

Responses to USOR's Comments on Draft NPDES Permit

1. NPDES Permit Cover Page

Reference: NPDES Permit: Page 1; Discharge Locations

The coordinates listed for the Outfall 001A Effluent Compositor are incorrect. The correct value for this discharge location is as follows:

Outfall 001A (Effluent Compositor)

Latitude: 47° 15' 25" N

Longitude: 122° 23' 29" W

Response: Agreed. Correction made to permit.

2. Table of Contents

Reference: NPDES Permit: Page 4

For consistency, headings for S10, S11, S12, and S13 should be capitalized. In addition, the indentations for the various section headings are inconsistent on this page.

Response: Agreed. Correction made to permit.

3. Table of Contents

Reference: NPDES Permit: Page 5

The second line for G22, G23, and Appendix A should be indented to match existing text format.

Response: Agreed. Correction made to permit.

4. Summary of Permit Report Submittals

Reference: NPDES Permit: Page 6, S11.A and S11.D; Pollution Prevention Plans

The submittal requirements for the Pollution Prevention Plan reports are inconsistent with the biennial schedule that is already in place per U.S. Oil's current NPDES permit. U.S. Oil recommends that the first submittal dates for S.11A and S.11.D be modified to read "November 1, 2008", and November 1, 2010" respectively to be consistent with the established biennial submittal schedule already being used under the current NPDES permit.

Response: Agreed. Correction made to permit.

5. Summary of Permit Report Submittals

Reference: NPDES Permit: Page 6, Section S7; Dioxin Study Report

The submittal requirement for the dioxin report is not consistent with the requirement found in the body of the draft permit. U.S. Oil recommends using the language from

the body of the draft permit which requires submission of the Dioxin Study Report within 3 months of the last sampling event.

Response: They were not consistent. The language from the body of the draft permit has been changed.

6. Construction Stormwater Pollution Prevention Plan

Reference: NPDES Permit: Page 7, Section S13.B; Construction Stormwater Pollution Prevention

As part of the process of including construction stormwater requirements in the facility's NPDES Discharge Permit, U.S. Oil is being required to develop and implement a Construction Stormwater Pollution Prevention Plan. In order to be effective, the development of this comprehensive plan will require a great deal of effort and coordination between the many different groups within the refinery that could potentially be affected by the requirements with respect to construction activities.

It would be impractical as well as ill-advised to attempt to develop a construction stormwater plan within the 60 day time frame listed in this section of the draft permit. (The body of the permit indicates 120 days) The likely result of such a short period of time would be a hastily crafted document with little value in preventing contamination of stormwater. U.S. Oil recommends the allowance of 180 days so that a well thought out plan, utilizing input from all departments of the refinery, can be developed and implemented. This timing would also avoid the workload conflicts that would be encountered due to multiple environmental program deadlines due on or about September 1, 2008.

Response: Agreed. Ecology changed from 90 days to 180 days in the permit as requested by U.S. Oil.

7. Process Wastewater Discharges

Reference: NPDES Permit: Page 9, Section S1.A Effluent Limitation Table; Feedstock Rate

For clarity, U.S. Oil recommends that in the Units column, Feedstock Rate be listed as "bbl per stream day".

Response: Agreed. Correction made to permit.

8. Stormwater Allocation (Outfall 001 A)

Reference: NPDES Permit: Pages 10 & 11, Section S1.C

The fact sheet notes that during the months of June through October, U.S. Oil will only be allowed to claim the stormwater allocation when it can be demonstrated that measurable rainfall has occurred at the refinery site during the previous 10 calendar days. The dry season window of June through October as stated in this sentence is incorrect and needs to be corrected to read June through September. Exhibit A provides a summary of monthly rainfall totals as recorded at U.S. Oil from January

1995 through December 2007. Upon review of this data, it is important to note that October is one of the wetter months.

The use of June through September as the correct dry weather window is further supported by Ecology's April 8, 2002 response to public comments following the issuance of U.S. Oil's draft NPDES Permit and Fact Sheet for public comment on January 14, 2002. Ecology's comment specific to the dry weather window reads as follows:

"The Department has analyzed the data which U.S. Oil & Refining has submitted along with data from the National Weather Service for the 30 year normal precipitation rates for Tacoma and Olympia. The time period in October does match wet winter conditions and not dry summer conditions. The Department will change the dry weather time period from June through October to June through September."

Response: Agreed. Correction made to permit.

9. Clean Water Discharge

Reference: NPDES Permit: Page12, Section SI.E.3; Zinc and Copper Benchmarks

Please explain the basis for the values chosen as benchmarks for total zinc and total copper in stormwater, as the source for these values is not readily apparent.

Response: The basis for the values is from Ecology's Stormwater General Permit.

10. Clean Water Discharge

Reference: NPDES Permit: Page13, Section SI.E.4.

The indentations are not consistent for a, b, c, and d.

Response: Agreed. Correction made to permit.

11. Clean Water Discharge

Reference: NPDES Permit: Page13, Section SI.E.4.C, First Sentence

What is a "Capital" Best Management Practice? Please explain.

Response: It is similar to "Capital" improvement defined in the Stormwater General Permit.

12. Clean Water Discharge

Reference: NPDES Permit: Page14, Section SI.F, Second Paragraph

In actual practice, email has become the most efficient method of communicating clean water test results and approvals. U.S. Oil recommends that email be added as an option in the last paragraph of this section to validate a practice that is already in place, accepted by Ecology, and performing well.

Response: Agreed. Correction made to permit.

13. Monitoring Requirements

Reference: NPDES Permit: Page 15, Section S2.A; Monitoring Schedule Table

The monitoring schedule lists continuous recording for wastewater effluent flow, which is consistent with normal operations at the refinery. However, in the event of a flow meter malfunction, it would be advantageous to be able to utilize process monitoring data to estimate flows during the time the equipment is malfunctioning. U.S. Oil recommends including the following language in the Sample Type heading for Wastewater Effluent flow: “Process monitoring data can be used during times of instrument malfunction”.

Response: Agreed. “Process monitoring data can be used during times of instrument malfunction” is added to the footnote below the table.

14. Monitoring Requirements

Reference: NPDES Permit: Page 15 Section S2.A; Monitoring Schedule Table

U.S. Oil recommends that the following clarifying sentence be added to the language regarding pH monitoring: “Data recorded during instrument calibration is exempt from reporting”. This is important because the recorded data is indicating the pH of the calibration solutions used to calibrate the pH probes, not the pH of the treated effluent.

Response: Disagreed. During instrument calibration, Permittee shall take grab samples and report the grab sample results.

15. Monitoring Requirements

Reference: NPDES Permit: Page 15 Section S2.A; Monitoring Schedule Table

There is an error with regard to temperature monitoring. U.S. Oil’s temperature monitoring system consists of a local meter only, and a daily reading is recorded when the 24 hour composite is collected for analysis. The temperature of U.S. Oil’s wastewater fluctuates gradually and therefore does not experience sudden temperature changes. As such, continuous monitoring is unnecessary. The entry in the “Sample Type” column should be corrected to read “continuous recording or daily grab”. Additionally, the two footnotes below the chart that are preceded by * and ** are irrelevant and should be omitted. We have included a chart) showing year 2007 effluent temperature data as an example of the gradual temperature fluctuations. See Exhibit B

Further, imposing the collection of hourly temperature grab samples would be extremely burdensome, especially during night shift when staffing levels are at a minimum. This would significantly interfere with our ability to monitor more critical refinery operations during these times.

Response: Water temperature standards are based on daily maximum. With grab sampling a daily maximum temperature cannot be obtained; therefore continuous recording for temperature is required. The requirement of hourly grab samples while the continuous monitor is inoperative has been changed to grab sampling once every 4 hours.

16. Laboratory Accreditation

Reference: NPDES Permit: Page 16, Section S2.D

There are no requirements in the draft permit for monitoring conductivity. U.S. Oil recommends removing the reference to conductivity in the third sentence of this section since it is irrelevant.

Response: Agreed. Correction made to permit.

17. Notice of Noncompliance Reporting

Reference: NPDES Permit: Page 18, Section S3.E.3; Report Within Five Days

For permit exceedances, it typically takes several weeks to piece together the information necessary to decipher and fully describe what caused the exceedance, as well as allowing time to develop a thorough plan to prevent a recurrence. In order to facilitate the performance of a thorough evaluation and the development of a comprehensive exceedance report, U.S. Oil recommends that this section heading be changed to read "Permit Exceedance Report". The first sentence after this heading should be changed to read "The Permittee must submit a detailed written report to the Department of Ecology within 30 days (5 days for bypasses) of any event required to be reported under subparts 1 or 2, above".

Response: Disagreed. "Report within five days" of Section S3.E.3 is a standard language of the boiler plate that applies throughout major industries.

18. Application for Permit Renewal

Reference: NPDES Permit: Page 22, Section S5

The draft permit lists May 1, 2012 as the deadline for submission of a permit renewal application. This would appear to indicate that Ecology is requiring the application a year in advance of permit expiration, as opposed to the 180 day requirement in the current permit. U.S. Oil is asking for clarification on this point and would further recommend that the language be changed to reflect the actual permit date, based on the issuance of this draft permit as a final permit.

Response: Disagreed. Ecology's Water Program made the decision to change from 6 months (180 days) to one year, because we need more time to review and to issue a renewed NPDES permit before the existing permit is expired. A new language reflecting actual date has been added to the permit as recommended.

19. Facility Loading

Reference: NPDES Permit: Page 22, Section S6.A; Design Criteria – Hydraulic Flow

The maximum average monthly hydraulic flow limitation listed in the draft permit for the biological treatment unit is unrealistically low, unnecessarily restrictive, and is not based on sound engineering judgment. The value of 650,000 gallons per day (451 gpm) was based on documentation from 1979 that contains inconsistencies with regard to the actual equipment in place at U.S. Oil, and therefore may not be a reliable source of information.

It is also important to note that although the value listed in the draft permit appears to be validated by the 430 gpm that was listed in U.S. Oil's treatment efficiency study, this approach to setting a limit is entirely flawed in two key ways. First, this value simply represents actual quantities of wastewater that required treatment during the three year time frame of the study. This data in no way represents the capacity of the treatment system.

Second, the limited time frame from which the data was pulled further compromises the value chosen. U.S. Oil has compiled additional flow data from 1995 through 2007 that indicates the treatment system has successfully processed much higher volumes of wastewater. In fact, the value listed in the draft permit would have been exceeded 21 times during the 13 year period.

It is also important to note that during these higher flow periods, the treatment system was consistently performing very well, with no parameters close to discharge limits. This data is attached as Exhibit C. With the caution that this additional data still only represents actual quantities of water requiring processing and not hydraulic capacity, it is important to note that historically, we have successfully processed volumes as high as 943,200 gallons per day (655 gpm) on a monthly average basis.

In order to facilitate the development of a realistic hydraulic limit for the biological treatment unit, U.S. Oil commissioned ENSR, Inc to perform a capacity study with regard to hydraulic flows as well as BOD₅ treatment capabilities. ENSR performed a thorough study of not only the biological unit, but of the other wastewater treatment system components as well.

ENSR's final report, attached as Exhibit D, indicates that U.S. Oil's treatment system is capable of handling flows of up to 1,990,000 gallons per day (1,382 gpm) without loss of contaminant treatment capacity. Since ENSR's evaluation is representative of treatment capacity, U.S. Oil strongly recommends that this value be adopted as the monthly average limit for hydraulic capacity of the biological treatment unit.

Response: After reviewing the Exhibit C which includes all discharge volumes from the clarifier from 1995 to 2007, Ecology found that the highest monthly discharge during the thirteen years is 655 gpm in the month of January 1997. During that month the highest daily charge is 729 gpm on the day of January 6. The operation data has proved that the wastewater treatment system can handle hydraulic loading around 729 gpm. The maximum daily discharge 729 gpm is very close to the daily limit (750 gpm) addressed in the agreement between Tacoma City and U.S. Oil. For the

convenience to U.S. Oil's reporting requirements, Ecology would like to use 750 gpm instead of 729 gpm for hydraulic loading because these two numbers are so close.

Ecology cannot accept the hydraulic capacity estimate 1,380 gpm by ENSR (Exhibit D) because TSS in discharge from the clarifier will be very high based on the operational data.

20. Facility Loading

Reference: NPDES Permit: Page 22, Section S6.A; Design Criteria – BOD₅ Loading

The maximum average monthly limitation listed in the draft permit for BOD₅ loading is unnecessarily restrictive and is based on documentation from 1979 that contains inconsistencies with regard to the actual equipment in place at U.S. Oil, and therefore may not be a reliable source of information. It is important to note that U.S. Oil added a third disc pack to the biological unit in January 2002 to increase oxygenation capacity. This unit was originally designed to accommodate four disc packs. In 2002, a total of 28 aeration discs were added to the original 44 discs, increasing oxygenation capacity by approximately 64%.

As indicated above, U.S. Oil commissioned ENSR, Inc to perform a capacity study with regard to both hydraulic flows and BOD₅ treatment capabilities. ENSR performed a thorough study of not only the biological unit, but the other supporting wastewater treatment components as well.

ENSR examined the oxygenation capacity of U.S. Oil's biological unit by evaluating the oxygen uptake rate generated by each disc in each channel. From this data, a total oxygenation uptake rate was calculated and converted on a stoichiometric basis into the BOD₅ treatment capacity of the system.

ENSR's final report, attached as Exhibit D, indicates that U.S. Oil's treatment system is capable of handling BOD₅ loading of up to 1,383 pounds per day without loss of contaminant treatment capacity. This value is further supported by actual operating data recorded from 2002 to 2007, including a single daily data point of 1,447 pounds per day in May of 2005, which exceeds the capacity calculated by the ENSR study.

In fact, a further evaluation of the May 2005 high BOD₅ loading event reveals that during this period the dissolved oxygen in channel 3 declined to as low as 1.0 mg/L, reflecting the increased oxygen demand. It is important to note, however, that during this time frame the BOD₅ in the final effluent remained below 3 mg/L. This further corroborates the capacity evaluation performed by ENSR and indicates that even at loadings as high as 1,447 pounds per day BOD₅, the treatment system is still effective. U.S. Oil recommends that 1,383 pounds per day BOD₅ be adopted as the monthly average limit for loading capacity of the biological treatment unit.

Additionally, the language under the heading "Parameter" in the Section S6.A table should be clarified and be consistent with the language used for flow. U.S. Oil recommends changing the language to read "Maximum Average Monthly BOD₅".

Response: Agreed. BOD loading to Orbal has been changed 900 lb/day to 1,380 lb/day. The BOD loading for design is based on lb/day, unlike the hydraulic loading based on monthly average. Therefore, Ecology cannot to change the daily average to monthly average for BOD loading.

21. Facility Loading

Reference: NPDES Permit: Page 22, Section S6.B.1; Report

Section S6.B. 1 indicates that an updated engineering report must be prepared for any required new or upgraded treatment facilities, and that TSS and BOD loading capacity must be determined. It is important to note that TSS is not a meaningful parameter to evaluate because the solids in a biological treatment unit consist of the micro organisms that are consuming the contaminants. Hence the TSS in a biological treatment unit does not represent contaminant loading. U.S. Oil recommends that TSS be removed from this paragraph.

Response: Disagreed. It is a boiler plate language. With the TSS loading data, we can calculate the TSS removing efficiency by the secondary treatment system.

22. Dioxin Study

Reference: NPDES Permit: Page 24, Section S7.B; Second Paragraph

U.S. Oil will request that the contract analytical laboratory properly perform the required testing, as well as provide and maintain on file the type of data requested in this section of our NPDES permit. U.S. Oil should not be held accountable, however, if for some reason the laboratory elects not to “maintain on file” the information requested. As written, this section leaves U.S. Oil potentially liable for actions outside of our control.

Response: Disagreed. Permittee should have the right to request the contract laboratory “maintain on file for each sample set”.

23. Acute Toxicity

Reference: NPDES Permit: Page 24, Section S8.A.1; Testing Requirement for Acute Toxicity

To facilitate flexibility with regard to toxicity testing, U.S. Oil recommends that the language of section S4.A of the current permit be retained. The language in S8.A.1 should be changed to read as follows: “Conduct acute toxicity testing on final effluent once in the last summer and once in the last winter prior to submission of the renewal application”.

Response: Agreed. Correction made to permit.

24. Acute Toxicity

Reference: NPDES Permit: Page 25, Section S8.B.7; Sampling and Reporting Requirements

The language in section S8.B.7 is essentially redundant to what was already stated in S8.A.3. U.S. Oil recommends that both of these paragraphs be consolidated into a single requirement.

Response: Disagreed. Some redundancy is allowed.

25. Chronic Toxicity

Reference: NPDES Permit: Page 25, Section S9.A.1; Testing Requirement for Chronic Toxicity

To facilitate flexibility with regard to toxicity testing, U.S. Oil recommends that the language of section S5.E of the current permit be retained. The language in S9.A.1 should be changed to read as follows: "Conduct chronic toxicity testing on final effluent once in the last summer and once in the last winter prior to submission of the renewal application".

Response: Agreed. Correction made to permit.

26. Chronic Toxicity

Reference: NPDES Permit: Page 26, Section S9.B.7; Sampling and Reporting Requirements

The language in section S9.B.7 is essentially redundant to what was already stated in S9.A.3. U.S. Oil recommends that both of these paragraphs be consolidated into a single requirement.

Response: Disagreed. Some redundancy is allowed.

27. Priority Pollutant Scan

Reference: NPDES Permit: Page 27, Section S10

Per the dioxin studies that are being required by Section S7 of this permit, U.S. Oil will be performing two complete dioxin scans of the final effluent. These samples will be taken during catalyst regeneration activities which represent the only activities that can potentially generate low levels of dioxin compounds. Based on this, U.S. Oil recommends that the priority pollutant scans listed in Appendix B not include 2,3,7,8, Tetra-Chlorodibenzo-P-Dioxin.

Response: Disagreed. Sampling for the dioxin studies will occur in 2008, but the priority pollutant scan must be conducted every year during the permit term. The dioxin samples taken during catalyst regeneration activities can be used as a substitute to the dioxin sampling for the priority pollutant scan during the same year.

28. Priority Pollutant Scan

Reference: NPDES Permit: Page 27, Section S10

Appendix B also includes cyanide in the list of priority pollutants requiring testing. The generation of cyanide in the Fluidized bed Catalytic Cracking Units (FCCU) is well documented. However, since U.S. Oil does not operate an FCCU, it does not

make any sense to test for cyanides. Therefore, U.S. Oil recommends that cyanide be excluded from testing.

Response: Based on the reasons given by USOR, Ecology agrees to reduce sampling and testing for cyanide requirement from once every year to once per permit cycle.

29. Pollution Prevention Planning and activities

Reference: NPDES Permit: Page 29, Section S11.D, Third Paragraph; Plan Evaluation and Biennial Reporting

The submittal requirements for the Pollution Prevention Plan reports are inconsistent with the biennial schedule that is already in place per U.S. Oil's current NPDES permit. U.S. Oil recommends that the submittal dates for S.11.A and S.11.D be modified to read "November 1, 2008", and November 1, 2010" respectively to be consistent with the established submittal schedule.

Response: Agreed. Correction made to permit.

30. Dangerous Waste – Permit by Rule Requirements

Reference: NPDES Permit: Page 29, Section S12

Though we do not currently do so, U.S. Oil is authorized to treat dangerous wastes generated on or off site under the "Permit by Rule" provisions. In the event of an oil spill or other event that leads to the creation of contaminated wastewater, U.S. Oil would like to modify the last sentence of this section to read "USOR does not currently treat off-site wastes at its wastewater treatment facility". In cooperation with the Federal and/or State On-Scene Coordinator, it is important to note that the need to treat off-site contaminated wastewater could be in response to a regional oil spill not associated with U.S. Oil operations.

Response: Ecology believes that by deleting the last sentence "USOR does not treat off-site wastes at its wastewater treatment facility" is better than to modify the last sentence as suggested by US Oil. To delete the last sentence is also consistency with other issued permits.

31. Construction Stormwater

Reference: NPDES Permit: Page 30, Section S13.A

It is important to note that U.S. Oil may elect to manage construction stormwater from certain areas of the refinery by routing the water to the refinery wastewater treatment system. In these cases, the requirements of Section S13 do not apply. Therefore, U.S. Oil recommends the addition of the following clarifying sentence before S13.A: "This section only applies to construction stormwater that is discharged directly off site. It does not apply to construction stormwater that is processed through the refinery's wastewater treatment plant".

Response: Disagreed. S13A is already addressed that S13 requirements are only for Outfall 001B, 002, 003, and 004. This S13 requirement does not apply to stormwater that is processed through the refinery's wastewater treatment system.

32. Construction Stormwater

Reference: NPDES Permit: Page 30, Section S13.B, First Paragraph; Construction Stormwater Pollution Prevention Plans

As part of the process of including construction stormwater requirements in the facility's NPDES Discharge Permit, U.S. Oil is being required to develop and implement a Construction Stormwater Pollution Prevention Plan. In order to be effective, the development of this comprehensive plan will require a great deal of effort and coordination between the many different groups within the refinery that could potentially be affected by the requirements with respect to construction activities.

It would be impractical as well as ill-advised to attempt to develop a construction stormwater plan within the 120 day time frame listed in this section of the draft permit. (The Report Submittal Summary indicates 60 days) The likely result of such a short period of time would be a hastily crafted document with little value in preventing contamination of stormwater. U.S. Oil recommends the allowance of 180 days so that a well thought out plan, utilizing input from all departments of the refinery can be developed and implemented. This timing would also avoid the workload conflicts that would be encountered due to multiple environmental program deadlines due on or about September 1, 2008.

Response: Agreed. Correction made to permit.

33. Construction Stormwater

Reference: NPDES Permit: Page 33, Section S13.G, Third Paragraph; Site Inspections

The language in this paragraph needs clarification to note that "the Permittee is not required to conduct site inspections outside of regular business hours (Monday – Friday) or during unsafe conditions". This language is consistent with what is used in the last paragraph in Section S1.E.3. Mandated inspections during weekends and especially during holidays are very problematic.

Response: Disagreed. The schedule of Permittee to conduct sampling does not have to be the same as the schedule of site inspection conducted by the Permittee. Stormwater overflow/bypass or spill may require site inspection during the holidays or weekends.

Responses to USOR's Comments on Draft NPDES Fact Sheet

34. Fact Sheet

Reference: Fact Sheet: Page 1; Table 1, Discharge Locations

U.S. Oil provided accurate latitude and longitude coordinates for each of the discharge locations listed in the draft permit as part of the NPDES permit application. The coordinates were listed in the format of Degrees and Minutes with three numbers to the right of the Minutes decimal for precision. However, it appears that Ecology mistakenly converted the numbers to the right of the Minutes decimal directly into Seconds to obtain a Degrees/Minutes/Seconds format. This is incorrect. The correct values for the discharge locations are as follows:

| | | |
|----------------------------|-------------------------|--------------------------|
| Process Wastewater Outfall | | |
| 001A | Latitude: 47° 15' 25" N | Longitude 122° 23' 29" W |
| Clean Water Outfalls | | |
| 001B | Latitude: 47° 15' 29" N | Longitude 122° 23' 38" W |
| 002 | Latitude: 47° 15' 27" N | Longitude 122° 23' 06" W |
| 003 | Latitude: 47° 15' 53" N | Longitude 122° 23' 53" W |
| 004 | Latitude: 47° 15' 14" N | Longitude 122° 23' 33" W |

Response: Agreed. Correction made to Fact Sheet.

35. Wastewater Treatment

Reference: Fact Sheet: Page 3, Section A, Third Paragraph under the Sub-Heading Titled "Wastewater Treatment", Design Criteria – Hydraulic Flow

The value of 650,000 gallons per day (451 gpm) was based on documentation from 1979 that contains inconsistencies with regard to the actual equipment in place at U.S. Oil, and therefore may not be a reliable source of information. The value appeared to be validated by the 430 gpm that was listed in U.S. Oil's limited data set from the three year time frame that was evaluated for the treatment efficiency study required by U.S. Oil's current NPDES permit. However, this approach to setting a limit is entirely flawed in two key ways. First, this value simply represents actual quantities of wastewater that required treatment during the three year time frame of the study. This data in no way represents the capacity of the treatment system.

Second, the limited time frame from which the data was pulled further compromises the value chosen. U.S. Oil has compiled additional flow data from 1995 through 2007 that indicates the treatment system has successfully processed much higher volumes of wastewater. In fact, the value listed in the draft permit would have been exceeded 21 times during the 13 year period, in spite of the fact that all effluent parameters were well within permit limitations during the higher flow conditions. See also comments regarding Fact Sheet Page 8 – Design Criteria.

Response: Agreed. The hydraulic loading has been changed due to additional data submitted by Permittee. Please see Response #19 for detail.

36. Facility Loading

Reference: Fact Sheet: Page 3, Section A, Fourth Paragraph under the Sub-Heading Titled "Wastewater Treatment", BOD₅ Loading

The maximum average monthly limitation listed in the draft permit for BOD₅ loading is unnecessarily restrictive and is based on documentation from 1979 that contains inconsistencies with regard to the actual equipment in place at U.S. Oil, and therefore may not be a reliable source of information. It is important to note that U.S. Oil added a third disc pack to the biological unit in January 2002 to increase oxygenation capacity. This unit was originally designed to accommodate four disc packs. In 2002, a total of 28 aeration discs were added to the original 44 discs, increasing oxygenation capacity by approximately 64%. See also comments regarding Fact Sheet Page 8 – Facility Loading.

Additionally, the language under the heading "Parameter" should be clarified and be consistent with the language used for flow. U.S. Oil recommends changing the language to read "Maximum Average Monthly BOD₅".

Response: The BOD loading has been changed.

37. Discharge Wastewater/Water and Outfalls

Reference: Fact Sheet: Page 4, First Paragraph at Top of Page

U.S. Oil recommends updating the information regarding new tank construction which appears in the second sentence to read as follows: "The stormwater from the new tank area (Three are complete as of March 2008 with two tanks still under construction. One of the new tanks is being constructed in an existing bermed area.) will be discharged through Outfall 002."

Response: Agreed. Correction made to Fact Sheet.

38. Permit Status

Reference: Fact Sheet: Page 5, Section B, Outfall 001-A Effluent Limitations Table

The language used in the pH discussion in this table is not consistent with the language found in the draft NPDES Permit (Section S1.A). For consistency, U.S. Oil recommends adding the following language to the pH section of the Outfall 001-A Effluent Limitation Table: "The instantaneous maximum and minimum pH must be reported monthly. In the event of a failure of continuous pH monitoring equipment and upon this discovery, grab samples taken a minimum of 4 times daily will meet the frequency requirements or an alternative may be recommended subject to approval by Ecology."

Response: Disagreed. It is common that the language used in Permit has more details than the language in Fact Sheet.

39. Wastewater Characterization

Reference: Fact Sheet: Page 5, Section D, First Paragraph

The first sentence of this paragraph mentions that an application for permit renewal was submitted to Ecology on November 6, 2006. For the sake of clarification, U.S. Oil's NPDES permit application was mailed and postmarked on November 1, 2006 and received at Ecology's office on November 3, 2006.

Response: Agreed. Correction made to Fact Sheet.

40. Design Criteria

Reference: Fact Sheet: Page 8; Maximum Average Monthly Flow

It is important to note that the table listing actual flow values only includes data from July 1, 2001 to June 30, 2004 and is therefore just a snapshot of wastewater flows during a relatively short time frame. U.S. Oil recommends that an additional column be added to supply historical information. The additional column should contain the following information:

| | 1995-2007 Historical Data |
|--------------------------------------|------------------------------|
| Maximum Average Monthly Flow, gpm | 655 |
| Peak Daily Flow, gpm | 789 |
| Maximum Average Monthly BOD, Lbs/Day | 839 |
| Maximum Daily BOD, Lbs/Day | 1,447 |

The maximum average monthly hydraulic flow limitation listed in the draft permit for the biological treatment unit is unrealistically low, unnecessarily restrictive, and is not based on sound engineering judgment. The value of 650,000 gallons per day (451 gpm) was based on documentation from 1979 that contains inconsistencies with regard to the actual equipment in place at U.S. Oil and therefore may not be a reliable source of information.

It is also important to note that although the value appears to be validated by the 430 gpm that was listed in U.S. Oil's treatment efficiency study, this approach to setting a limit is entirely flawed in two key ways. First, this value simply represents actual quantities of wastewater that required treatment during the three year time frame of the study. This data in no way represents the capacity of the treatment system.

Second, the limited time frame from which the data was pulled further compromises the value chosen. U.S. Oil has compiled additional flow data from 1995 through 2007 that indicates the treatment system has successfully processed much higher volumes of wastewater.

It is also important to note that during these higher flow periods, the treatment system was consistently performing very well, with no parameters close to discharge limits.

This data is attached as Exhibit C. With the caution that this additional data still only represents actual quantities of water requiring processing and not hydraulic capacity, it is important to note that historically, we have successfully processed volumes as high as 943,200 gallons per day (655 gpm) on a monthly average basis.

In order to facilitate the development of a realistic hydraulic limit for the biological treatment unit, U.S. Oil commissioned ENSR, Inc to perform a capacity study with regard to hydraulic flows as well as BOD₅ treatment capabilities. ENSR performed a thorough study of not only the biological unit, but of the other wastewater treatment system components as well.

ENSR's final report, attached as Exhibit D, indicates that U.S. Oil's treatment system is capable of handling flows of up to 1,990,000 gallons per day (1,382 gpm) without loss of contaminant treatment capacity. Since ENSR's evaluation is representative of treatment capacity, U.S. Oil strongly recommends that this value be adopted as the monthly average limit for hydraulic capacity of the biological treatment unit.

Response: Ecology agrees to add one additional column for the 1995-2007 Historical Data to the table but does not include the third row for the Maximum Average Monthly BOD. Regarding hydraulic loading, please see the response to Comment #19.

41. Design Criteria

Reference: Fact Sheet: Page 8; Section A, BOD

The maximum average monthly limitation listed in the draft permit for BOD₅ loading is unnecessarily restrictive and is based on documentation from 1979 that contains inconsistencies with regard to the actual equipment in place at U.S. Oil and therefore may not be a reliable source of information. It is important to note that U.S. Oil added a third disc pack to the biological unit in January 2002 to increase oxygenation capacity. This unit was originally designed to accommodate four disc packs. In 2002, a total of 28 aeration discs were added to the original 44 discs, increasing oxygenation capacity by approximately 64%.

As indicated above, U.S. Oil commissioned ENSR, Inc to perform a capacity study with regard to both hydraulic flows and BOD₅ treatment capabilities. ENSR performed a thorough study of not only the biological unit, but the other supporting wastewater treatment components as well.

ENSR examined the oxygenation capacity of U.S. Oil's biological unit by evaluating the oxygen uptake rate generated by each disc in each channel. From this data, a total oxygenation uptake rate was calculated and converted on a stoichiometric basis into the BOD₅ treatment capacity of the system.

ENSR's final report, attached as Exhibit D, indicates that U.S. Oil's treatment system is capable of handling BOD₅ loading of up to 1,383 pounds per day without loss of contaminant treatment capacity. This value is further supported by actual operating

data recorded from 2002 to 2007, including a single daily data point of 1,447 pounds per day in May of 2005, which exceeds the capacity calculated by the ENSR study.

In fact, a further evaluation of that particular high BOD₅ loading event reveals that during this period the dissolved oxygen in channel 3 declined to as low as 1.0 mg/L, reflecting the increased oxygen demand. It is important to note, however, that during this time frame the BOD₅ in the final effluent remained below 3 mg/L. This further corroborates the capacity evaluation performed by ENSR and indicates that even at loadings as high as 1,447 pounds per day BOD₅, the treatment system is still effective. U.S. Oil recommends that 1,383 pounds per day BOD₅ be adopted as the monthly average limit for loading capacity of the biological treatment unit.

Response: Agreed. BOD loading to Orbal has been changed to 1,380 lb/day.

42. Technology-Based Effluent Limits

Reference: Fact Sheet; Page 8; Section B, Second Paragraph Under the sub-heading titled "Process Wastewater"

The first sentence of the second paragraph of this section refers to the cracking subcategory of petroleum refining. It is important to recognize that U.S. Oil is a topping refinery since we do not have any cracking capabilities. As such, the topping subcategory listed in 40 CFR Part 419 applies to U.S. Oil.

Response: Agreed. Correction made to Fact Sheet.

43. Technology-Based Effluent Limits

Reference: Fact Sheet; Page 10, Section B; Refinery Feedstock Table

The last line of this table identifies the following parameter "Adjusted Feed Stock, bbls/day". It is not clear whether this entry refers to bbls/calendar day or bbls/stream day. This entry needs to be clarified.

Response: Agreed. Correction made to Fact Sheet.

44. Stormwater Allocations

Reference: Fact Sheet; Page 12, Section B; Fourth Paragraph, Fifth Sentence

The fact sheet notes that during the months of June through October, U.S. Oil will only be allowed to claim the stormwater allocation when it can be demonstrated that measurable rainfall has occurred at the refinery site during the previous 10 calendar days. The dry season window of June through October as stated in this sentence is incorrect and needs to be corrected to read June through September. Exhibit A provides a summary of monthly rainfall totals as recorded at U.S. Oil from January 1995 through December 2007. Upon review of this data, it is important to note that October is one of the wetter months.

The use of June through September as the correct dry weather window is further supported by Ecology's April 8, 2002 response to public comments following the issuance of U.S. Oil's draft NPDES Permit and Fact Sheet for public comment on January 14, 2002. Ecology's comment specific to the dry weather window reads as follows:

"The Department has analyzed the data which U.S. Oil & Refining has submitted along with data from the National Weather Service for the 30 year normal precipitation rates for Tacoma and Olympia. The time period in October does match wet winter conditions and not dry summer conditions. The Department will change the dry weather time period from June through October to June through September."

Response: Agreed. Correction made to Fact Sheet.

45. Pollution Prevention to Date

Reference: Fact Sheet: Page 13, Section B; Third Paragraph

The first (and only) sentence contained in the third paragraph under the section titled "Pollution Prevention to Date" is grammatically incorrect and needs to be changed to read as follows: "The opportunities USOR is still working on are listed ~~as~~ in the following table:"

Response: Agreed. Correction made to Fact Sheet.

46. Mixing Zones

Reference: Fact Sheet: Page 18, Section C; Eighth Bullet Under Paragraph 3

The first sentence of this bullet contains a typographical error that needs to be corrected as follows: "The applicable dilution at the mixing ~~zone~~ zone boundaries is calculated by multiplying the predicted dilution at each boundary by the respective adjustment factor".

Response: Agreed. Correction made to Fact Sheet.

47. Designated Uses and Surface Water Quality Criteria

Reference: Fact Sheet: Pages 22 & 23; Section E - Aquatic Life Uses/Recreational Uses

The narrative that is associated with the tables titled "Aquatic Life Uses & Associated Criteria" and "Recreational Uses" refers to a "Note 2" in 3 separate sentences that provides a helpful clarification that U.S. Oil does not treat any sanitary waste. However, the "Note 2" designation is somewhat confusing as there is no preceding "Note 1" located in this section or anywhere else in the Fact Sheet. As such, the "Note 2" designation needs to be changed to read "Note 1" or an accompanying Note 1 needs to be added to the Fact Sheet.

Response: Agreed. Correction made to Fact Sheet.

48. Description of the Receiving Water Toxic Pollutants

Reference: Fact Sheet: Page 26, Section F; First Full Paragraph at the top of this page

The second sentence of this paragraph references a spreadsheet contained in Appendix G. Where is this appendix as it was not included in the copy of the Fact Sheet available for public comment nor is it listed in the Fact Sheet Table of Contents?

Response: Appendix G has been added to Fact Sheet.

49. Lab Accreditation

Reference: Fact Sheet: Page 31, Paragraph IV.A

The last sentence of this paragraph has two periods at the end of the sentence. This punctuation error needs to be corrected by removing one of the two periods.

Response: Agreed. Correction made to Fact Sheet.

50. Appendix A – Public Involvement Information

Reference : Fact Sheet: Page 36, First Paragraph

The first sentence of this paragraph contains a typographical error that needs to be corrected as follows: “Comments should reference specific ~~test~~ text followed by proposed modification or concern when possible.”

Response: Agreed. Correction made to Fact Sheet.

51. Appendices C, E, F, and G

Reference : Fact Sheet: N/A

Appendices C, E, F, and G were not provided in the copy of the Fact Sheet available for public comment. When copies of these appendices were requested from Ecology, only Appendix E was provided. Therefore, U.S. Oil was not afforded the opportunity to comment on Appendices C, F, and G.

Response: Agreed. Ecology included the above appendices in the final Fact Sheet.

Citizens for a Healthy Bay's Comments

Comment 1: S1. Discharge Limitations.

The Clean Water Act created “the national goal to eliminate the discharge of pollutants into navigable waters by 1985.” The NPDES permit system was designed to accomplish this goal and set strict limits on the mass and concentration of discharged pollutants with the expectation *that effluent limitations will become stricter with each permit cycle.*

After reviewing the draft permit it was noted that the effluent limitations have increased. While we acknowledge Ecology's justification that effluent limitations must be increased due to greater production of the facility, we encourage the continual progression of NPDES permits towards eliminating reliance upon waterways as a waste disposal and stricter limitations placed upon the parameters set forth in this permit.

Ecology's Response to Comment 1

Ecology writes NPDES permits based on the authority of the CWA and state law (Chapter 90.48 RCW Water Pollution Control). Federal effluent guidelines provide the basis for NPDES permit effluent limitations for most major industries including the refineries. Although the CWA states a goal of zero discharge it does not provide the tools necessary to achieve it. All known, available and reasonable treatment technologies (AKART) are a part of Washington State rules and regulations. Ecology believes that US Oil's treatment technologies represent AKART. Ecology set permit discharge limits based upon the feedstock rate of the facility during the last permit term. This is consistent with EPA guidance for implementing refinery effluent guidelines. (Calculation of Production-Based Effluent Limits, Memo from EPA NPDES Technical Support Branch, HQ to EPA Regional Permits Branch Chiefs dated 12/18/1984)

Comment 2: Page 13 Draft Fact Sheet, Marine Terminal Stormwater.

The fact sheet mentions that the containment area at the Marine Terminal generates stormwater that is of moderate risk of having petroleum contamination, due to past oil spills. Are these risks to water quality being addressed by the facility?

Ecology's Response to Comment 2

The Permittee uses a valve to control this stormwater discharge. At beginning of each month, the Permittee takes a sample and get the result before they open the valve to discharge the stormwater. They are not allowed to discharge this stormwater if the sample result is not met certain requirement.

Comment 3: S1B. Mixing Zone Descriptions and Mixing Zones #3: Ecology must consider critical discharge conditions.

CHB contests the general use of mixing zones as they allow areas where potentially toxic chemicals are allowed to exceed water quality standards. According to the fact sheet for U.S. Oil, the surface water quality-based effluent limits were configured by modeling the Blair Waterway in the late summer when most of the flow in Lincoln Avenue Ditch is from U.S. Oil.

However, the Blair Waterway also receives discharges from six other Individual NPDES permitted facilities, with three facilities discharging stormwater directly into Lincoln Avenue Ditch. During large storm events, especially the first of the season, Lincoln Avenue Ditch discharges high flows of stormwater from **four facilities** into the Blair Waterway. While low flow critical conditions for this waterway were taken into account when establishing the mixing zone boundaries, modeling should also include storm events which demonstrate the cumulative impacts of pollutants from all facilities discharging into the Blair waterway.

Ecology's Response to Comment 3

Ecology believes that the critical condition for the Blair Waterway occurs in the summer time so US Oil's consultant modeled the discharge in the late summer when the other facilities do not generate stormwater to discharge. Ecology evaluated the reasonable potential for the facility to violate surface water quality standards using the summertime model results. The kind of study you describe would require Ecology to prepare a Total Maximum Daily Load (TMDL) analysis for the Blair which it cannot do on an individual permit basis.