

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION**

RESPONSE TO WRITTEN COMMENTS

ON THE REISSUANCE OF WASTE DISCHARGE REQUIREMENTS FOR:

Shell Oil Products US and Equilon Enterprises LLC
Shell Martinez Refinery
Contra Costa County
NPDES Permit No. CA0005789

I. Shell Oil Products US – April 18, 2012

II. San Francisco Baykeeper – April 18, 2012

Note: The format of this staff response begins with excerpts of the party's comments, followed with staff's response. Interested persons should refer to the original letters to ascertain the full substance and context of each comment.

I. Shell Oil Products US (Shell)

Shell Comment 1

Shell requests that bypass language on page 9 and F-12 of the Tentative Order reference the Fact Sheet instead of Finding B. This is because the Fact Sheet provides a more detailed description.

Response

We removed references to bypass on page 9 and F-12 of the Tentative Order (see Response 9 to Baykeeper).

Shell Comment 2

To clarify that discharges from stormwater impoundments only occur during a release event and not necessarily during each storm event, Shell requests that Table E-4 of the Self-Monitoring Program and the table on page F-38 of the Fact Sheet indicate that sampling is required for each discharge event for releases from stormwater impoundments.

Response

We made these changes to the Tentative Order.

Shell Comment 3

Shell requests that we clarify two areas in the Fact Sheet to specifically reference American Petroleum Institute Standard under which inspections must occur and include the specific time period for crude-run throughput.

Response

We modified the Tentative Order to include these clarifications.

II. San Francisco Baykeeper (Baykeeper)

Baykeeper Comment 1

The Draft Permit indicates that a 1987 dye dilution study established a minimum dilution ratio of 16:1 for the Shell Refinery, which presumably refers to the diffusion of wastewater from discharge point No. 001. Draft Permit, F-23. However, no information regarding this study is provided in the Draft Permit, nor is it made available for review, rendering it impossible to confirm that the study is consistent with requirements of the 2005 Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (“SIP”). In its absence, the Regional Board should not permit the use of a 25-year old study to designate water quality-based effluent limitations (“WQBELs”) in excess of water quality criteria for priority pollutants known to be contributing to toxicity or impairment.

As stated in the Draft Permit, the Basin Plan’s narrative toxicity objective (section 3.3.18) states in part, “[a]ll waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce other detrimental responses in aquatic organisms.” Further, the bioaccumulation objective (section 3.3.2) states in part, “[c]ontrollable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in bottom sediments or aquatic life.” Sediments collected in the San Pablo Bay consistently demonstrate high toxicity to amphipods and mussels. In light of the fact that waters and sediment in the Bay consistently maintain high toxicity, it is likely that refineries along Carquinez Strait are contributing to detrimental increases in concentrations of toxic substances, in contravention of the Basin Plan. As a result, it would be inappropriate for the Regional Board to incorporate dilution credits into the calculation of WQBELs for this facility.

Response

We have not made changes in response to this comment. The Water Board cannot categorically deny dilution credits for all pollutants just because there has been ambient toxicity observed in San Pablo Bay. This is supported by State Board Remand Order No. 2001-0006-WQ, which found that a 303(d) listing alone is not a sufficient basis on which to conclude there is no assimilative capacity for an impairing pollutant. In assessing reasonable potential and developing effluent limits, Order No. 2001-0006-WQ states that the Water Board must review available ambient data and base its determinations on these data. Our review of ambient data for ammonia, cyanide, copper, nickel, and selenium indicates that there is assimilative capacity for these pollutants (ambient levels are below their respective water quality objectives).

On the amount of dilution granted in the Tentative Order, it should be noted that the 1987 dye study where Shell documented a minimum initial dilution of 16:1 is very conservative. There were seven periods monitored during the 1987 dye study and the initial dilution of 16:1 was the minimum observed. In addition to conducting this dye study, Shell also modeled initial dilution at its outfall in 1986 and 2001. In both these cases, modeling results showed a minimum initial dilution of at least 30:1. Based on the above, it is appropriate and very conservative to grant Shell an initial dilution of 16:1 as proposed in the Tentative Order. It should also be noted that the Tentative Order requires Shell to conduct another dilution study with its application for permit reissuance to confirm the results of past dye studies and modeling efforts.

Finally, on the issue of availability of the dilution study, we want to point out that, as indicated in the Notice of Public Hearing and Fact Sheet, additional information can be made available by contacting the Water Board. We encourage interested parties to contact us if they are interested in more thoroughly reviewing supporting documents, such as a dilution study. Because of the large size and number of supporting documents, it is not practical to include all of them when we release tentative orders for public review.

Baykeeper Comment 2

Under the previous permit for the Shell Refinery, the Regional Board denied approval of a dilution credit for selenium on the basis of documented selenium bioaccumulation in the San Pablo Bay and surrounding areas. Order No. R2-2006-0070, F-26. Currently, however, the Regional Board vaguely refers to undocumented information as the basis for affording the Permittee a 1:10 dilution credit for selenium. The Draft Permit calls for a generous dilution credit on the basis that “[r]ecent work reduces some uncertainties regarding selenium sources, fate and transport, and suggests that some assimilative capacity remains in the receiving water.” Draft Permit, F-24. This statement is unfounded by any other information in the Draft Permit and publicly available data. In fact, the Permittee violated its daily maximum effluent limit for selenium in March 2007, February 2008, and January 2010 – a total of 22 violations. Draft Permit, F-9. Therefore, a dilution credit for selenium should be rejected until the long-overdue selenium TMDL is completed and a site-specific wasteload allocation is developed. Accordingly, the WQBEL for selenium should also be adjusted.

Response

We have not made changes in response to this comment. The limitations for selenium in the Tentative Order are consistent with those included in Order No. R2-2006-0070, as amended by Order No. R2-2010-0057. The dilution allowed is not generous as claimed by Baykeeper when dilution studies have demonstrated a minimum of 16:1 (see Response to Baykeeper Comment 1), and up to 200:1 initial dilution. Water column concentrations are not of concern because those data would suggest that there is assimilative capacity in the receiving water. The real concern with selenium is that it bioconcentrates to unsafe levels in diving ducks. The Tentative Order contains the same mass limit as the previous permit that will serve to hold Shell to current performance until the Water Board develops final loading allocations under a TMDL. Even though Shell violated its

selenium limit 22 times during the term of the previous permit, this doesn't mean that the limit itself isn't protective. It should be noted that Shell has been in compliance with selenium effluent limits since January 2010. This is likely the result of the numerous improvements that Shell implemented to its wastewater treatment process to address past violations. As noted on page F-9 of the Fact Sheet, Shell installed a sand filter to lower selenium levels at its coke/process water solids handling area. Additionally, Shell implemented changes at its treatment plant to improve solids settling and removal to further reduce solids levels in its effluent (e.g., optimized polymer use at clarifiers, refurbished lamella at selenium precipitation unit, and improved dewatering at selenium precipitation unit by switching to centrifuges from belt filter presses).

Baykeeper Comment 3

Baykeeper recognizes that mercury from wastewater discharges are regulated by NPDES Permit No. CA0038849, which implements the San Francisco Bay Mercury TMDL. However, we encourage the Regional Board to recognize aerial discharges of mercury from the Shell Refinery as a controllable emission that must be managed in a way that reduces impacts to the aquatic environment and human health.

Pursuant to the Mercury Watershed Permit, the Shell Refinery has been granted a wastewater discharge allocation of 0.22 kg/yr. Based on self-reported TRI data, surface water discharges of mercury compounds totaled 0.023 kilograms in 2010, though 9.53 kg of aerial discharges were reported in the same period. Aerial emissions of mercury from refineries and other industrial facilities is a pathway that has consistently been unregulated by the Water Boards, despite the proven impacts of aerial deposition on water quality. We respectfully ask the Regional Board to consider this significant and unrecognized load within the NPDES Permit currently up for consideration and regulate these point source discharges of mercury to San Francisco Bay and other waters within Region 2.

Response 3

We have not made changes in response to this comment. Baykeeper's concern regarding mercury air deposition is not relevant to this permit reissuance. As indicated by Baykeeper, the Water Board regulates mercury under a separate watershed permit that implements the mercury TMDL for San Francisco Bay. The mercury TMDL does not require control of aerial emissions or atmospheric deposition. This is because air emissions from mercury were found to be a small portion of the overall load to the Bay. The table below shows the portion, relative to total mercury loads, that enters the Bay through deposition from air emission sources, and the smaller portion that is through deposition from air emissions from Bay Area refineries.

Mercury Deposition from Air Emission Sources Relative to Total Load to San Francisco Bay¹

Source	Overall	Bay Area Refineries ²	
	TMDL	TMDL ²	2010 ³
Direct Deposition to Bay Surface	2.2%	0.02%	0.03%
Aerial Deposition within Bay Watershed	4.5%	0.07%	0.11%

¹ Based on overall mercury loading to the Bay of 1,220 kg/year. San Francisco Bay TMDL (2006)

² For the TMDL, Bay Area refinery air emissions and the fate and transport of those emissions are compiled in *Bay Area Petroleum Refinery Mercury Air Emissions, Deposition, and Fate* (June 2009).

³ For 2010, Bay Area refinery air emissions are from the Toxics Release Inventory with fate and transport based on *Bay Area Petroleum Refinery Mercury, Air Emissions, Deposition, and Fate*.

Given the small relative contribution of mercury from air emissions, the mercury TMDL did not target these as sources to reduce. For the Water Board to have a basis to address atmospheric sources of mercury through a permitting process, new regulations would be needed such as through the TMDL for mercury.

Baykeeper Comment 4

The Draft Permit does not discuss how the proposed effluent limitations would be protective of rare and endangered migratory salmonids through Carquinez Strait. The Strait is home to threatened and endangered trout, salmon, sturgeon, and other fish species, the impacts to which are not discussed in the Draft Permit. Also, the reliance on generalized receiving water quality objectives alone will not ensure protection of these species. For example, the U.S. Fish and Wildlife Service and National Marine Fisheries Service concluded in 2000 that the numeric criteria established by the California Toxics Rule are not protective of endangered steelhead trout. See Attachment. Moreover, the Draft Permit does not adequately describe the physical scope of the proposed mixing zone, despite the fact that the dilution zone itself constitutes habitat for threatened and endangered migratory species. Therefore, the Regional Board should not allow a zone of dilution that may jeopardize the viability of threatened or endangered species, and the Draft Permit's proposed effluent limitations must be re-evaluated to ensure protection of rare and endangered species.

Response 4

We have not made changes in response to this comment. There is no evidence that the conservative mixing zone proposed in the Tentative Order threatens rare or endangered species. The dilution proposed to be granted is consistent the State Water Board's Policy for Implementation of Toxic Standards. During slack and flood tides, the minimum dilution was noted under Shell's wharf about 20 lateral feet on either side away from the centerline of the diffuser. The diffuser is 60 feet long, located 20 feet below mean low lower water level, directly below Shell's wharf. Further, we cannot assume that there is no assimilative capacity for specific pollutants without a strong basis (see response to Baykeeper Comment 1). Finally, regulations require that effluent limits be consistent with the generalized criteria, so we cannot disregard those properly adopted criteria without cause. And in Baykeeper's cited example of copper, the Water Board considered the Services' concerns when it adopted the copper site specific objectives in 2007.

Baykeeper Comment 5

Receiving water limitations expressly state that discharges shall not result in an alteration of background temperatures, unless it can be adequately demonstrated that such alteration does not adversely affect beneficial uses. See Basin Plan 3.3.17. Despite this mandate, the temperature discharges from the Shell Refinery are, based on self-reported monitoring data, significantly higher than ambient conditions. Table 1 indicates the mean effluent temperature from the last six months of available data, based on daily values of mean, maximum, and minimum effluent temperatures.

Table 1. Average Monthly Temperature Values Measured at Discharge Point No. 001

Sampling Period	Temp. Mean (° F)	Temp. Max (° F)	Temp. Min (° F)
September 2011	83.2	89.1	78.8
October 2011	81.1	84.8	78.1
November 2011	74.9	77.2	72.5
December 2011	71.0	73.1	68.8
January 2012	72.6	74.9	70.3
February 2012	75.7	79.0	72.4

Considering the fact that several temperature-sensitive threatened or endangered species are known to be in the vicinity of Discharge Point No. 001, temperatures should be reduced to levels that are statistically equivalent to background levels. Temperature data from the immediate vicinity of the discharge point is not known from any routine or site-specific studies, indicating the need for site-specific studies. This should include an analysis of thermal impacts, based on monitoring in the immediate vicinity of the outfall, and also reflect seasonal and tidal variations. Once this study is complete, it should be subject to public review and comment.

Response 5

We have not made changes in response to this comment. Given the amount of initial dilution that Shell’s diffuser obtains (see response to Comment 1), we do not expect the discharge to alter the receiving water temperature beyond background levels.

Baykeeper Comment 6

The Draft Permit does not explain which factors, if any, were used by the Regional Board to consider whether areas owned by Shell are industrial in nature. According to the Fact Sheet, the facility routes stormwater from process industrial areas to one of its oil and water separators, while stormwater from non-process industrial areas is collected in retention basins and discharged directly to receiving waters via several stormwater outfalls. Draft Permit, F-5. However, courts agree that “[i]t is not necessary that stormwater be contaminated or come into direct contact with pollutants; only association with any type of industrial activity is necessary” to classify stormwater as industrial in nature. *NRDC v. EPA*, 966 F.2d 1292, 1306 (9th Cir. 1992). This is true even where an area is no longer open. See *American Mining Congress v. EPA*, 965 F.2d 759, 772 (1992). Consistent with the Clean Water Act’s (“CWA”) broad intent to regulate any stormwater discharges associated with an industrial facility, the Draft Permit’s Fact

Sheet should explain the nature of activities on site that it contends are not industrial in nature.

Response 6

We have made changes in response to this comment. The language pointed out by Baykeeper on page F-5 has been revised to read as follows:

Stormwater runoff from ~~process~~ industrial areas at the Facility is routed to one of the oil and water separators described above or to retention basins with the exception of two small areas that are sheet flow. ~~Stormwater from non-process industrial areas is collected in retention basins and can be discharged from the basins to the receiving water via several permitted stormwater outfalls discussed below.~~

We agree with Baykeeper that all stormwater generated from the Shell refinery should be considered associated with industrial activity. It should be noted that the Tentative Order regulates all stormwater discharges consistent with federal guidelines regardless of whether stormwater is routed to the Shell wastewater treatment plant or discharged via retention basins or sheet flow.

Baykeeper Comment 7

The Shell Refinery participates in the Regional Monitoring Program (“RMP”) to satisfy its Permit requirements to “collect, or participate in collecting, ambient background receiving water priority pollutant monitoring data necessary to perform reasonable potential analyses and to calculate effluent limitations.” Draft Permit, 18, F-18. However, based on the locations of the sampling stations and the limited range of parameters sampled by the RMP, it is unlikely that a reasonable potential analysis (“RPA”) can be reliably performed for the purposes of this Permit. Furthermore, the use of data solely collected at Yerba Buena Island, a site located 27 miles downstream and subject to complex hydrology, completely undermines the RPA in the Draft Permit and highlights the need for site-specific information on the region’s largest polluting industries.

The RMP can be characterized by isolated studies with low power, resulting in questions regarding its ability to draw statistically defensible conclusions about trends and pollutant impacts. Within the vicinity of the Shell Refinery, the RMP has few sampling stations in close proximity to the refinery or its outfalls, limiting the ability of Regional Board staff to accurately determine whether pollutants originating from the Shell Refinery are impacting receiving waters. Table 2 lists the distances between the Shell Refinery and the nearest downstream RMP sampling points, indicating that water or sediment samples were not taken during the last several years within 10 miles downstream of the Refinery or its discharge points and that the nearest downstream samples were all collected in San Pablo Bay. Given the complex hydrology of the Carquinez Strait and North Bay, in general, it is doubtful that samples collected in San Pablo Bay could capture meaningful data regarding discharges from a particular facility that is a considerable distance upstream from that sampling station.

Table 2. Distance to Shell Refinery from Nearest RMP Sampling Locations

Year	Matrix	Sample ID	Upstream Distance to Shell Refinery (miles)
2011	Water	SPB034W	12.2
	Sediment	SPB024S	11.5
2010	Water	SPB030W	11.2
	Sediment	SPB120S	11.5
2009	Water	SPB029W	17.0
	Sediment	SPB002S	13.1

Despite the lengthy distances to available downstream monitoring points, the Draft Permit states that the RPA was in fact based on data collected only at Yerba Buena Island, approximately 27 miles downstream from the Facility. Draft Permit, F-18. Basing a RPA on data collected from an area so distant and subject to hydrologic interactions so complex defies logic and should be rejected in favor of a site-specific RPA.

Considering the lack of quality data available to conduct a RPA, the Permittee must collect receiving water priority pollutant monitoring data for all constituents listed in the California Toxics Rule (“CTR”) at representative locations and at intervals sufficient to develop statistically sound effluent limitations, pursuant to Provision C.2 of the proposed Draft Permit (Effluent Characterization Study and Report - Discharge Points 001 and 004).

San Pablo Bay and other areas downstream of major refineries consistently maintain high rates of water and sediment toxicity. This is likely due to a number of confounding factors, though major refineries along Carquinez Strait and San Pablo Bay rank among the highest industrial dischargers in California. Therefore, the refineries’ contribution to persistent aquatic toxicity must be better understood in order to develop effluent limitations that are protective of beneficial uses. Basing WQBELs for a facility in the Carquinez Strait solely on data collected at Yerba Buena Island highlights the need for additional data and poses serious questions regarding the ability of the RMP to satisfy facility-specific permit requirements.

Response 7

We disagree that the far-field station is inappropriate. However, we have made changes to the Fact Sheet in response to this comment to more fully explain the basis for using a far-field background station. In summary, the bases are threefold: (1) use of the RMP station provides the Board a defensible basis for requiring Shell to continue to support the RMP, (2) the RMP station is reasonably representative of water that will mix with the discharge, and (3) the proposed effluent limits are as protective, and arguably more protective, as limits that would be set using near-field background data.

Since the early 1990s, the Board has required dischargers to support the Regional Monitoring Program (RMP) in lieu of collecting discharge-specific receiving water pollutant data. This shift from discharge-specific receiving water monitoring to the RMP has allowed researchers and the Board to focus limited resources towards better understanding water quality issues in San Francisco Bay. If, as Baykeeper suggests, we

were to require Shell to conduct its own priority pollutant receiving water monitoring, it would be inappropriate to also require Shell to support the RMP. To move back towards a system of receiving water monitoring on a discharge-by-discharge basis would be less efficient and reduce our knowledge of emerging water quality issues in San Francisco Bay.

While the Yerba Buena Station is far upstream of Shell's discharge point, it is still representative of water that will mix with Shell's discharge. In 2001, the RMP switched from all fixed stations towards a randomized station approach for certain select parameters. But the RMP continued collecting priority pollutant data at three fixed strategic locations (Yerba Buena, Sacramento River, and Dumbarton Bridge) primarily for wastewater permitting purposes. Because pollutant monitoring had stopped at the other fixed stations, including those closer to Shell, those data would not be as representative of current conditions as the three fixed stations where monitoring has continued. So of the three fixed stations, the Yerba Buena station is the one most representative of water that will mix with Shell's discharge. This is because Delta outflows occur only during a few months out of a year, and, due to salinity stratification, stay near the top of the water column in Carquinez Strait, whereas ocean tidal inflows occur twice daily and near the bottom where the discharge outfall is located. Therefore, data from Yerba Buena is upstream and reasonably representative of water that will mix with the discharge. This is consistent with State Water Board policy.

Finally, use of far-field background data allows us to support the basis for granting a smaller initial dilution credit. This balance of a far-field "cleaner" background together with a restrictive dilution credit actually results in equally, if not more, protective effluent limits. The Tentative Order proposes to grant a smaller dilution credit of 10:1 even though modeling and dye studies show that the Shell discharge receives greater actual initial dilution (16:1 up to 200:1). A restriction on dilution credit is very relevant to the issue of effluent limits and background concentrations, because these are the two main variables that determine what the effluent limit would be.

The following analysis shows how the limits would be equivalently, or more, protective. We reviewed old priority pollutant data (collected from 1993-2001) from the Pacheco Creek RMP station, which is the closest RMP station to Shell's discharge point. Since only four effluent limits were developed, in part, using far-field background data, the analysis focuses on just those pollutants. The table below compares two sets of effluent limits. The first set are limits based on the conservative initial dilution credit of 10:1 using Yerba Buena data as proposed in the Tentative Order. The second set are limits derived using near-field background data from Pacheco Creek, but with a less conservative, but still worst case, minimum actual initial dilution of 16:1.

	Copper		Nickel ¹		Cyanide		Selenium ¹	
	Tentative Order	Pacheco Creek	Tentative Order	Pacheco Creek	Tentative Order	Pacheco Creek ²	Tentative Order	Pacheco Creek
Monthly Limit	61	54	43	180	22	35	42	66
Daily Limit	120	110	72	420	38	60	50	110

¹ The limits in the Tentative Order for nickel and selenium are based on the previous permit to comply with anti-backsliding requirements in the Clean Water Act.

² The RMP data for Pacheco Creek did not include a detection limit for cyanide. For this analysis, we assumed the same detection limit (0.4 µg/L) as used at the Yerba Buena Station.

The above table shows that with the exception of copper, all the effluent limits proposed in the Tentative Order are more protective than limits derived using near-field data and actual minimum initial dilution. In fact, effluent limits would be much higher for nickel, cyanide, and selenium using near-field data. For copper, the difference in effluent limits would be small. The maximum copper concentration Shell has detected in the past five years was 10 µg/L, which is well below either set of effluent limitations. Consistent with the Board’s copper site specific objectives, the Tentative Order also would require Shell to prepare a Copper Action Plan to minimize copper sources to its treatment plant, so the likelihood of copper increasing in the discharge is minimal.

To document the need for a restriction on dilution credits along with the use of a far-field background station, we revised page F-18 of the Fact Sheet as follows:

The SIP states that for calculating WQBELs, ambient background concentrations are either the observed maximum ambient water column concentrations or, for objectives intended to protect human health from carcinogenic effects, the arithmetic mean of observed ambient water concentrations. SIP section 1.4.3 allows background conditions to be determined on a discharge-by-discharge or water body-by-water body basis. The RMP monitoring station at Yerba Buena Island, relative to other RMP stations, fits the SIP’s water body-by-water body criterion for establishing background conditions. Taken together with restrictions on dilution credits, the Yerba Buena Island background station is appropriate because San Francisco Bay is a very complex estuarine system with highly variable and seasonal upstream freshwater inflows and diurnal tidal saltwater inputs.

Baykeeper Comment 8

The Draft Permit’s effluent limitations for the Shell Refinery’s stormwater outfalls are based solely on the Environmental Protection Agency’s (“EPA”) general performance standards for stormwater discharges from cracking refineries, found in 40 C.F.R. section 419 Subpart B. F-13, F-34. However, the parameters regulated under 40 C.F.R. section 419 Subpart B are not the only parameters that must be regulated by this Permit. According to 40 C.F.R. section 122.44(d)(1)(i), NPDES permits must include:

[A]ny requirements in addition to or more stringent than promulgated effluent limitations guidelines or standards under sections 301, 304, 306, 307, 318 and 405 of CWA necessary to:

(1) Achieve water quality standards established under section 303 of the CWA, including State narrative criteria for water quality.

(i) Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.

(emphasis added). The Draft Permit conducted a RPA for wastewater discharges from Discharge Point No. 001, but it failed to include any RPAs for stormwater discharges from Discharge Points Nos. 002 – 009. The CWA prohibits the Draft Permit from establishing effluent limits without such analysis. Id.

This requirement is also consistent with the statewide Industrial Stormwater Permit. According to section (B)(5)(c) of the statewide permit, "samples shall be analyzed for . . . [t]oxic chemicals and other pollutants that are likely to be present in storm water discharges in significant quantities." Industrial Stormwater Permit, 27. Shell's individual NPDES permit should not be less stringent than the general statewide permit.

In addition, Shell's stormwater discharges must meet all receiving water limits, and may not contain a hazardous substance equal to or in excess of a reportable quantity listed in 40 C.F.R. Part 117. According to the Draft Permit, "[t]he Discharger reported 11 spills of toxic or hazardous pollutants at the Facility between 2007 and 2011." Draft Permit, F-9. Since it is reasonable to assume that such spills have the potential to contaminate stormwater, and that there may have been additional unreported spills, the Draft Permit must require Shell to test its stormwater for hazardous pollutants. These known hazardous spills show that Shell's stormwater discharges have the potential to contain hazardous substances in reportable quantities under 40 C.F.R. 117 and may also contain priority pollutants that threaten receiving water limits. In sum, the Regional Board must revise the Draft Permit to include an analysis of all pollutants that have the reasonable potential to cause exceedances of state water quality standards.

Response 8

We have made an editorial change in response to this comment. The Fact Sheet (page F-10) contains a typographical error. It should be corrected to note that there were eight spills between 2007 and 2011, not eleven.

Based on Shell's current operations and management practices, we do not expect stormwater at Shell's designated stormwater discharge locations to be contaminated.

This is because Shell routes stormwater that is more likely to be contaminated to its wastewater treatment plant. For the eight spills that occurred, there were three within the footprint of stormwater discharges. All three occurred within the footprint of E-002. To minimize the potential for cross-contamination of stormwater, Shell isolated these spills and removed any affected soil. It should also be noted that Shell routes the first flush of stormwater within the footprint of E-002 to its treatment plant. Therefore, it is very unlikely that these spills would have caused cross-contamination of stormwater. Further, consistent with best management practices, Shell is required to store materials such as process feedstocks, final products, or waste materials in a way that would not allow for exposure to stormwater at any of its stormwater discharge locations. In other words, based on Shell's best management practices, we do not expect stormwater to be contaminated. This approach for evaluating stormwater is consistent with *Divers' Environmental Conservation Organization v. State Water Resources Control Board*, (2006) 145 Cal. App 4th 246, which found that for stormwater discharges, the Board is not required to perform a numeric reasonable potential analysis for each constituent.

While we do not expect stormwater to be contaminated, we agree that it is reasonable to require priority pollutant monitoring. As the Tentative Order already includes priority pollutant monitoring twice during the permit term at the stormwater outfall most likely to contain toxic pollutants (i.e., highest in total suspended solids within a large watershed), we view this as sufficient.

Baykeeper Comment 9

Discharge Prohibition C allows untreated or partially-treated process wastewater to bypass the initial treatment units and the GAC absorption units if certain conditions are met, but this bypass is not justified by the Draft Permit. Bypasses are illegal except in very narrowly defined circumstances, including when necessary to prevent substantial damage to life or property or for maintenance that is necessary for efficient operation of a facility. 40 C.F.R. § 122.41(m). Anticipated bypasses may be allowed if they meet all requirements set forth in 40 C.F.R. section 122.41(m)(4), which requires, in part, that no feasible alternatives exist. Thus, the Draft Permit can only approve anticipated bypasses after analysis and implementation of all feasible alternatives. There is inadequate information in the Draft Permit to determine whether a feasibility analysis for additional bypass controls has been performed.

Further, the Draft Permit states that “[d]uring large storm events, if the influent wastewater is not high in oil and/or solids, a portion of the wastewater may bypass the initial treatment units, namely the oil-water separators,” but does not make it clear how the Permittee will know that this influent wastewater is not, in fact, high in oils and solids. Draft Permit, F-4. The Permit must explicitly require the Permittee to monitor all wastewater influent for oils and solids before it can permit a bypass of the treatment process under these circumstances.

Response 9

We have made changes in response to this comment. We removed the allowance for Shell to bypass GAC units if effluent flows exceed 8.6 mgd. We agree that to permit

bypass in the permit, the Tentative Order should have included a feasibility analysis. It should be noted that Shell did not bypass GAC units during the term of the previous permit and is only likely to do so in very extreme weather conditions. For those situations, Shell will be required to follow the bypass requirements in Attachment D – Federal Standard Provisions.

Specifically, we revised Discharge Prohibition III.C to read as follows:

The bypass of untreated or partially-treated process wastewater to waters of the United States is prohibited, except as provided for in sections I.G.2 and I.G.4 of Attachment D to this Order. ~~and as noted in Finding B. As described in Finding B, bypasses of GAC adsorption units are permitted only if all of the following conditions are met:~~

- ~~i. A significant storm event causes an effluent discharge rate of 8.6 mgd (5,972 gallons per minute) or higher;~~
- ~~ii. The Discharger monitors for all effluent limited parameters as required by Section IX of the Monitoring and Reporting Program; and~~
- ~~iii. Bypass does not cause or contribute to noncompliance with any effluent limitations, including the acute toxicity limitation.~~

We also revised page F-12 of the Fact Sheet to read as follows:

Discharge Prohibition III.C (No bypass or overflow of untreated or partially treated wastewaters): ~~This prohibition is retained from the previous Order and based on 40 CFR 122.41(m) (see federal Standard Provisions, Attachment D). As described in Finding B, bypassing the Granular Activated Carbon (GAC) adsorption units with a portion of biologically treated wastewater is permitted only when a significant storm event causes a high flow condition to exist (effluent discharge rate of 8.6 mgd [5,972 gpm] or higher). The Discharger indicates that bypassing under such conditions is necessary to avoid flooding of the wastewater treatment plant, and damage to equipment and ponds, which could result in uncontrolled releases of untreated wastewater to Carquinez Strait. Should the Discharger initiate a partial bypass of its GAC adsorption units, it must monitor for all pollutants, including acute toxicity, and document compliance with effluent limits. This does not include total coliform and enterococci because treatment for these pollutants occurs upstream of the GAC units and chronic toxicity because of logistical issues with setting up this test in a limited amount of time. During bypass events, the Discharger is also not required to conduct chronic toxicity monitoring due to the complicated nature of this test (i.e., availability of test organisms, and laboratory setup time).~~

Finally, we have also revised the language on pages F-4 and F-5 of the Fact Sheet to

better explain Shell's operations in wet weather. While the Tentative Order used the term bypass to describe Shell's process of diverting wastestreams around oil water separators in wet weather, Shell's wet weather operations is not an actual bypass of that treatment process (oil/water separation), but is simply using other units to achieve roughly the same outcome. Specifically, we revised the language on pages F-4 and F-5 as follows:

The hydraulic capacity of the treatment plant is approximately 10 mgd. All wastewater is processed through the treatment system with the following exceptions: low biochemical oxygen demand streams such as cooling tower blowdown, boiler system blowdown, and noncontact stormwater are first treated in an aerated pond and then by GAC adsorption units. During normal operations, the Discharger routes the process sewers from the Light Oil Processing and old Lubricants area through the front of the oil water separator (API separator) and then to two tanks that operate as either additional oil water separators or as dissolved nitrogen flotation units. These units provide primary treatment by removing oil from the wastewater prior to routing it to the biotreater for biological treatment. In addition, the sewers from Operations Central and the Shell Chemical Plant along with a stream of cooling water/boiler blowdown water enter the plant on the downstream side of the API separator before being routed to the two tanks and then the biotreater.

During periods of wet weather, the flow of wastewater can be supplemented by a significant volume of stormwater. To maintain efficient operations and to avoid flooding the API separator, the Discharger will, at times, re-route the flow going into the front and/or the back of the API separator. The water is then routed to either the ETP-2 diversion/equalization tanks or to Pond 6 and/or Pond 8. In either case, these facilities provide sufficient residence time to allow oil-water separation that is functionally equivalent to the API/tank units. Additionally, these facilities provide storm surge volume until the water can be processed through the remainder of the treatment plant. The process for determining when these alternate routings are necessary is dependent upon several factors including the API separator level (typically kept at less than 90%), the amount of rainfall, and the levels in the ETP-2 diversion tanks. These are typical wet weather operations that are not bypasses subject to bypass requirements in the Federal Standard Provisions.

During large storm events, if the influent wastewater is not high in oil and/or solids, a portion of the wastewater may bypass the initial treatment units, namely the oil-water separators. Additionally, the Discharger indicates that significant storms that result in high flows may require that a portion of the biologically-treated wastewater may bypass the GAC adsorption units during high flow conditions caused by a significant storm event. High flow conditions are generally defined as an effluent discharge rate of 8.6 mgd (5972 gallons per minute) or higher. If bypass of the GAC

adsorption units occurs during the term of this Order, then such bypasses are subject to the requirements in Federal Standard Provisions, section I.G (Attachment D).

Baykeeper Comment 10

The Draft Permit contains additional effluent limitation allocations for ballast water discharges from Discharge Point No. 001, but fails to include an effluent limitation for one of the most prominent pollutants of the San Francisco and San Pablo Bays – invasive exotic species. The California State Lands Commission (“SLC”) is developing strict performance standards for ballast water discharges to implement the State of California’s mandate of zero detectable organisms in ballast water discharges by 2020. See Article 4.7 § 2293; Cal. Pub. Res. Code § 71205.3(a)(3). Since the San Francisco and San Pablo Bays are already listed as impaired by exotic species under section 303(d) of the CWA and it is not clear that Shell’s wastewater treatment process is equipped to remove all exotic species to meet the SLC standards for ballast water discharges, the Regional Board must include an effluent limitation for exotic species from Discharge Point No. 001.

Response 10

We have not made changes in response to this comment. Shell only accepts ballast water on rare occasions. In fact, Shell did not accept any ballast water during the term of the previous permit. If Shell accepts ballast water, it would be combined with highly toxic untreated wastewater before it is routed to oil and water separators from which ballast water would go through Shell’s normal treatment process. Given the rare occasions that Shell accepts ballast water, the toxic nature of its untreated wastewater, and the robust treatment process, it is not reasonable to expect that Shell’s discharge will be a pathway for exotic species to enter San Francisco Bay.

Baykeeper Comment 11

The Draft Permit includes an effluent limitation for dioxin-TEQ (see Table 7), but the Monitoring and Reporting Program does not require the Permittee to take samples for this parameter (see Appendix E, Table E-2). The Regional Board must revise the Draft Permit to require Shell to test for dioxin-TEQ on at least a quarterly basis.

Response 11

The Tentative Order includes semi-annual monitoring for dioxin-TEQ. The self-monitoring program inadvertently used different nomenclature (2,3,7,8- TCDD and congeners); however, this is the same thing as dioxin-TEQ. To be consistent with the nomenclature used in the effluent limits section, we revised Table E-2 of the Tentative Order to include dioxin-TEQ instead of 2,3,7,8 TCDD and congeners. In our view, semi-annual monitoring is adequate because Shell has never detected dioxin-TEQ at levels above the water quality objective.

Baykeeper Comment 12

The Draft Permit fails to justify undiluted stormwater discharges. According to the Draft Permit:

This Order permits discharge of stormwater from five outfalls that do not provide an initial dilution of at least 10:1. Though Discharge Prohibition No. 1 of the Basin Plan prohibits discharges having characteristics of particular concern that do not receive a minimum 10:1 initial dilution, the Basin Plan further indicates that the prohibition is to address discharges of treated sewage and other discharges where the treatment process is subject to upset. Since these stormwater discharges do not contain treated sewage or wastewater from a treatment process subject to upset, the prohibition does not apply to these stormwater discharges.

F-12. However, the Draft Permit does not state where the Basin Plan discusses applying this rule to only to treated sewage. In fact, nothing in the discussion in Table 4-1 indicates that intent. The Draft Permit must provide adequate justification for allowing undiluted stormwater discharges.

Response 12

We have not made changes in response to this comment. The Basin Plan prohibition clearly applies to wastewater not stormwater. Specifically, the Basin Plan states the following:

“Any wastewater which has particular characteristics of concern to beneficial uses at any point at which the wastewater does not receive a minimum initial dilution of at least 10:1, or into any nontidal water, dead-end slough, similar confined waters, or any immediate tributaries thereof.” [Emphasis added]

Applying this prohibition to stormwater would not be consistent with the prohibition included in Table 4-1 of the Basin Plan. It is also impracticable to build outfall pipes and diffusers capable of achieving a minimum initial dilution of 10:1 for all stormwater discharges to San Francisco Bay.

Finally, concerning Baykeeper’s question about where the Basin Plan discusses applying the prohibition only to treated sewage, Section 4.2 of the Basin Plan states, “Prohibitions 1 through 5 refer to particular characteristics of concern to beneficial uses....It should be noted that the Water Board will consider all discharges of treated sewage and other discharges where the treatment process is subject to upset to contain particular characteristics of concern unless the discharger can demonstrate that the discharge of inadequately treated waste will be reliably prevented.” By inference, the prohibition was intended for, and generally applies to, treated sewage or other treated wastewaters.