI Container ID	Total Number**	ECI Sample ID	ECI Container ID	Total Number**

(Containers with bubble for other analysis)

ECI Sample ID	ECI Container ID	Total Number**	Requested Analysis

Comments:

Reported by: 1053

Reviewed by: 659

** Record the total number of containers (i.e., vials or bottles) for the affected sample.

2015-03-16 Revision

Nicole Scott

From: Diana Lang <diana.lang@memorialpp.com>
Sent: Monday, August 22, 2016 8:46 AM
To: Nicole Scott
Cc: Mary Lawry; STEVE LAWRY
Subject: RE: Weekly NPDES Produced Water Monitoring / CEL 16-08-0626 / Invoice 1358839

Hi Nicole –

Would it be possible to change the oil and grease analyses on the remaining 3 samples to be RUSH. If we could get data by tomorrow, it would be appreciated.

Thank you.

Diana Lang
Direct: (562) 628-1529
Cell: (562) 522-5095

From: Diana Lang
Sent: Friday, August 19, 2016 9:58 AM
To: 'Nicole Scott' <NicoleScott@eurofinsUS.com>
Cc: STEVE LAWRY <lawrylts@sbcglobal.net>; Mary Lawry <m.lawrylts@yahoo.com>
Subject: RE: Weekly NPDES Produced Water Monitoring / CEL 16-08-0626 / Invoice 1358839

Yes. Thank you.

Diana Lang
Direct: (562) 628-1529
Cell: (562) 522-5095

From: Nicole Scott [mailto:NicoleScott@eurofinsUS.com]
Sent: Friday, August 19, 2016 9:57 AM
To: Diana Lang <diana.lang@memorialpp.com>
Cc: STEVE LAWRY <lawrylts@sbcglobal.net>; Mary Lawry <m.lawrylts@yahoo.com>
Subject: RE: Weekly NPDES Produced Water Monitoring / CEL 16-08-0626 / Invoice 1358839

No problem, Diana. Is standard TAT okay?

Thanks,
Nicole Scott
Project Manager

Eurofins Calscience, Inc.

Appendix 16 – Daily Morning Report: August 9, 2016

Beta Offshore

Daily Morning Report

OCS 300 / 301- Platforms Ellen / Elly / Eureka

Date: Aug 09, 2016

Safety: No Accidents, Helicopter deck clear of obstacles **PIC:** Napoleone, P.

Pollution: NO FREE OIL OR VISIBLE FLOATING SOLIDS, DECK DRAINS CLEAR OF STANDING FLUID

Shipping

		Month's Avg		
Beta Gross Shipped:	4,927		Gross Shipped:	5,351
Beta Net Shipped:	4,927	4,815	DCOR (Edith) Shipped:	424

Production

Beta Net Produced: **4,825** 4,798

Eureka Gross Fluid: 11504

Eureka Production: 2531

Ellen Production: 2294

Production 30 day Avg. : **4837**

S-02B Tank Level: 30 %

S-02B Tank Volume: 608 BBL

Production Variance: 16" pipeline pig received at Beta Station and removed from reciever.

Water

		30 Day Avg
Ellen Injection:	8461	8,062
Eureka Injection:	10457	10,588
Total Injection:	18918	18,289
Ellen Produced Water:	2966	
Eureka Produced Water:	8973	

Eureka DFS :	0
Ellen Hyd. Power Fluid :	4189
Elly/Ellen Diverted Water:	900
Eureka Diverted Water:	856
Water Overboard:	0
A-16 Source Water:	6979

Wemco Oil In:	58 *ppm*
Wemco Oil Out:	0 *ppm*
F01 Oil:	0 *ppm*
F01 Solids:	1 *ppm*
Turbine TSS:	4 *ppm*
Well Bay TSS:	3 *ppm*

	Ellen	Eureka
Omnipure Chlorine:	3	3

Gas

Elly Total Flare:	34
Eureka Total Flare:	0
Fuel Gas:	1,142
Total Produced Gas:	1,176 *mscf*

Eureka Produced Gas:	534
Ellen Produced Gas:	642

SulfaTreat

H2S In:	8
H2S Interstage:	0.2
H2S Out	0

Operations Comments

Backwashed F01A sand filter, running in F01B.

Irwin working on Ellen pipe demo.

Pig in at Beta Station @0325, 14147 PAM.

Clairiant out to take samples, check rates and inventory.

Brand dismantling scaffolding on Ellen, painting Ellen center crane.

Ethos removing P07A Saturn turbine engine.

C26 injector down to repair totalizer meter.

P10A shut down on switch to diesel and took P10B down with it. Difficulty starting either turbine led to about 15 minutes of overboard from S03. Both P10A&B were restarted and water level brought back to normal. Samples taken and sent in to beach.

TWI on Eureka welding new 2" piping for the East and West bulk headers as well as working on +45 grating.

ED_006450_00013032-00075

Current Well Test Summary by Platform

Ellen

Well	Oil (BPD)	ExpOil (BPD)	Var (BPD)	Water (BPD)	Tubing Gas (MCF/D)	Casing Gas (MCF/D)	DFS/Hyd Power Water	Test Date
A01	72	69	3	485	0	31	0	8/5/2016
A07	32	15	17	56	0	0	0	8/6/2016
A09	51	55	-4	402	0	4	0	8/5/2016
A13	45	39	6	303	0	4	0	8/6/2016
A15	51	60	-9	321	0	0	0	8/6/2016
A20	12	12	0	74	0	0	177	5/2/2016
A21	106	108	-2	43	0	20	0	8/6/2016
A23	102	96	6	181	0	0	0	8/7/2016
A24	90	80	10	202.5	0	0	0	8/1/2016
A27	121	119	2	285	0	30	0	8/7/2016
A30	92	90	2	356	0	0	0	7/27/2016
A31	25	25	0	1421	0	10	0	8/7/2016
A36	552	563	-11	228	0	0	0	8/8/2016
A38	206	208	-2	1067.6	0	0	0	8/2/2016
A40	31	27	4	0	0	0	202	8/8/2016
A43	52	50	2	334	0	0	0	8/9/2016
A45	113	123	-10	174.4	0	0	0	8/3/2016
A47	144	153	-9	233	0	16	0	8/9/2016
A50	57	69	-12	129.7	0	0	0	8/2/2016
A51	25	50	-25	24	0	0	223	7/23/2016
A52	51	50	1	41	0	0	166	7/21/2016
A56	172	169	3	187	0	0	0	7/29/2016
A57	81	78	3	145	0	25	0	7/28/2016
A59	220	168	52	1652	0	5	0	7/26/2016
A63	25	30	-5	255	0	0	168	6/27/2016
A74	20	30	-10	66	0	0	306	7/26/2016
SubTotal	2548			8666	0	145	1242	

Eureka

Well	Oil (BPD)	ExpOil (BPD)	Var (BPD)	Water (BPD)	Tubing Gas (MCF/D)	Casing Gas (MCF/D)	DFS/Hyd Power Water	Test Date
C01	313	219	94	69	0	0	0	8/8/2016
C04	105	60	45	420	0	0	0	8/7/2016
C05	172	97	75	125	0	0	0	8/7/2016
C06	186	87	99	503	0	0	0	8/1/2016
C08	208	38	170	254	0	0	0	7/2/2016
C09	141	83	58	221	0	0	0	7/9/2016
C11	237	122	115	440	0	0	0	8/9/2016
C13	181	39	142	543	0	0	0	5/11/2016

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C18	119	79	40	732	0	0	0	8/2/2016
C19	193	124	69	645	0	0	0	8/3/2016
C20	117	49	68	199	0	0	0	8/6/2016
C22	290	142	148	163	0	0	0	7/9/2016
C23	48	97	-49	194	0	0	0	7/8/2016
C24	56	33	23	74	0	0	0	12/14/2015
C27	139	96	43	325	0	0	0	7/10/2016
C30	175	73	102	473	0	0	0	8/3/2016
C33	172	58	114	146	0	0	0	7/12/2016
C34	297	148	149	603	0	0	0	7/2/2016
C36	184	116	68	276	0	0	0	8/9/2016
C38	120	75	45	511	0	0	0	7/9/2016
C42	222	74	148	12	0	0	0	7/4/2016
C44	59	37	22	98	0	0	0	12/12/2015
C50	165	111	54	129	0	0	0	2/16/2016
C52	86	48	38	488	0	0	0	7/11/2016
C53	130	67	63	135	0	0	0	8/5/2016
C56	337	120	217	684	0	0	0	8/2/2016
C59	41	31	10	414	0	0	0	7/12/2016
C60	67	49	18	100	0	0	0	8/8/2016
SubTotal	4560			8976	0	0	0	
Eureka Adj.	2736							
Grand Total	5284			17642	0	145	1242	

Offline Wells

Well Name	Offline Date	Offline Days	Oil (BPD)	Water (BPD)	Last Well test
A28	6/28/2016	43	20.7	54.3	2/11/2016
A33	7/11/2016	30	6	386	6/25/2016
A49	7/6/2016	34	73	33.5	7/1/2016
A55	1/24/2016	199	27.2	731.2	1/21/2016
A58	7/14/2016	27	37	1286	7/8/2016
C16	12/30/2015	224	62	79	12/16/2015
C35	12/30/2015	224	28	208	12/4/2015
C61	10/13/2015	302	27	198	9/14/2015
		Total	280.9000015	2976.000011	

People on Platform

	ELLEN		EUREKA		TOTAL	
BETA	Resident	Non-Resident	Resident	Non-Resident	Resident	Non-Resident
Operations	19	0	10	0	29	0
Drilling	1	0	0	0	1	0
CONTRACTORS						
Operations	6	9	7	5	13	14
Drilling	0	0	0	0	0	0
OTHERS						
Regulatory Agencys	0	0	0	0	0	0
Visitors	0	0	0	0	0	0
TOTALS	26	9	17	5	43	14

ED_006450_00013032-00078

Appendix 17 – Eurofins Calscience Sample Anomaly Report, August 9, 2016

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WORK ORDER NUMBER: 16-08- 0626

SAMPLE ANOMALY REPORT

DATE: 08 / 9 / 2016

SAMPLES, CONTAINERS, AND LABELS:

- ☐ Sample(s) NOT RECEIVED but listed on COC
- ☐ Sample(s) received but NOT LISTED on COC
- ☐ Holding time expired (list client or ECI sample ID and analysis)
- ☐ Insufficient sample amount for requested analysis (list analysis)
- ☐ Improper container(s) used (list analysis)
- ☐ Improper preservative used (list analysis)
- ☐ No preservative noted on COC or label (list analysis and notify lab)
- ☐ Sample container(s) not labeled
- ☐ Client sample label(s) illegible (list container type and analysis)
- ☑ Client sample label(s) do not match COC (comment)
  - ☐ Project information
  - ☐ Client sample ID
  - ☐ Sampling date and/or time
  - ☐ Number of container(s)
  - ☑ Requested analysis
- ☐ Sample container(s) compromised (comment)
  - ☐ Broken
  - ☐ Water present in sample container
- ☐ Air sample container(s) compromised (comment)
  - ☐ Flat
  - ☐ Very low in volume
  - ☐ Leaking (not transferred; duplicate bag submitted)
  - ☐ Leaking (transferred into ECI Tedlar™ bags*)
  - ☐ Leaking (transferred into client's Tedlar™ bags*)

* Transferred at client's request.

Comments

(-1) Received 1-Liter amber glass bottle w/H_2SO_4 for all analytes. (Metals container not received).

MISCELLANEOUS: (Describe)

Comments

HEADSPACE:

(Containers with bubble > 6 mm or ¼ inch for volatile organic or dissolved gas analysis)

ECI Sample ID	ECI Container ID	Total Number**	ECI Sample ID	ECI Container ID	Total Number**

(Containers with bubble for other analysis)

ECI Sample ID	ECI Container ID	Total Number**	Requested Analysis

Comments:

Reported by: 1053

Reviewed by: 659

** Record the total number of containers (i.e., vials or bottles) for the affected sample.

2015-03-16 Revision

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Appendix 18 – Eurofins Calscience Analysis Report for Zinc, August 9, 2016

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Analytical Report

Beta Offshore		Date Received:	08/09/16
111 W. Ocean Blvd., Suite 1240		Work Order:	16-08-0626
Long Beach, CA 90802-4633		Preparation:	N/A
		Method:	EPA 200.8
		Units:	mg/L
Project: Weekly NPDES Produced Water Monitoring			Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
NPDES Prod. Water	**16-08-0626-1-A**	**08/09/16 02:38**	**Aqueous**	**ICP/MS 03**	**08/10/16**	**08/10/16 18:28**	**160810LA1**

Parameter	Result	RL	DF	Qualifiers
Zinc	0.0610	0.00500	1.00	

Method Blank	**099-16-094-1443**	**N/A**	**Aqueous**	**ICP/MS 03**	**08/10/16**	**08/10/16 18:31**	**160810LA1**

Parameter	Result	RL	DF	Qualifiers
Zinc	ND	0.00500	1.00	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Appendix 19 – August 2016 DMR Entry for Zinc

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 2040-0004

PERMITTEE NAME/ADDRESS *(Include Facility Name/Location if Different)*

NAME: BETA OFFSHORE PLATFORM ELLY - CAG280000
ADDRESS: 111 West Ocean Blvd., Suite 1240
LONG BEACH, CA 90802
FACILITY: PLATFORM ELLY
LOCATION: LAT 33 35 .25 LO 118 07 37.52
PACIFIC OCEAN, CA 90802

ATTN: Marina Robertson

PERMIT NUMBER	DISCHARGE NUMBER
CAF001148	002A-Y

MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
01/01/2016	12/31/2016

DMR Mailing ZIP CODE: 90802
MINOR
(SUBR FW)
Annual Discharge Report - Collect with Toxicity
External Outfall

No Discharge ☐

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS			
Zinc, total recoverable	SAMPLE MEASUREMENT	******	******	******	******	******	8	ug/L	0	When Discharging	GRAB
01094 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	******	Opt. Mon. DAILY MX	ug/L		When Discharging	GRAB

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER			TELEPHONE		DATE
Bruce Berwager Executive Vice President, Chief Operating Officer	I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	Diana Lang SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	(562) 628 1526		10 24 2016
TYPED OR PRINTED			AREA Code	NUMBER	MM/DD/YYYY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

1. Results are post dilution and there is no limit in the permit, Appendix B.

ED_006450_00013032-00084

Appendix 20 – August 2016 DMR Entry for Oil and Grease

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 2040-0004

PERMITTEE NAME/ADDRESS *(Include Facility Name/Location if Different)*

NAME: BETA OFFSHORE PLATFORM ELLY - CAG280000
ADDRESS: 111 West Ocean Blvd., Suite 1240
LONG BEACH, CA 90802
FACILITY: PLATFORM ELLY
LOCATION: LAT 33 35 .25 LO 118 07 37.52
PACIFIC OCEAN, CA 90802

ATTN: Marina Robertson

PERMIT NUMBER	DISCHARGE NUMBER
CAF001148	002A-A

MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
08/01/2016	08/31/2016

DMR Mailing ZIP CODE: 90802
MINOR
(SUBR FW)
Produced Water Monthly
External Outfall

No Discharge ☐

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS			
Oil and grease, hexane extr method	SAMPLE MEASUREMENT	******	******	******	******	15,300	15,300	mg/L	1*	Weekly	Grab
00552 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	29 MO AVG	42 DAILY MX	mg/L		Weekly	GRAB
Produced water, flow	SAMPLE MEASUREMENT	197	******	bbl/d	******	******	******	******	0	Daily	Estima
82600 1 0 Effluent Gross	PERMIT REQUIREMENT	Req. Mon. MO AVG	******	bbl/d	******	******	******	******		Daily	ESTIMA
Produced water, flow	SAMPLE MEASUREMENT	******	197	bbl/yr	******	******	******	******	0	Annual	Calctd
82600 O 0 See Comments	PERMIT REQUIREMENT	******	10950000 YTD TOT	bbl/yr	******	******	******	******		Annual	CALCTD

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER			TELEPHONE		DATE
Bruce Berwager Executive Vice President, Chief Operating Officer	I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	Diana Lara SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	(562) 628 1526		10 24 2016
TYPED OR PRINTED			AREA Code	NUMBER	MM/DD/YYYY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

1. WTCWF, Deck Drainage, Domestic Waste & Fire Control Water are commingled with production & processed at platform Elly.
2. Produced water annual cumulative flow from March 1st thru Feb 28th each year.
3. Oil and grease sampling is weekly during discharge (no sample during weeks with no produced water discharges).

* Refer to cover letter.

ED_006450_00013032-00086

Appendix 21 – Eurofins Calscience Analysis Report Dated July 30, 2014

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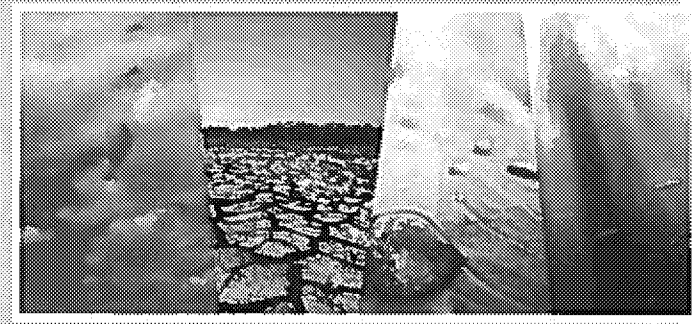
Supplemental Report 1

Additional requested analyses have been added to the original report.

WORK ORDER NUMBER: 14-07-2120

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Beta Offshore

Client Project Name: Weekly NPDES Produced Water Monitoring

Attention: Marina Robertson
111 W. Ocean Blvd., Suite 1240
Long Beach, CA 90802-4633

Amanda Porter

Approved for release on 08/06/2014 by:
Amanda Porter
Project Manager

ResultLink ▸

Email your PM ▸

Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

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NELAP ID: 03205CA | ACLASS DoD-ELAP ID: ADE-1604 (ISO/IEC 17025:2005) | CSDLAC ID: 10109 | SCAQMD ID: 93LA0830

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Client Project Name: Weekly NPDES Produced Water Monitoring
Work Order Number: 14-07-2120

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Work Order Narrative

Work Order: 14-07-2120 Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 07/31/14. They were assigned to Work Order 14-07-2120.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

New York NELAP air certification does not certify for all reported methods and analytes, reference the accredited items here: http://www.calscience.com/PDF/New_York.pdf

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

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Analytical Report

Beta Offshore		Date Received:	07/31/14
111 W. Ocean Blvd., Suite 1240		Work Order:	14-07-2120
Long Beach, CA 90802-4633		Preparation:	N/A
		Method:	EPA 1664A
		Units:	mg/L

Project: Weekly NPDES Produced Water Monitoring

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
NPDES Prod. Water	14-07-2120-1-A	07/30/14 19:53	Aqueous	N/A	08/02/14	08/02/14 18:00	E0802HEML1

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM: Oil and Grease	34.6	1.00	0.800	1.00	

NPDES Prod. Water	14-07-2120-1-B	07/30/14 19:53	Aqueous	N/A	08/05/14	08/05/14 16:00	E0805HEML1

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM: Oil and Grease	26.0	1.00	0.800	1.00	

NPDES Prod. Water	14-07-2120-1-C	07/30/14 19:53	Aqueous	N/A	08/05/14	08/05/14 16:00	E0805HEML1

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM: Oil and Grease	32.1	1.00	0.800	1.00	

NPDES Prod. Water	14-07-2120-1-D	07/30/14 19:53	Aqueous	N/A	08/05/14	08/05/14 16:00	E0805HEML1

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM: Oil and Grease	28.6	1.00	0.800	1.00	

Method Blank	099-05-119-3651	N/A	Aqueous	N/A	08/02/14	08/02/14 18:00	E0802HEML1

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM: Oil and Grease	ND	1.0	0.80	1.00	

Method Blank	099-05-119-3652	N/A	Aqueous	N/A	08/05/14	08/05/14 16:00	E0805HEML1

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM: Oil and Grease	ND	1.0	0.80	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Beta Offshore		Date Received:	07/31/14
111 W. Ocean Blvd., Suite 1240		Work Order:	14-07-2120
Long Beach, CA 90802-4633		Preparation:	N/A
		Method:	EPA 200.8
		Units:	mg/L
Project: Weekly NPDES Produced Water Monitoring			Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
NPDES Prod. Water	**14-07-2120-1-E**	**07/30/14 19:53**	**Aqueous**	**ICP/MS 04**	**07/31/14**	**08/01/14 15:11**	**140731L01**

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Zinc	0.443	0.0250	0.00239	5.00	B

Method Blank	**099-16-094-437**	**N/A**	**Aqueous**	**ICP/MS 04**	**07/31/14**	**07/31/14 15:45**	**140731L01**

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Zinc	0.000758	0.00500	0.000479	1.00	J

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Quality Control - Spike/Spike Duplicate

Beta Offshore		Date Received:	07/31/14
111 W. Ocean Blvd., Suite 1240		Work Order:	14-07-2120
Long Beach, CA 90802-4633		Preparation:	N/A
		Method:	EPA 1664A
Project: Weekly NPDES Produced Water Monitoring			Page 1 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
14-07-2128-4	Sample	Aqueous	N/A	08/02/14	08/02/14 18:00	E0802HEMS1
14-07-2128-4	Matrix Spike	Aqueous	N/A	08/02/14	08/02/14 18:00	E0802HEMS1
14-07-2128-4	Matrix Spike Duplicate	Aqueous	N/A	08/02/14	08/02/14 18:00	E0802HEMS1

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
HEM: Oil and Grease	37.00	40.00	76.00	98	76.80	100	78-114	1	0-18	

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - Spike/Spike Duplicate

Beta Offshore		Date Received:	07/31/14
111 W. Ocean Blvd., Suite 1240		Work Order:	14-07-2120
Long Beach, CA 90802-4633		Preparation:	N/A
		Method:	EPA 1664A
Project: Weekly NPDES Produced Water Monitoring			Page 2 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
14-07-2107-2	**Sample**	**Aqueous**	**N/A**	**08/05/14**	**08/05/14 16:00**	**E0805HEMS1**
14-07-2107-2	**Matrix Spike**	**Aqueous**	**N/A**	**08/05/14**	**08/05/14 16:00**	**E0805HEMS1**
14-07-2107-2	**Matrix Spike Duplicate**	**Aqueous**	**N/A**	**08/05/14**	**08/05/14 16:00**	**E0805HEMS1**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
HEM: Oil and Grease	3.900	40.00	42.60	97	42.00	95	78-114	1	0-18	

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - Spike/Spike Duplicate

Beta Offshore		Date Received:	07/31/14
111 W. Ocean Blvd., Suite 1240		Work Order:	14-07-2120
Long Beach, CA 90802-4633		Preparation:	N/A
		Method:	EPA 200.8
Project: Weekly NPDES Produced Water Monitoring			Page 3 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
14-07-2085-2	**Sample**	**Aqueous**	**ICP/MS 03**	**07/31/14**	**07/31/14 15:43**	**140731S01**
14-07-2085-2	**Matrix Spike**	**Aqueous**	**ICP/MS 03**	**07/31/14**	**07/31/14 15:38**	**140731S01**
14-07-2085-2	**Matrix Spike Duplicate**	**Aqueous**	**ICP/MS 03**	**07/31/14**	**07/31/14 15:42**	**140731S01**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Zinc	0.2335	0.1000	0.3414	108	0.3378	104	80-120	1	0-20	

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS/LCSD

Beta Offshore		Date Received:	07/31/14
111 W. Ocean Blvd., Suite 1240		Work Order:	14-07-2120
Long Beach, CA 90802-4633		Preparation:	N/A
		Method:	EPA 1664A
Project: Weekly NPDES Produced Water Monitoring			Page 1 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-05-119-3651	LCS	Aqueous	N/A	08/02/14	08/02/14 18:00	E0802HEML1
099-05-119-3651	LCSD	Aqueous	N/A	08/02/14	08/02/14 18:00	E0802HEML1

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
HEM: Oil and Grease	40.00	38.50	96	38.80	97	78-114	1	0-18	

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS/LCSD

Beta Offshore		Date Received:	07/31/14
111 W. Ocean Blvd., Suite 1240		Work Order:	14-07-2120
Long Beach, CA 90802-4633		Preparation:	N/A
		Method:	EPA 1664A
Project: Weekly NPDES Produced Water Monitoring			Page 2 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-05-119-3652	LCS	Aqueous	N/A	08/05/14	08/05/14 16:00	E0805HEML1
099-05-119-3652	LCSD	Aqueous	N/A	08/05/14	08/05/14 16:00	E0805HEML1

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
HEM: Oil and Grease	40.00	39.30	98	38.70	97	78-114	2	0-18	

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS

Beta Offshore		Date Received:	07/31/14
111 W. Ocean Blvd., Suite 1240		Work Order:	14-07-2120
Long Beach, CA 90802-4633		Preparation:	N/A
		Method:	EPA 200.8
Project: Weekly NPDES Produced Water Monitoring			Page 3 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-16-094-437	LCS	Aqueous	ICP/MS 04	07/31/14	07/31/14 15:49	140731L01

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
Zinc	0.1000	0.1128	113	80-120	

RPD: Relative Percent Difference. CL: Control Limits

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Sample Analysis Summary Report

Work Order: 14-07-2120

Method	Extraction	Chemist ID	Instrument	Analytical Location
EPA 1664A	N/A	691	N/A	1
EPA 200.8	N/A	598	ICP/MS 04	1

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Glossary of Terms and Qualifiers

Work Order: 14-07-2120

Qualifiers	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

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14-07-2120

LTS Environmental Inc. 704 Adirondack Avenue Ventura, CA 93003 805-644-4560	**Report to:** Marina Robertson 111 W. Ocean Blvd. Suite 1240 Long Beach, CA. 90802	**Bill to:** Marina Robertson 111 W. Ocean Blvd. Suite 1240 Long Beach, CA 90802

FACILITY: Platform Elly
SAMPLER NAME: Bill Rollins
PROJECT/CHARGE #: Weekly NPDES Produced Water Monitoring
RESULTS REQUIRED: 48 hr RUSH
RESULTS BY: PHONE: _____ E-MAIL X mrobertson@betaoffshore.com

SUBMITTED TO: Calscience — PHONE: 714-895-5494
REPORT TO: Marina Robertson — PHONE: 562-683-3497
COPIES TO: Platform Supervisor — PHONE: 562-606-5705
S.G.Lawry @ LTS — PHONE: 805-644-4560
704 Adirondack, Ventura, CA 93003

SAMPLE NO.	SAMPLE ID	GRAB/ COMP.	VOLUME	DATE/TIME COLLECTED	PRESERV.	ANALYSES REQUESTED (METHOD)
1	NPDES Prod.Water	grab	1 L amber	7-30-14 1953	~~HCl~~ H_2SO_4	Oil & Grease (EPA 1664)
2	NPDES Prod.Water	grab	1 L amber	7-30-14 1953	~~HCl~~	Oil & Grease (EPA 1664) Hold
3	NPDES Prod.Water	grab	1 L amber	7-30-14 1953	~~HCl~~	Oil & Grease (EPA 1664) Hold
4	NPDES Prod.Water	grab	1 L amber	7-30-14 1953	~~HCl~~	Oil & Grease (EPA 1664) Hold
5	NPDES Prod.Water	grab	200-500 ml	7-30-14 1953	HNO3	Zinc (EPA 200.8) Report MDLs and PQLs
	Caution to Sample Collector: all sample bottles contain a concentrated acid preservative. Follow all procedures outlined in your NPDES manual and use proper PPE when collecting the samples.					

Comments: **For Samples 1-4: Analyze Sample #1 only - hold other samples until further notice.**

Relinquished by: _____ Date: 7/31/14 Received by: [illegible] ECI Time: 1229	Relinquished by: [illegible] Date: 7/31/14 Received by: [illegible] ECI Time: 15:45
Relinquished by: _____ Date: _____ Received by: Time:	Relinquished by: _____ Date: _____ Received by: Time:

ED_006450_00013032-00101

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WORK ORDER #: 14-07-2120

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: BETA OFFSHORE

DATE: 07/31/14

TEMPERATURE: Thermometer ID: SC1 (Criteria: 0.0 °C – 6.0 °C, not frozen except sediment/tissue)

Temperature 2.3 °C - 0.3 °C (CF) = 2.0 °C ☐ Blank ☑ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ Received at ambient temperature, placed on ice for transport by Courier.

Ambient Temperature: ☐ Air ☐ Filter Checked by: 676

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A Checked by: 676

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present Checked by: 659

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete (659 7/31/14)	☑	☑	☐
☐ Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
☐ No analysis requested. ☑ Not relinquished. ☐ No date/time relinquished.			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☐	☑	☐
Sample container(s) intact and good condition	☑	☐	☐
Proper containers and sufficient volume for analyses requested	☑	☐	☐
Analyses received within holding time	☑	☐	☐
Aqueous samples received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfides ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation noted on COC or sample container	☑	☐	☐
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☐	☐	☑
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☐16ozCGJ ☐Sleeve (_____) ☐EnCores® ☐TerraCores® ☐_____

Aqueous: ☐VOA ☐VOAh ☐VOAna_2 ☐125AGB ☐125AGBh ☐125AGBp ☐1AGB ☐1AGBna_2 ☑1AGBs ☐500AGB ☐500AGJ ☐500AGJs ☐250AGB ☐250CGB ☐250CGBs ☐1PB ☐1PBna ☐500PB ☐250PB ☑250PBn_4 ☐125PB ☐125PBznna ☐100PJ ☐100PJna_2 ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☐Canister **Other:** ☐_____ **Trip Blank Lot#:**_____ **Labeled/Checked by:** 659

Container: C: Clear A: Amber P: Plastic G: Glass J: Jar B: Bottle Z: Ziploc/Resealable Bag E: Envelope **Reviewed by:** 603

Preservative: h: HCL n: HNO_3 na_2: $Na_2S_2O_3$ na: NaOH p: H_3PO_4 s: H_2SO_4 u: Ultra-pure znna: $ZnAc_2$+NaOH f: Filtered **Scanned by:** 603

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WORK ORDER #: 14-07-2120

SAMPLE ANOMALY FORM

SAMPLES - CONTAINERS & LABELS: **Comments:**

- ☐ Sample(s) NOT RECEIVED but listed on COC
- ☐ Sample(s) received but NOT LISTED on COC
- ☐ Holding time expired – list sample ID(s) and test
- ☐ Insufficient quantities for analysis – list test
- ☐ Improper container(s) used – list test
- ☐ Improper preservative used – list test
- ☐ No preservative noted on COC or label – list test & notify lab
- ☐ Sample labels illegible – note test/container type
- ☐ Sample label(s) do not match COC – Note in comments
  - ☐ Sample ID
  - ☐ Date and/or Time Collected
  - ☐ Project Information
  - ☐ # of Container(s)
  - ☐ Analysis
- ☐ Sample container(s) compromised – Note in comments
  - ☐ Water present in sample container
  - ☐ Broken
- ☑ Sample container(s) not labeled
- ☐ Air sample container(s) compromised – Note in comments
  - ☐ Flat
  - ☐ Very low in volume
  - ☐ Leaking (Not transferred - duplicate bag submitted)
  - ☐ Leaking (transferred into Calscience Tedlar® Bag*)
  - ☐ Leaking (transferred into Client's Tedlar® Bag*)
- ☐ Other: _____

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HEADSPACE – Containers with Bubble > 6mm or ¼ inch:

Sample #	Container ID(s)	# of Vials Received	Sample #	Container ID(s)	# of Vials Received	Sample #	Container ID(s)	# of Cont. received	Analysis

Comments: _____

*Transferred at Client's request.

Initial / Date: 659 07/31/14

SOP T100_090 (06/02/14)

Appendix 22 – Beta Exceedance Letter to EPA dated August 23, 2016

Memorial Production Partners

Beta OFFSHORE

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

August 23, 2016

Dear Mr. Bromley,

Subject: Produced Water Oil and Grease Exceedance Notification

The following letter is in response to a 24 hour verbal notification given to EPA on August 19, 2016 regarding a produced water discharge at Platform Elly (reference NRC Notification #1156753). As required in the General NPDES permit - CAG280000 the following is a written notification and explanation of (and/or potential) exceedance of the oil and grease limitations for produced water NPDES discharges:

Standard operating procedures on Platform Elly is to inject all of the produced water back into the oil producing reservoir. On rare occasions if the injection system fails, operators temporarily divert treated produce water to the emergency sump (U-06) and monitor the discharge as required under the NPDES Permit. This occurred on August 9, 2016 for approximately 14 minutes (from 2:38 am to 2:52 am) and an estimated total of 197 barrels of water was discharged to the ocean. The sample point where the oil and grease samples were collected was downstream of the produced water tank S-03 and prior to an emergency sump U-06. The emergency sump is located on the lower deck and extends to the ocean. It is a vertical pipe type structure used to capture and skim off any free oil that makes it to the sump. This sump is currently skimmed of any free oil twice per day. The sump extends -177 ft. and it was not possible to sample the water discharged at the bottom of the sump's outlet. Instead, the sample was collected upstream of the sump (which is technically the last treatment vessel) and may not necessarily be representative of the water that was actually discharged from the sump outlet. In either case a sample was collected during the discharge from the outlet of the S-03 produced water tank. It should also be noted that there was no reported sheen in the receiving water as a result of the discharge.

Data Results are as follows:

Date:	Time:	O&G (mg/l)
8/9/2016	2:38 am	15,300

System Review and Corrective Actions:

As soon as the lab data results were known, EPA was notified and there was a detailed review of the production treatment process. The apparent cause of the oil in the water was closely reviewed to determine what could prevent this from happening again. It was found that the treated produced

111 W. Ocean Blvd., Suite 1240 ● Long Beach, CA 90802 ● Office: 562-628-1526 ● Fax: 562-628-1536

Memorial Production Partners

Beta OFFSHORE

water holding tank (S-03) had been contaminated with oil from an oil dehydration system upset which allowed oil to enter the tank. This tank has limited skimming capability since it is designed as a surge tank for clean filtered produced water. Once the discharge began, it's likely that some of the oil pad that had built up in the tank made its way into the water phase causing the much higher than normal oil and grease levels.

Prior to any more discharges, the S-03 tank will be bypassed and cleaned. Any accumulated tank bottoms and oil will be removed and cleaned from the tank. Additionally an improved oil skimming mechanism will be installed to capture future upsets should they occur. Operations is also looking at installing a sample point in the sump whose additional skimming capabilities would result in a sample closer to the discharge point and more representative of the actual water discharged to the ocean.

At no time did we anticipate there to be any harm to human health or the environment as a result of the discharge.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions please contact me at (562) 628-1526.

Sincerely,

Diana Lang

Diana Lang
HSE Manager
Beta Offshore

111 W. Ocean Blvd., Suite 1240 ● Long Beach, CA 90802 ● Office: 562-628-1526 ● Fax: 562-628-1536