

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

In the matter of:)	
)	
ConocoPhillips Company)	Order No. R2-2010-0103
Administrative Civil Liability)	Settlement Agreement and Stipulation
Complaint No. R2-2009-0076)	for Order; Order
and Additional Effluent)	
Limitation Violations)	

Section I: Introduction

This Settlement Agreement and Stipulation for Order (“Stipulation”) and Administrative Civil Liability Order (the “Order”) are issued in reference to an adjudicative proceeding initiated by the issuance of Administrative Civil Liability Complaint No. R2-2009-0076, dated December 17, 2009 (the “Complaint”), and additional effluent limitation violations for acute toxicity occurring from October 1, 2009, through December 31, 2009, described in detail below in Paragraph 4 and summarized in Table 1 (Attachment A). The parties to this proceeding are the San Francisco Bay Regional Water Quality Control Board (“Regional Water Board”) Prosecution Team, and ConocoPhillips Company (“Discharger”) (collectively the “Parties”).

Section II: Recitals

1. The Discharger is the owner and operator of the San Francisco Refinery located in Rodeo, Contra Costa County, California (the “Rodeo Refinery” or “Refinery”). The Rodeo Refinery receives crude oil and other feedstocks by tankers or pipelines, and delivers refined products to customers via tanker/barge, rail cars, trucks, and pipelines. Crude oil is processed at the site to produce gasoline, diesel fuel, jet fuel, butane, fuel oil, and other petroleum products. Sulfur and petroleum coke are produced as by-products. The Discharger’s wastewater treatment plant treats about 2.7 million gallons per day (mgd) of process wastewater, boiler blowdown, cooling tower blowdown, sanitary wastewater, sour water stripper bottoms, groundwater, stormwater runoff, offsite wastewater generated at other ConocoPhillips owned facilities and/or remediation activities conducted by the Discharger, and cargo hold washwater. Treated wastewater is discharged to San Pablo Bay via a deepwater diffuser. The Rodeo Refinery is subject to the requirements set forth in Order No. R2-2005-0030, NPDES Permit CA 0005053.

2. The Complaint as issued recommends an administrative civil liability totaling \$490,000 for alleged violations of certain of the Refinery’s effluent limitations occurring between January 1, 2008 and June 30, 2009, including seven times for acute toxicity,

nine times for selenium, once for copper and once for chlorine residual. According to the Discharger, the alleged acute toxicity violations occurred as a result of three unrelated incidents that affected the performance of its wastewater treatment plant. The proposed civil liability includes estimated economic benefit of \$19,100 and staff costs of \$18,450.

3. Subsequent to the issuance of the Complaint, the Discharger advised staff that it experienced three additional incidents at the Refinery between October 1, 2009, and December 31, 2009, that resulted in 14 additional violations of Discharger's effluent limitation for acute toxicity. These additional violations, all of which were timely reported by the Discharger in its monthly Discharge Monitoring Reports, resulted in minimal economic benefit and only 10.5 hours and approximately \$1,500 in additional staff time and costs. The Discharger maintains that, as in the case of the earlier toxicity violations, the later incidents were unrelated to each other and to the earlier incidents that resulted in the initial group of toxicity violations.

To resolve by consent and without further administrative proceedings all alleged violations of California Water Code ("CWC") section 13385(a)(2) set forth in the Complaint and Paragraph 4 below, the Parties have agreed to the imposition of \$600,000 in liability against the Discharger. Discharger shall pay a total of \$310,000 to the State Water Resources Control Board Cleanup and Abatement Account, consisting of \$260,000 in stipulated civil penalties (including economic benefit), \$30,000 in mandatory minimum penalties and \$20,000 for staff costs, no later than 30 days following the Regional Water Board's execution of this Order. The remaining \$290,000 in liability is suspended upon completion of a Supplemental Environmental Project ("SEP")(\$190,000) and the Enhanced Compliance Action ("ECA") (\$100,000) set forth in this Stipulation and Order. Discharger shall expend at a minimum \$190,000 to complete the SEP and \$100,000 to complete the ECA in accordance with the terms of this Stipulation and Order.

4. **Additional Effluent Limit Violations**

- a. **Alleged Violations:** From October 1, 2009, through December 31, 2009, the Discharger reported 14 acute toxicity effluent limitation violations. These additional violations are detailed in Table 1, Attachment A.
- b. **Administrative Civil Liability Authority and Amount:** Pursuant to CWC section 13385(a), a discharger is subject to civil liability for violating any waste discharge requirement. The Regional Water Board may impose civil liability administratively pursuant to Article 2.5 (commencing with section 13323) of Chapter 5 in an amount not to exceed the sum of both of the following; (1) \$10,000 for each day in which the violation occurs; and (2) \$10 for each gallon of discharge that is not susceptible to cleanup or is not cleaned up in excess of 1,000 gallons. The maximum administrative civil liability that the Regional Water Board may impose for these additional violations is \$455,700,000. The Discharger acknowledges the Regional Water Board's

authority to assess administrative civil penalties on a per gallon basis, but disputes that imposition of such penalties is appropriate in the circumstances of the alleged violations.

- c. **Judicial Civil Liability Authority and Amount:** If this matter were referred to the Attorney General for judicial enforcement, the Court could assess penalties of up to \$25,000 per day of violation and \$25 per gallon of discharge that is not susceptible to cleanup or is not cleaned up in excess of 1,000 gallons, based on the factors set forth in Water Code section 13385(e). As in the case of administrative civil penalties, the Discharger acknowledges the court's authority to assess civil penalties on a per gallon basis, but disputes that imposition of such penalties is appropriate in the circumstances of the alleged violations.
- d. **Factors Affecting the Amount of Civil Liability:** Water Code section 13385(e) requires the Regional Water Board to consider several factors when determining the amount of civil liability to impose. These factors include: "...the nature, circumstances, extent, and gravity of the violation or violations, whether the discharge is susceptible to cleanup or abatement, the degree of toxicity of the discharge, and, with respect to the violator, the ability to pay, the effect on its ability to continue its business, any voluntary cleanup efforts undertaken, any prior history of violations, the degree of culpability, economic benefit or savings, if any, resulting from the violation, and other matters that justice may require." The Regional Water Board has considered these factors in determining the amount of administrative civil liability imposed under this ACL Order.
 - i. The Nature, Circumstances, Extent, and Gravity of the Alleged Violations

During the period of October 1, 2009, through December 31, 2009, the Discharger reported an additional 14 acute toxicity effluent limitation violations at the Rodeo Refinery. The violations on October 26 and 30 resulted from an accidental release of methyl diethanolamine (MDEA) into the sour water strippers, which then caused an upset in the Bio Plant (the Discharger uses MDEA to remove hydrogen sulfide from sour gas). The release occurred during start-up of the Refinery's new sulfur plant, when fine particulate accumulated in the regenerator tower and caused MDEA to foam over to the strippers. Based upon the Discharger's investigation of the event, it was determined, with the assistance of an independent contractor, that filters were not properly used during start-up of the unit, which allowed particulates to accumulate in the tower and cause "foam over" of MDEA. Once in the strippers, the MDEA was able to reach the wastewater treatment system. The MDEA biodegraded to ammonia in the Bio Plant, resulting in the discharge of treated wastewater that was toxic to the test species (rainbow trout) used to determine compliance with the Refinery's acute toxicity limits. The Regional Water Board characterizes

these violations as moderate. During this period, the Discharger reported survival rates between 50 and 65 percent.

The second group of violations occurred between November 16 and November 29, 2009. Despite extensive internal investigations, the Discharger was unable to identify the cause of the six violations that occurred during this period. However, the Discharger did note an unusually high concentration of chemical oxygen demand and dead biomass in the Bio Plant on November 16, 2009, suggesting a release of an unknown chemical to the Refinery sewer. The Discharger conducted numerous analysis of both upstream and effluent water samples, but was never able to confirm the occurrence of a release. The Regional Water Board characterizes these violations as moderate to severe. During this period, the Discharger reported survival rates of the test species ranging from 0 to 65 percent.

The Discharger attributes the last six violations that occurred in the period from December 14 through December 24, 2009, to a mechanical breakdown of the dissolved air floatation (DAF) unit. This resulted in oily solids entering the Bio Plant, which adversely affected bio-oxidation and carbon adsorption efficiency for a period of approximately 10 days. The Regional Water Board characterizes these violations as severe. During this period, the Discharger reported survival rates of the test species of 0 percent on two occasions.

As discussed in greater detail in the Complaint, the Regional Water Board staff alleges that the gravity factor associated with violations of acute toxicity limits is significant since these limits are used to assess if the discharge contains toxic substances in concentrations that are lethal to or produce other detrimental responses in aquatic organisms. That being said, the effects of these additional violations were somewhat reduced because the Discharger discharges via a deepwater diffuser to San Pablo Bay that achieves a minimum of 10:1 dilution. As such, the toxicity of these discharges was diluted by a factor of at least 10:1. The Discharger maintains that its Bio Plant (officially known as a PACT Unit) is considered by the petroleum refining industry to be state-of-the-art biological treatment for toxicity control at a petroleum refinery.

- ii. Whether Discharge is Susceptible to Cleanup or Abatement
The discharges were not susceptible to cleanup because the effluent quickly dispersed and mixed with bay water.
- iii. Degree of Toxicity
Acute toxicity testing is a direct measurement of the toxicity of the discharge on juvenile fish. In this case, the Discharger continuously subjects rainbow trout, which is an indicator for thousands of other species

that reside in San Francisco Bay, to its effluent for 96 hours. Therefore, the Regional Water Board alleges that the degree of toxicity of the discharge from these violations is high.

iv. Ability to Pay and Ability to Continue its Business

As discussed in greater detail in Complaint, Discharger has sufficient assets to pay the proposed penalty.

v. Any Voluntary Cleanup Efforts Undertaken by ConocoPhillips

The Discharger was not able to recover treated wastewater that violated effluent limitations. However, corrective actions were taken to minimize or abate the effects of the discharge. In October 2009, the Discharger increased carbon levels and increased the residence time of the Bio Plant by reducing flows to San Francisco Bay. In November 2009, the Discharger increased carbon levels, optimized oil removal at the DAF Unit with the addition of coagulants and polymers, increased residence time of the Bio Plant by reducing flows to San Francisco Bay, and increased ammonia addition from 4 to 8 percent of influent COD to maximize treatment. Finally, in December 2009, the Discharger increased residence time of the Bio Plant by reducing flows to San Francisco Bay, increased carbon levels, and accelerated the time for recovery at the Bio Plant by removing and dewatering 143 tons of biosolids and carbon from the Bio Plant between December 17, 2009, and January 11, 2010.

vi. Prior History of Violations

As discussed in greater detail in the Complaint, the Discharger experienced three violations of its acute toxicity limit in the time period between July 1, 2003, and August 31, 2005. After that period, Discharger did not experience any acute toxicity violations until the first violation alleged in the Complaint occurred on January 7, 2008.

vii. Degree of Culpability

The Discharger's degree of culpability for these additional acute toxicity violations is considered by the Regional Water Board to be medium. This is because the Discharger is responsible for the proper operation and maintenance of its treatment plant and for ensuring that employees implement standard operating procedures in maintaining and operating equipment. While the cause of the November 2009 acute toxicity violations is unknown and the Discharger maintains that all standard operating procedures were observed, the Regional Water Board suspects that less-than-optimal operation and maintenance of the system may have contributed to these remaining violations. The October and December 2009 acute toxicity violations would likely have been prevented if (1) a filter had been properly used in the regenerator tower (which would have removed particulate from the material circulating in the tower and

prevented the overflow of MDEA), and (2) the Discharger maintained its DAF Unit more aggressively than it did.

viii. Economic Benefit or Savings Resulting From the Alleged Violations

The economic benefit or savings from these violations is minimal. This is because most of the violations could have been prevented through better contingency planning (i.e., using a filter to remove particulates) or more aggressive maintenance of the DAF unit. Because these preventative actions could have been taken with existing staff and equipment, it is estimated that the costs avoided by failing to take such actions is minimal.

ix. Other Matters as Justice May Require

The Discharger reported the additional acute toxicity violations promptly according to its permit requirements. Additionally, the Discharger has been responsive in implementing corrective measures to address these violations, and has been cooperative in providing information during the course of the Regional Water Board's investigation of the incidents. The Regional Water Board and State Water Board staff time to investigate and pursue enforcement related to the additional violations has been minimal at an estimated 10.5 hours. These 10.5 hours in staff time are in addition to the estimated 123 hours associated with the violations alleged in the Complaint. Based on an average cost to the State of \$150 per hour, the total staff cost for an estimated 133.5 hours of staff time is approximately \$20,000.

5. SEP Description - Pinole Creek Fish Passage Improvements at I-80 Culvert:

The goal of this project is to restore access to the upper reaches of Pinole Creek for a steelhead trout population that exists downstream of the I-80 culvert. The project would modify the existing box culvert where Pinole Creek passes under I-80 to enable fish passage to quality steelhead spawning and rearing habitat upstream. Detailed plans for achieving the goal(s) are provided in the Pinole Creek Fish Passage Improvements at I-80 Culvert - Implementation Schedule and Milestones included herein as part of the SEP description, Attachment B.

The Regional Water Board acknowledges that the total cost of the SEP exceeds the Discharger's contribution to the project (\$190,000). For this reason, the Contra Costa Resource Conservation District (CCRCD or "Implementing Party") will not commence construction work until it has obtained the balance of necessary funding (approximately \$68,389) for the project.

6. SEP Completion Date: The SEP shall be constructed in its entirety no later than October 14, 2012 (the "SEP Completion Period"). If permits are delayed or other circumstances beyond the reasonable control of CCRCD or the Discharger prevent completion of the SEP by that date, Regional Water Board staff may extend the SEP Completion Period by up to one (1) year, to October 14, 2013. The Regional Water Board staff acknowledges that no construction may occur during the steelhead

spawning season, which extends from October 15 to June 15 of each year. The Discharger must send its request for an extension in writing with necessary justification to the Designated Regional Water Board Representative.

7. Agreement of Discharger to Fund, Report and Guarantee Implementation of SEP: The Discharger represents that: (1) it will fund the SEP in the amount as described in this Stipulation and Order; (2) it will provide certifications and written reports to the Regional Water Board consistent with the terms of this Stipulation detailing the implementation of the SEP, and (3) Discharger will guarantee implementation of the SEP identified in Attachment B by remaining liable for \$190,000 of suspended administrative liability until the SEP is completed and accepted by the Regional Water Board in accordance with the terms of this Stipulation. The Discharger agrees that the Regional Water Board has the right to require an audit of the funds expended by it to implement the SEP.

8. Agreement of Contra Costa Resource Conservation District to Accept SEP Funds and Implement SEP: As a material consideration for the Regional Water Board's acceptance of this Stipulation, CCRCD represents that it will utilize the funds provided to it by the Discharger to implement those portions of the SEP designated as a "ConocoPhillips Budget Item" in the Schedule for Performance included in the SEP description, Attachment B. CCRCD understands that its promise to implement the SEP, in its entirety and in accordance with the schedule for implementation, is a material condition of this settlement of liability between the Discharger and the Prosecution Team. CCRCD agrees that the Regional Water Board staff, or its designated representative, has the right to: (1) inspect the SEP at any time without notice; (2) require an audit of the funds expended by CCRCD to implement the SEP; and (3) require implementation of the SEP in accordance with the terms of this Stipulation and Order if CCRCD has received funds for that purpose from the Discharger. CCRCD agrees to submit to the jurisdiction of the Regional Water Board to enforce the terms of this Stipulation and Order and the implementation of the SEP and agrees to provide all such information requested by the Discharger to enable the Discharger to fulfill its reporting and certification obligations to the Regional Water Board regarding the SEP, as set forth herein.

9. SEP Oversight: Discharger agrees to contract with a third party to oversee implementation of the SEP. Oversight of the SEP will be provided by the San Francisco Estuary Partnership. The Discharger is solely responsible for paying for all oversight costs incurred by the San Francisco Estuary Partnership to oversee the SEP up to a maximum of \$12,000. The SEP oversight costs are in addition to the total administrative civil liability imposed against the Discharger and are not credited toward the Discharger's obligation to fund the SEP. Oversight tasks to be performed by the San Francisco Estuary Partnership include but are not limited to, updating CIWQS, reviewing and evaluating progress, reviewing the final completion report, verifying completion of the project with a site inspection, auditing appropriate expenditure of funds, and providing updates to Regional Water Board staff.

10. **Certification of SEP Funding:** The Discharger shall provide evidence to the Regional Water Board of payment in full (\$190,000) to CCRCD in support of the SEP, no later than 30 days following the Regional Water Board's execution of this Order. Failure to pay the full SEP amount by this date will result in the full SEP amount (\$190,000) being immediately due and payable to the State Water Resources Control Board for deposit into the Cleanup and Abatement Account. CCRCD shall be entitled to spend up to \$70,000 of the SEP Amount for project planning, design and permitting, but shall not expend any portion of the balance of the SEP amount (\$120,000) unless and until CCRCD has obtained all remaining funds necessary to complete the SEP in its entirety.

11. **SEP Progress Reports:** The Discharger shall provide quarterly reports of progress to a Designated Regional Water Board Representative, and the State Water Resources Control Board's Division of Financial Assistance, commencing 90 days after this Stipulation becomes final and continuing through submittal of the final report described in Paragraph 12. If no activity occurred during a particular quarter, a quarterly report so stating shall be submitted.

12. **Certification of Completion of SEP and Final Report:** On or before December 1, 2012 (or December 1, 2013, if an extension to the completion date is granted), the Discharger shall submit a certified statement of completion of the SEP ("Certification of Completion"). The Certification of Completion shall be submitted under penalty of perjury, to the Designated Regional Water Board Representative and the State Water Resources Control Board's Division of Financial Assistance, by a responsible corporate official representing the Discharger. The Certification of Completion shall include following.

- a. Certification that the SEP has been completed in accordance with the terms of this Stipulated Order. Such documentation may include photographs, invoices, receipts, certifications, and other materials reasonably necessary for the Regional Water Board to evaluate the completion of the SEP and the costs incurred by the Discharger.
- b. Certification documenting the expenditures by the Discharger and Implementing Party during the completion period for the SEP. The Implementing Parties expenditures may be external payments to outside vendors or contractors implementing the SEP. In making such certification, the official may rely upon normal company project tracking systems that capture employee time expenditures and external payments to outside vendors such as environmental and information technology contractors or consultants. The certification need not address any costs incurred by the Regional Water Board for oversight. CCRCD may submit a separate certification of expenditures on the Discharger's behalf. The Discharger (or CCRCD on the Discharger's behalf) shall provide any additional information requested by the Regional Water Board staff which is reasonably necessary to verify SEP expenditures.

- c. Certification, under penalty of perjury, that the Discharger and/or Implementing Party followed all applicable environmental laws and regulations in the implementation of the SEP including but not limited to the California Environmental Quality Act (CEQA), the federal Clean Water Act, and the Porter-Cologne Act. CCRCD may submit a separate certification of compliance on the Discharger's behalf. To ensure compliance with CEQA where necessary, the Discharger and/or Implementing Party shall provide the Regional Water Board with the following documents from the lead agency prior to commencing SEP construction:
 - i. Categorical or statutory exemptions relied upon by the Implementing Party;
 - ii. Negative Declaration if there are no potentially "significant" impacts;
 - iii. Mitigated Negative Declaration if there are potentially "significant" impacts but revisions to the project have been made or may be made to avoid or mitigate those potentially significant impacts; or
 - iv. Environmental Impact Report (EIR)

In addition, by December 1, 2013 (or December 1, 2014, if an extension to the completion date is granted), CCRCD shall submit a final report to the Designated Regional Water Board Representative which includes a discussion of the monitoring activities and results conducted during the year following completion of the SEP.

13. Third Party Financial Audit: In addition to the certification, upon completion of the SEP and at the written request of the Regional Water Board staff, the Discharger, at its sole cost, shall submit a report prepared by an independent third party(ies) acceptable to the Regional Water Board staff, or its designated representative, providing such party's(ies') professional opinion that the Discharger or CCRCD has expended money in the amounts claimed by the Discharger. The written request shall specify the reasons why the audit is being requested. The audit report shall be provided to the Regional Water Board staff within three (3) months of notice from Regional Water Board staff to the Discharger of the need for an independent third party financial audit. The audit need not address any costs incurred by the Regional Water Board for oversight.

14. Regional Water Board Acceptance of Completed SEP: Upon the Discharger's satisfaction of its SEP obligations under this Stipulation and completion of the SEP and any audit requested by the Regional Water Board, Regional Water Board staff shall send the Discharger a letter recognizing satisfactory completion of its obligations under the SEP. This letter shall terminate any further SEP obligations of the Discharger and result in the stay of \$190,000 of the liability imposed on the Discharger by this Stipulation and Order.

15. Failure to Expend all Suspended Administrative Civil Liability Funds on the Approved SEP: In the event that Discharger and/or the Implementing Party is not able

to demonstrate to the reasonable satisfaction of the Regional Water Board staff that the entire SEP Amount has been spent to complete the components of the SEP for which the Discharger is financially responsible, Discharger shall pay the difference between the Suspended Administrative Civil Liability and the amount the Discharger can demonstrate was actually spent on the SEP, as an administrative civil liability. The Discharger shall pay the additional administrative liability within 30 days of its receipt of notice of the Regional Water Board's determination that the Discharger has failed to demonstrate that the entire SEP Amount has been spent to complete the SEP components.

16. **Failure to Complete the SEP:** If the SEP is not fully implemented within the SEP Completion Period (as defined in Paragraph 6) required by this Stipulation, the Designated Regional Water Board Representative shall issue a Notice of Violation. As a consequence, the Discharger shall be liable to pay the entire Suspended Liability or, some portion thereof, or the Discharger and/or Implementing Party may be compelled to complete the SEP.

17. **Publicity:** Should the Discharger, the implementing party or its agents or subcontractors publicize one or more elements of the SEP, they shall state in a **prominent manner** that the project is being partially funded as part of the settlement of an enforcement action by the Regional Water Board against the Discharger.

18. **ECA Description:** The ECA shall consist of: (1) the installation of a Total Organic Carbon/Total Nitrogen (TOC/TN) analyzer at the DAF outlet; and (2) upgrades to one of four cells of the existing Unit 100 DAF System as described in greater detail in ECA summary in Attachment C. The installation of a TOC/TN analyzer at the DAF outlet provides a new tool for optimizing the quality of feed to the Bio Plant, thus ensuring the health of the Bio Plant System, minimizing the possibility for upset events, and improving the quality of water discharged from the Bio Plant. In addition, the installation of upgrades to the existing Unit 100 DAF Dissolved Air Flotation System will provide for more efficient oil-water separation in the DAF and subsequently improve the quality and consistency of the feed to the Bio Plant. These improvements will help prevent upset events and increase overall health of the Bio Plant System. As a result, the quality of water leaving the Bio Plant will be improved, reducing toxicity of the effluent water. The DAF Unit upgrade portion of the ECA consists of a pilot project on one of the unit's four cells. Depending on the level of improved performance of that cell, the Discharger may, but is not required to, upgrade additional cells.

19. **ECA Costs:** The installed cost estimate for the ECA is approximately \$316,350 (Attachment C). The amount of liability to be suspended upon completion of the ECA is \$100,000 (ECA Amount). No additional liability above and beyond the \$100,000 shall be suspended for costs incurred to complete the ECA.

20. **ECA Progress Reports:** The Discharger shall provide quarterly reports of ECA progress to Regional Water Board staff, commencing on November 1, 2010 and every

90 days thereafter until the certification of performance is provided as described in 22, below.

21. **Failure to Complete ECA:** If the Discharger fails to complete the ECA by October 1, 2011, as required by this Stipulation and Order, Regional Water Board shall issue a Notice of Violation (NOV). As a consequence, the Discharger shall be liable to pay the State Water Resources Control Board Cleanup and Abatement Account the suspended liability of \$100,000, within 30 days of receipt of the NOV.

22. **Certification of Performance of ECA:** On or before December 1, 2011, the Discharger shall provide a report to Regional Water Board staff, containing documentation that demonstrating completion of the ECA and detailing fund expenditures. The report shall be submitted under penalty of perjury, stating that the ECA has been completed in accordance with the terms of this Stipulation and Order. Such documentation may include photographs, invoice, receipts, certifications, and other materials reasonably necessary for the Regional Water Board to evaluate the completion of the ECA and the costs incurred by the Discharger.

23. **Third Party Financial Audit of ECA:** At the written request of Regional Water Board staff, the Discharger, at its sole cost, shall submit a report prepared by an independent third party(ies) acceptable to the Regional Water Board staff providing such party's(ies)' professional opinion that the Discharger has expended money in the amounts claimed by the Discharger. The written request shall specify the reasons why the audit is being requested. The audit report shall be provided to Regional Water Board staff within three (3) months of notice from Regional Water Board staff to the Discharger of the need for an independent third party audit. The audit need not address any costs incurred by the Regional Water Board for oversight.

24. **Failure to Expend all Suspended Administrative Civil Liability Funds on the Approved ECA:** In the event that Discharger is not able to demonstrate to the reasonable satisfaction of the Regional Water Board staff that the entire ECA Amount has been spent for the completed ECA, Discharger shall pay the difference between the Suspended Administrative Civil Liability and the amount Discharger can demonstrate was actually spent on the ECA, as an administrative civil liability. The Discharger shall pay the additional administrative liability within 30 days of its receipt of notice of the Regional Water Board staff's determination that the Discharger has failed to demonstrate that the entire ECA Amount has been spent to complete the ECA.

Section III: Stipulations

25. The Parties incorporate Paragraphs 1 through 24 by this reference as if set forth fully herein, Stipulate to the entry of this Order as set forth below, and recommend that the Regional Water Board issue this Order to effectuate the settlement.

26. This Stipulation is entered into by the Parties to resolve by consent and without further administrative proceedings certain alleged violations of Order No. R2-2005-

0030, NPDES Permit CA 0005053, set forth in the Complaint and detailed above in Paragraph 4.

27. The Discharger hereby agrees to pay the administrative civil liability totaling \$600,000 as set forth in Paragraph 3 of Section II herein. Further, the Parties agree that \$290,000 of this administrative civil liability shall be suspended pending completion of: (1) the SEP as set forth in Paragraphs 5 through 17 of Section II herein; and (2) the ECA as set forth in Paragraphs 18 through 24 of Section II herein.

28. The Discharger understands that payment in accordance with this Order is not a substitute for compliance with applicable laws, and that continuing violations of the type alleged in the Complaint may subject them to further enforcement, including additional administrative civil liability.

29. Should the Discharger enter into bankruptcy proceedings before all payments are paid in full, the Discharger agrees, to the extent allowable under applicable law, to not seek to discharge any of these penalties in bankruptcy proceedings.

30. Each Party shall bear all attorneys' fees and costs arising from the Party's own counsel in connection with the matters set forth herein.

31. The Discharger understands that this Order must be noticed for a 30-day public review and comment period prior to consideration by the Regional Water Board. In the event objections are raised during the public comment period for the Order, the Regional Water Board or the Executive Officer may, under certain circumstances, require a public hearing regarding the Order. In that event, the Parties agree to meet and confer concerning any such objections, and may agree to revise or adjust the Order as necessary or advisable under the circumstances.

32. The Parties agree that the procedure contemplated for adopting the Order by the Regional Water Board and review of this Stipulation by the public is lawful and adequate. In the event procedural objections are raised prior to the Order becoming effective, the Parties agree to meet and confer concerning any such objections, and may agree to revise or adjust the procedure as necessary or advisable under the circumstances.

33. This Stipulation and Order shall be construed as if the Parties prepared it jointly. Any uncertainty or ambiguity shall not be interpreted against any one Party. The Discharger is represented by counsel in this matter.

34. The Regional Water Board agrees to provide the Discharger with a copy of any press release that the Regional Water Board intends to issue in this matter prior to its issuance, but reserves the rights to make subsequent changes to the press release without providing notice to the Discharger.

35. This Stipulation and Order shall not be modified by any of the Parties by oral representation made before or after its execution. All modifications must be in writing, signed by all Parties, and approved by the Regional Water Board.

36. This Stipulation may be executed in counterparts and by facsimile signature.

37. In the event that this Order does not take effect because it is not approved by the Regional Water Board, or its delegee, or is vacated in whole or in part by the State Water Resources Control Board or a court, the Parties acknowledge that they expect to proceed to a contested evidentiary hearing before the Regional Water Board to determine whether to assess administrative civil liabilities for the underlying alleged violations, unless the Parties agree otherwise. The Parties agree that all oral and written statements and agreements made during the course of settlement discussions will not be admissible as evidence in the hearing. The Parties agree to waive any and all objections based on settlement communications in this matter, including, but not limited to:

- a. Objections related to prejudice or bias of any of the Regional Water Board members or their advisors and any other objections that are premised in whole or in part on the fact that the Regional Water Board members or their advisors were exposed to some of the material facts and the Parties' settlement positions as a consequence of reviewing the Stipulation and/or the Order, and therefore may have formed impressions or conclusions prior to any contested evidentiary hearing on the Complaint in this matter; or
- b. Laches or delay or other equitable defenses based on the time period for administrative or judicial review to the extent this period has been extended by these settlement proceedings.

38. The Discharger has been informed of the rights provided by CWC section 13323 (b), and hereby waives its right to a hearing before the Regional Water Board prior to the adoption of the Order.

39. The Discharger hereby waives its right to petition the Regional Water Board's adoption of the Order as written for review by the State Water Resources Control Board, and further waives its rights, if any, to appeal the same to a California Superior Court and/or any California appellate level court. The Discharger reserves the right to seek review by the State Water Board of any revisions made by the Regional Water Board prior to adoption of the Order, and to participate as a designated party in any proceeding brought by any other aggrieved party relating to the subject matter of the Stipulation and Order.

40. The Discharger and CCRCO covenant not to sue or pursue any administrative or civil claim(s) against any State Agency or the State of California, their officers, Board Members, employees, representatives, agents, or attorneys arising out of or relating to any matter addressed herein.

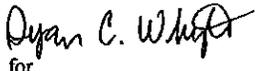
41. Neither the Regional Water Board members nor the Regional or State Water Board staff, attorneys, or representatives shall be liable for any injury or damage to persons or property resulting from acts or omissions by Settling Respondent (or the Implementing Party where applicable) its directors, officers, employees, agents, representatives or contractors in carrying out activities pursuant to this Stipulated Order, nor shall the Regional Water Board, its members or staff be held as parties to or guarantors of any contract entered into by Settling Respondent, its directors, officers, employees, agents, representatives or contractors in carrying out activities pursuant to this Stipulation and Order.

42. The Assistant Executive Officer warrants by signing below that he has the authority to execute the Stipulation on behalf of the Prosecution Team. The person signing on behalf of the Discharger warrants by signing below that he has the legal authority to bind the Discharger to the terms of this Stipulation. The person signing on behalf of CCRCD warrants by signing below that he or she has the legal authority to bind CCRCD to the terms of this Stipulation. The Parties hereto have caused this Stipulation to be executed by their respective officers on the dates set forth, and the Stipulation is effective as of the most recent date signed.

43. This Stipulation is effective and binding on the Parties upon the execution of this Order.

IT IS SO STIPULATED.

California Regional Water Quality Control Board Prosecution Team
San Francisco Bay Region

By: 
for
Thomas E. Mumley, Assistant Executive Officer

Date: July 16, 2010

ConocoPhillips Company

By: 
NAME: RAND H. SWENSON

Date: JULY 20, 2010

CCRCD

By: *Israel Shkredoff, President*
NAME:
Date: 7/16/2010

Section IV: Findings of the Executive Officer

44. The Executive Officer incorporates Paragraphs 1 through 41 by this reference as if set forth fully herein.

45. The Parties believe that settlement of this matter is in the best interest of the People of the State. Therefore, to settle the Complaint, the Discharger hereby agrees to comply with the terms and conditions of this Order.

46. The Executive Officer finds that the Recitals set forth herein in Section II are true.

47. This Stipulation and Order are severable; should any provision be found invalid the remainder shall remain in full force and effect.

48. In accepting this settlement, the Executive Officer has considered, where applicable, each of the factors prescribed in CWC sections 13327 and 13385(e). The Executive Officer's consideration of these factors is based upon information obtained by the Regional Water Board's staff in investigating the allegations in the Complaint or otherwise provided to the Executive Officer. In addition to these factors, this settlement recovers the costs incurred by the staff of the Regional Water Board for this matter.

49. This is an action to enforce the laws and regulations administered by the Regional Water Board. The Executive Officer finds that issuance of this Order is exempt from the provisions of the California Environmental Quality Act (Public Resources Code, sections 21000 et seq.), in accordance with section 15321(a)(2), Title 14, of the California Code of Regulations.

50. The Executive Officer is authorized to refer this matter directly to the Attorney General for enforcement if the Discharger fails to perform any of its obligations under the Order.

51. Fulfillment of the Discharger's obligations under the Order constitutes full and final satisfaction of any and all liability for each claim in the Complaint and Paragraph 4 in accordance with the terms of the Order.

Pursuant to CWC section 13323 and Government Code section 11415.60, **IT IS HEREBY ORDERED** on behalf of the California San Francisco Bay Regional Water Quality Control Board.

Bruce H. Wolfe
Executive Officer

Date: August 26, 2010

ATTACHMENT A

Additional Effluent Limit Violations, Table 1

ATTACHMENT A, Table 1: Additional Acute Toxicity Violations from October 1, 2009 through December 31, 2009

Date	Violation	Limit	Reported Value	Gallons Discharged	Primary Cause
10/26/2009	Acute Toxicity, 11-sample 90 th percentile, minimum survival	70	65	3,440,000	MDEA release to sour water strippers
10/30/2009	Acute Toxicity, 11-sample 90 th percentile, minimum survival	70	65	2,680,000	MDEA release to sour water strippers
11/16/2009	Acute Toxicity, 11-sample 90 th percentile, minimum survival	70	50	2,650,000	Cause unknown
11/19/2009	Acute Toxicity, 11-sample 90 th percentile, minimum survival	70	50	3,160,000	Cause unknown
11/24/2009	Acute Toxicity, 11-sample 90 th percentile, minimum survival	70	35	1,420,000	Cause unknown
11/24/2009	Acute Toxicity, 11-sample moving median, minimum survival	90	65	1,420,000	Cause unknown
11/29/2009	Acute Toxicity, 11-sample 90 th percentile, minimum survival	70	35	3,630,000	Cause unknown
11/29/2009	Acute Toxicity, 11-sample moving median, minimum survival	90	65	3,630,000	Cause unknown
12/14/2009	Acute Toxicity, 11-sample moving median, minimum survival	90	65	4,580,000	Mechanical breakdown of Dissolved Air Floatation Unit
12/19/2009	Acute Toxicity, 11-sample 90 th percentile, minimum survival	70	0	3,920,000	Mechanical breakdown of Dissolved Air Floatation Unit
12/19/2009	Acute Toxicity, 11-sample moving median, minimum survival	90	65	3,920,000	Mechanical breakdown of Dissolved Air Floatation Unit

Date	Violation	Limit	Reported Value	Gallons Discharged	Primary Cause
12/21/2009	Acute Toxicity, 11-sample 90 th percentile, minimum survival	70	0	3,920,000	Mechanical breakdown of Dissolved Air Flootation Unit
12/21/2009	Acute Toxicity, 11-sample moving median, minimum survival	90	65	3,920,000	Mechanical breakdown of Dissolved Air Flootation Unit
12/24/2009	Acute Toxicity, 11-sample moving median, minimum survival	90	65	3,280,000	Mechanical breakdown of Dissolved Air Flootation Unit
	Total Gallons			45,570,000	Total Amount

ATTACHMENT B

SEP Description

CONOCOPHILLIPS SEP INFORMATION, BUDGET & MILESTONES

Attachment B

Revised 7/13/10

Project Name:

Pinole Creek Fish Passage Improvements at I-80 Culvert

Project Developed by:

Contra Costa Resource Conservation District in partnership with EBMUD fisheries biologist

- Contra Costa Resource Conservation District,
- EBMUD
- FarWest Restoration Engineering
- City of Pinole,
- Caltrans,
- Contra Costa County Flood Control and Water Conservation District and
- Friends of Pinole Creek Watershed have worked cooperatively on the preliminary design of the project and on fund raising.

Funding commitments for the Steelhead Habitat Assessment and spawning surveys totaled \$24,418 (project completed), and funding commitments related to the SEP project from the US Fish and Wildlife Service and the Coastal Conservancy currently total \$30,000.

Project to be Performed by:

- Contra Costa RCD – Carol Arnold, Executive Director will be project manager and will hire and oversee consultants:
- Quarterly progress Reports: ConocoPhillips will provide quarterly correspondence to the RWQCB, a third party oversight organization, and the State Water Board's Division of Financial Assistance based on input from the Contra Costa Resource Conservation District.
- Roger Leventhal - FarWest Restoration Engineering – Design and permitting
- Construction (to be determined)
- Monitoring – EBMUD fisheries biologists

Contacts:

Carol Arnold, Executive Director
Contra Costa Resource Conservation District
5552 Clayton Road, Concord, CA 94521
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(925) 672-6522 x106

Dennis Quilici, Water Compliance Specialist,
ConocoPhillips, San Francisco Refinery
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dquilici@conocophillips.com
(510) 245-4403

CONOCOPHILLIPS SEP INFORMATION, BUDGET & MILESTONES

Attachment B

Revised 7/13/10

Compliance with SEP Criteria:

1. This section must address how the project meets all the following SEP criteria.
 - a. The SEP directly benefits or study groundwater or surface water quality or quantity, and the beneficial uses of the waters of the State in the following category: Habitat restoration or enhancement - – this project will enhance steelhead migration on Pinole Creek at the I-80 culverts which will make 8 miles of Pinole Creek and good spawning habitat more accessible to steelhead.
2. The SEP contains only measures that go above and beyond applicable obligations of the discharger. Correct
3. The SEP does not directly benefit, in a fiscal manner, a Water Board's functions, its members, or its staff. Correct
4. The SEP has nexus to the violation(s), such as SEP is located within the same watershed in which the violation(s) occurred or SEP reduces likelihood of similar violations in the future. Consistent with the SWRCB Policy on Supplemental Environmental Projects, the proposed SEP is located within the San Pablo Bay Watershed in the same geographical area (less than 5 miles) from where the refinery wastewater discharges occurred. The SEP will improve the potential for successful steelhead trout spawning to help re-establish a sustainable population of anadromous steelhead trout.

Description of Project:

1. Provide a concise description of the SEP, addressing the following

The goal(s) of the SEP: The goal of this project is to restore access to the upper reaches of Pinole Creek for a steelhead trout population that exists downstream of the I-80 culvert by modifying the existing box culvert where Pinole Creek passes under I-80 to reestablish availability of a quality steelhead spawning and rearing habitat upstream. The proposed project will include the design and construction of fish passage improvements to remediate the passage barrier issues.

Construction will include a low flow splitter wall (sill) and angled baffle system that keeps low flows concentrated into the south box culvert to increase flow depths for passage at the lower passage flows while allowing for overtopping during higher flood flows into both culverts to limit upstream flooding. On the outlet apron there will be a sidewall constructed to contain flows within the baffled section. The water surface below the outlet would be raised approximately one to two feet with a rock ramp or rock weirs to avoid a large water surface drop at the downstream end of the baffles. Boulder rocks may be also be added to the culvert bottom to assist in fish passage.
2. Key personnel involved in SEP
 - a. Carol Arnold, Executive Director, CCRCD
 - b. Bert Mulchaey – Fisheries Biologist, EBMUD
 - c. Roger Leventhal, P.E. with Far West Restoration Engineering
 - d. Construction Contractor – to be hired

CONOCOPHILLIPS SEP INFORMATION, BUDGET & MILESTONES

Attachment B

Revised 7/13/10

- e. Contra Costa County Flood Control District – Carl Roner
 - f. CalTrans – Chuck Morton
 - g. City of Pinole – Winston Rhodes, City Planner
3. Plans to continue and/or maintain the SEP beyond the SEP-funded period
- a. How maintenance will be funded?. We do not anticipate that maintenance will be needed for these minor improvements based on talking with agencies that have constructed similar projects with baffles in culverts and rock weirs for fish passage such as the County of Marin.
 - b. How other continued activities will be funded?
 - Coastal Conservancy grant – the CCRCDD will apply for a grant to the CA Coastal Conservancy for the remainder of construction funding needed.
 - EBMUD Habitat Conservation Program will fund steelhead monitoring.
 - California River Parkways grant for restoration of Phase I of the Pinole Creek Flood Control Channel which will improve conditions in the creek downstream of, but which is not part of, the fish passage improvements included in this SEP. - The City of Pinole, in partnership with the Flood Control District, is taking the lead on restoration of the Flood Control Channel (Phase I of this mile-long creek restoration is scheduled to be constructed this summer to remedy conditions in the flood-control channel which will enhance the potential for both steelhead rearing and migration in Pinole Creek).
4. If applicable, include documented support by one of the following:
- a. Other agencies – Contra Costa County Flood Control District (see letter of support attached), CalTrans (see letter of support attached), City of Pinole – Pete Murray, City Council member, has expressed support for the project.
 - b. Public groups – Friends of Pinole Creek Watershed
 - c. Affected persons - This is not a recreational area ... it is a CalTrans owned culvert in a flood control channel and is not open to the public. The only potential concern would be increasing flood risk downstream and we are working closely with the Contra Costa County Flood Control District to insure that we do not have any negative impacts in this regard.
 - d. Documentation of compliance with the California Environmental Quality Act - To be addressed in the agency permitting process.

Project Milestones and Budget:

Include a time schedule for implementation with milestones together with a detailed budget for the SEP. implementation of the SEP with milestones together with a detailed budget indicating project elements funded by ConocoPhillips and (separately) by others are provided in the two Tables that follow.

CONOCOPHILLIPS SEP INFORMATION, BUDGET & MILESTONES

Attachment B

Revised 7/13/10

Also, include procedures for accounting of all costs and expenses incurred by the SEP, and provisions that any funds left over after the successful completion of the SEP must be turned over to the State Cleanup and Abatement Account. ConocoPhillips will provide this information RWQCB on a quarterly basis.

CCRCD may spend up to \$70,000 of the SEP amount for project planning, design and permitting, but shall not expend any portion of the balance of the SEP amount (\$120,000) unless and until CCRCD has obtained all remaining funds necessary to complete the SEP, in its entirety.

Table 1: Funding by ConocoPhillips

TASK	Amount	Milestone
CCRCD PERSONNEL SERVICES PROJECT MANAGEMENT	\$21,165	NA
1 Conduct Fish Habitat Assessments & Pre-Construction Monitoring: Lower Pinole Creek by Hagar and Associates & Upper Pinole Creek by EBMUD	-	completed June 2010
2 Complete Engineering Design Report: A licensed consultant (Roger Leventhal) will prepare a preliminary design report for review and approval by the permitting agencies including a hydraulic analysis for flooding and fish passage.	\$45,000	October 2010
3 Complete Final Construction Plans & Specifications: A licensed consultant (Roger Leventhal) will develop construction plans and specifications for construction.		January 2011
4 Obtain Agency Permits: Includes: USACE CWA Section 405; RWQCB CWA Section 401 (WQC); State Historic Preservation Officer National Historic Preservation Act Section 106; CA Dept of Fish and Game Section 1600 CDFG Streambed Alteration Permit; Caltrans Encroachment; CCCFCD Encroachment; City of Pinole access; NOAA Fisheries Section 7.	\$21,107	March 2012
CCRCD shall be entitled to spend up to \$70,000 of the SEP Amount for project planning, design and permitting (above), but shall not expend any portion of the balance of the SEP amount (\$120,000) for construction unless and until CCRCD has obtained all remaining funds necessary to complete the SEP, in its entirety.		
5 Select Construction Contractor: Ongoing CCRCD Project Management	-	June 2012
6 Start Construction: Labor costs to construct the culvert barrier modification - includes 12% for workman's compensation	\$44,228	July 15, 2012
7 Conduct Agency-required Construction Monitoring and Reporting: As required	\$10,000	
8 Complete Construction: Contractor costs for materials and supplies plus Agency Monitoring and Reporting	\$43,500	October 2012
9 Certification of Completion of SEP: If an extension to the completion date is granted, the milestone date for this task is December 1, 2013.		December 1, 2012
10 Begin Post-Construction Monitoring: EBMUD to manage.	-	1 year
11 Submit Final Report: Summarize the first year of post-construction monitoring results. If an extension to the completion date is granted, the milestone date for this task is December 1, 2014.	-	December 1, 2013
12 Conclude Post-Construction Monitoring: EBMUD staff (Habitat Conservation Program) to manage.	-	2 years
Total Operating Expenses:	\$185,000	
Cost Overrun Contingency:	\$5,000	
Total ConocoPhillips Funding:	\$190,000	

CONOCOPHILLIPS SEP INFORMATION, BUDGET & MILESTONES

Attachment B

Revised 7/13/10

Table 2: Funding by Others

<u>TASK</u>	<u>Amount</u>
Engineering Design Tasks 2 & 3 (already committed)	\$30,000
Construction Tasks 6-8 (currently not funded)	\$62,172
Funding by Others:	\$92,172
Cost Overrun Contingency:	\$6,217
Total Funding by Others:	\$98,389
Unfunded Balance:	\$68,389 ¹

Project Performance Measures:

Describe measures or indicators for the success of the SEP, and procedures to evaluate compliance with the performance measures or indicators.

The project design will meet the standards set in Fish Passage Design for Road Crossings, 2007 prepared by Caltrans in collaboration with DFG. It will also meet the criteria established by the Contra Costa County Flood Control District. Construction will be completed according to design and will increase flow depths for steelhead passage at the lower passage flows.

EBMUD biologists will conduct annual spawning surveys for at least 3 years following the completion of the passage project to document steelhead spawning in Pinole Creek. Spawning surveys are typically conducted from January through March by walking upstream and recording redd² building activity. GPS positions are recorded for each redd and redds are sequentially numbered to quantify spawning activity each season.

Based on redd size and characteristics, biologists determine if it was likely constructed by resident trout or by steelhead, which typically build larger redds in larger substrate. However, absence of redds does not indicate that the project was unsuccessful since many other factors such as ocean conditions impact steelhead migration and spawning.

Precise scientific measurement of flows would require substantial additional funding. Flows are also dependent upon rainfall, so flows are not a reliable metric to determine the success of the project. However, we will install a staff gauge at the I-80 culvert on the concrete wall and then have Friends of Pinole Creek Watershed volunteers read the staff gauge to confirm that it reaches a flow depth of one foot minimum in the culvert during at least one storm event per year. EBMUD has also offered a few hours of biologists' time for this monitoring.

Project completion will be tracked and reported quarterly. Project funding by ConocoPhillips will be provided as a lump sum to CCRCD.

¹ CCRCD will apply for a grant to the California Coastal Conservancy.

² A redd is a spawning nest that is built by salmon and steelhead in the gravel of streams or the shoreline of lakes. It is formed by the female using her tail to dig in a small area of gravel in the bottom of the stream or shore. Here she forms several depressions in the gravel forming egg pockets into which she deposits her eggs. The size of a redd depends on the size of the fish making the nest. In the following picture Chinook redds can be seen in the riverbed along the curve next to the forested riparian area. They are the light colored areas in the water. Although they are apparent in this aerial photograph they may be hard to see on the ground. Typically redds appear as lighter areas in the gravel since the gravel has been cleaned by the female's movement of the gravel during spawning activity while the area around the redd appears darker due to the normal sediment and other biological material that remains on the undisturbed gravel.

CONOCOPHILLIPS SEP INFORMATION, BUDGET & MILESTONES

Attachment B

Revised 7/13/10

Reports to the Water Board:

At a minimum, the SEP must include quarterly reports on the progress of completion of the SEP to the Regional Water Board, a third party oversight organization, and the State Water Board's Division of Financial Assistance. ConocoPhillips will provide quarterly reports of progress based on input from CCRCO commencing 90 days after the Stipulation Order becomes final and continuing through submittal of the final report certifying completion of the SEP. If no activity occurred during a particular quarter, a quarterly report so stating will be submitted.

Additionally, the SEP must include a final report documenting completion of the SEP, and addressing how performance measures were met, along with a copy of accounting records of expenditures. On or before 12/1/12 (or 12/1/13, if an extension to the completion date is granted), ConocoPhillips will submit a certified statement of completion of the SEP. In addition, by 12/1/13 (or 12/1/14, if an extension to the completion date is granted), CCRCO will submit a final report to the Regional Water Board which includes a discussion of the monitoring activities conducted and the results during the year following completion of the SEP.

Third Party Oversight Organization:

Identify a company or organization retained to oversee and audit the SEP, and describe funding to this organization for the oversight. The costs for oversight are separate from the costs of the SEP. This organization must be knowledgeable in CIWQS data entries and Regional Water Board's public records procedures. The San Francisco Estuary Partnership has performed, and is qualified to perform this service for the San Francisco Bay Regional Water Board. Arrangements and funding for the San Francisco Estuary Partnership will be concluded after receipt of formal correspondence from RWQCB.

ATTACHMENT C

ECA Summary

ECA Summary

Project 1: TOC/TN Analyzer at DAF outlet

The installation of a TOC/TN analyzer at the DAF outlet will provide real-time measurement of Total Organic Carbon and Total Nitrogen to the Bio Plant feed. The installation of this project provides a new tool for optimizing the quality of feed to the Bio Plant, thus ensuring the health of the Bio Plant System, minimizing the possibility for upset events, and improving the quality of water discharged from the Bio Plant. While the Bio Plant effluent does not exhibit toxicity during normal operation, the TOC/TN analyzer will enhance the refinery's ability to detect substances in the Bio Plant feed that could result in toxicity, and enable the refinery to take steps to divert that material before it enters the Bio Plant. In this way, the potential for toxicity of the effluent is even further reduced.

Currently, grab samples are collected daily for analysis of COD and Nitrogen. This results in approximately 10 hrs of lag time between the time the sample is taken and the time the results are processed. During that lag time, oiled water can be fed to the Bio Plant unknowingly, resulting in an operational upset. One benefit of an online analyzer is gathering real-time data that can be used to measure oil in the feed to the Bio Plant so that immediate adjustments can be made to prevent oiling of the Bio Plant and subsequent operational upsets.

The TOC/TN analyzer will be connected to the control system and, upon measurement of a threshold amount of oil in the Bio Plant feed, the feed stream will automatically divert from the Bio Plant to the front end of the WWTP for further processing. This project is scheduled for completion by the end of the year with an estimated installed cost of approximately \$225,000.

Project 2: DAF upgrades

This is a pilot project involving the installation of upgrades to one of four cells of the existing Unit 100 DAF Dissolved Air Flotation System. The upgrades are designed to provide for more efficient oil-water separation in the DAF, which will improve the quality of the feed to the Bio Plant. This, in turn, will help prevent upset events and increase overall health of the Bio Plant system. As a result, the quality of water leaving the Bio Plant will be improved, reducing toxicity of the effluent water.

The existing dissolved air system consists of a recycle pump system where a fraction of the water sent to the DAF is saturated with air under pressure and re-injected into the DAF cells. There, the dissolved air is allowed to escape, forming bubbles that lift the oil and solids out of the water and float it to the top to be skimmed off by a circulating skimmer. The current technology utilizes low-pressure, larger-sized bubbles to accomplish oil removal. The proposed new, state-of-the-art DAF design technology utilizes much higher air pressure than the

current technology and will produce much smaller bubbles. Smaller bubbles float more oil and solids, promoting better oil removal.

To upgrade the system, ConocoPhillips will need to complete the following items: (1) perform front-end engineering to identify the proper technology; (2) complete detailed design of the system improvements; (3) procure construction materials; (4) install the hardware; and (5) execute a successful start-up of the new equipment. Because installation will likely require partial shutdown of the DAF, ConocoPhillips intends to schedule installation of the equipment during the dry season, so as to ensure availability of the DAF during the rainy season. The DAF is scheduled to be in turnaround during summer 2011, at which time the installation of the new DAF technology is currently scheduled to take place. ConocoPhillips has already begun the initial phases of the project as outlined above in order to meet this schedule. The cost to upgrade one cell is estimated at \$91,350.

COST ESTIMATE

SFE NO.: 10-010

TOC/TN ANALYZER ON DAF OUTLET
PROCESS WATER UNIT 100

DATE: 5-14-10

ESTIMATED BY: J. Ruzler

REVISION NO.: 1

<u>DESCRIPTION</u>	<u>CAPITAL \$</u>	<u>EXPENSE \$</u>	<u>TOTAL \$</u>
Engineering			
- Civil/Structural			
- Mechanical			
- Instrument	\$1,500		\$1,500
- Electrical	\$2,500		\$2,500
Subtotal	\$4,000		\$4,000
Materials			
- Engineered Equipment	\$165,000		\$165,000
- Piping			
- Bulk commodities	\$4,000		\$4,000
Subtotal	\$169,000		\$169,000
Construction			
- Construction Management	\$2,500		\$2,500
- Site Preparation/Civil/Structural			
- Mechanical Equipment			
- Piping	\$6,000		\$6,000
- Instrumentation	\$6,000		\$6,000
- Electrical	\$12,500		\$12,500
Subtotal	\$27,000		\$27,000
Support			
- Training and Documentation			
- Startup Support	\$5,000		\$5,000
Subtotal	\$5,000		\$5,000
PROJECT SUBTOTAL	\$205,000		\$205,000
Contingency (<u>10</u> %)	\$20,000		\$20,000
PROJECT TOTAL	\$225,000		\$225,000

**FEL-1 ORDER OF MAGNITUDE COST ESTIMATE
UNIT 100 DISSOLVED AIR FLOTATION - AIR SYSTEM UPGRADE**

SFE NO.: TBD
 REVISED ESTIMATE BY: S. C. Mitchell
 DATE: June 14, 2010

	Modify 1 DAF Cell		Modify All 4 DAF Cells	
	Capital	Expense	Capital	Expense
	Total	Total	Total	Total
1. Engineering				
1a. Engineering Design	\$10,000	\$0	\$20,000	\$0
	Subtotal 1	\$10,000	\$20,000	\$0
2. Materials				
2a. 3-inch CS piping, valves, and fittings, 100/400 LF	\$1,000	\$0	\$4,000	\$0
2b. 1-inch galvanized CS air piping and fittings, 25/100 LF	\$750	\$0	\$3,000	\$0
2c. Structural steel for pipe supports and walkway	\$1,250	\$0	\$5,000	\$0
2d. Air tubes (1/4 cells)	\$8,000	\$0	\$32,000	\$0
2e. 1-inch electrical conduit, 75/300 LF	\$200	\$0	\$800	\$0
2f. Misc. materials	\$2,000	\$0	\$10,000	\$0
2g. Tax and freight @ 12.5%	\$1,650	\$0	\$6,850	\$0
	Subtotal 2	\$14,850	\$61,650	\$0
3. Mechanical Construction				
3a. Demolition	\$5,000	\$0	\$15,000	\$0
3b. Retrofit pump impellers	\$3,750	\$0	\$15,000	\$0
3c. 3-inch CS water piping and fittings, 100/400 LF	\$15,000	\$0	\$60,000	\$0
3d. 1-inch galvanized CS air piping and fittings, 25/100 LF	\$5,000	\$0	\$20,000	\$0
3e. Staging	\$2,500	\$0	\$10,000	\$0
	Subtotal 3	\$31,250	\$120,000	\$0
4. Electrical/Instrument Installation/Signals to DSC				
4a. 1-inch electrical conduit, 75/300 LF	\$11,250	\$0	\$45,000	\$0
4b. Misc. electrical	\$5,000	\$0	\$20,000	\$0
4c. Terminations	\$1,250	\$0	\$5,000	\$0
4d. Loop checks	\$500	\$0	\$2,000	\$0
	Subtotal 4	\$18,000	\$72,000	\$0
			\$273,650	\$0
			\$273,650	\$0
			\$15,000	\$0
			\$6,000	\$0
			\$21,000	\$0
			\$45,000	\$0
			\$339,650	\$0
			\$91,350	\$0
			\$12,000	\$0
			\$74,100	\$0
			\$3,750	\$0
			\$1,500	\$0
			\$5,250	\$0
			\$12,000	\$0
			\$91,350	\$0
			\$12,000	\$0
			\$74,100	\$0
			\$3,750	\$0
			\$1,500	\$0
			\$5,250	\$0
			\$12,000	\$0
			\$91,350	\$0
			\$12,000	\$0
			\$74,100	\$0
			\$3,750	\$0
			\$1,500	\$0
			\$5,250	\$0
			\$12,000	\$0
			\$91,350	\$0
			\$12,000	\$0
			\$74,100	\$0
			\$3,750	\$0
			\$1,500	\$0
			\$5,250	\$0
			\$12,000	\$0
			\$91,350	\$0
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			\$5,250	\$0
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			\$74,100	\$0
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			\$1,500	\$0
			\$5,250	\$0
			\$12,000	\$0
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			\$5,250	\$0
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			\$74,100	\$0
			\$3,750	\$0
			\$1,500	\$0
			\$5,250	\$0
			\$12,000	\$0
			\$91,350	\$0
			\$12,000	\$0
			\$74,100	\$0
			\$3,750	\$0
			\$1,500	\$0
			\$5,250	\$0
			\$12,000	\$0
			\$91,350	\$0
			\$12,000	\$0
			\$74,100	\$0
			\$3,750	\$0
			\$1,500	\$0
			\$5,250	\$0
			\$12,000	\$0
			\$91,350	\$0
			\$12,000	\$0
			\$74,100	\$0
			\$3,750	\$0
			\$1,500	\$0
			\$5,250	\$0
			\$12,000	\$0
			\$91,350	\$0
			\$12,000	\$0
			\$74,100	\$0
			\$3,750	\$0
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			\$91,350	\$0
			\$12,000	\$0
			\$74,100	\$0
			\$3,750	\$0
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			\$91,350	\$0
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			\$3,750	\$0
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			\$3,750	\$0
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			\$3,750	\$0
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			\$91,350	\$0
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			\$3,750	\$0
			\$1,500	\$0
			\$5,250	\$0
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			\$91,350	\$0
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			\$74,100	\$0
			\$3,750	\$0
			\$1,500	\$0
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			\$5,250	\$0
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			\$74,100	\$0
			\$3,750	\$0
			\$1,500	\$0
			\$5,250	\$0
			\$12,000	\$0
			\$91,350	\$0
			\$12,000	\$0
			\$74,100	\$0