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STAFF REPORT: REGULAR CALENDAR

Consistency Determination No.: **CD-001-13**

Federal Agency: **U.S. Environmental Protection Agency**

Location: Federal waters offshore of Southern California (Exhibit 1)

Project Description: Issue general National Pollutant Discharge Elimination System (NPDES) permit CAG280000 for discharges from offshore oil and gas platforms located in federal waters off the coast of Southern California. (Exhibit 1)

Staff Recommendation: Concurrence

SUMMARY OF STAFF RECOMMENDATION

The United States Environmental Protection Agency, Region IX ("EPA") proposes to issue a general National Pollutant Discharge Elimination System ("NPDES") permit for oil and gas waste discharges from 23 Outer Continental Shelf ("OCS") oil and gas platforms located in federal waters off the coast of Southern California (See Exhibits 1 and 2). The term of the proposed general permit is five years.

The key concern is the discharge into ocean waters of produced water, drilling fluids ("muds") and cuttings, which are all by-products of the oil and gas production process. These discharges can contain hydrocarbons and other organic compounds (i.e., benzene, toluene, etc.), dissolved salts, and metals which can adversely impact marine resources and water quality.

EPA's proposed general permit includes effluent discharge limitations for individual constituents and whole effluent toxicity (WET), a measure of the aggregate toxic effects of multiple pollutants. Specific requirements in the proposed permit include: (1) limits on the discharge volume of drill fluids and cuttings and produced water; (2) limits on the concentration of oil and grease and toxics in produced water; (3) limits on whole effluent toxicity (WET) in produced water and drill muds and cuttings; (4) limits on concentrations of mercury and cadmium in barite used in drill fluid; (5) a prohibition on the discharge of oil-based muds and the use of diesel oil as a mud additive; (6) a "no free oil" requirement for numerous discharges; (7) a requirement to use the static sheen test for detection of free oil before discharges occur; and (8) limitations on solids and chlorine for sanitary discharges. These discharge limitations very similar to and generally consistent with the discharge limitations included in the previous general NPDES permit, approved by the Commission in 2000.

To be consistent with the marine resource and water quality policies of the Coastal Act, discharges authorized by the proposed permit cannot be found to inhibit biological productivity or cause harm to populations of marine organisms in OCS waters. Many scientific studies have demonstrated impacts to the marine environment from produced water and drill muds and cuttings discharges. However, the research has not conclusively shown that the impacts from discharges as currently authorized, demonstrated in laboratory or site-specific field studies, translate into significant effects that would reduce the biological productivity of OCS waters at a significant scale. To ensure the protection of marine resources, the EPA has agreed to increase the frequency of monitoring of produced water discharges, proposed a more robust WET monitoring protocol, and agreed to continue independent compliance monitoring with the Bureau of Safety and Environmental Enforcement (BSEE). In addition, the proposed permit requires platforms to install online oil and grease monitors, allowing a faster response to potential exceedances and diagnosis of systemic problems. With these measures in place, the Commission staff believes the proposed permit can be found consistent with Sections 30230 and 30231 of the Coastal Act.

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Exhibit 1 – Location of Offshore Oil and Gas Platforms off of Southern California
Exhibit 2 – Proposed General NPDES Permit for Offshore Oil and Gas Platforms

I. FEDERAL AGENCY'S CONSISTENCY DETERMINATION

The U.S. EPA has determined that the project is consistent to the maximum extent practicable with the California Coastal Management Program (CCMP).

II. MOTION AND RESOLUTION

Motion:

> *I move that the Commission concur with consistency determination CD-001-13 on the basis that the project described therein will be fully consistent, and thus is consistent to the maximum extent practicable, with the enforceable policies of the California Coastal Management Program.*

Staff recommends a **YES** vote on the motion. Passage of this motion will result in an agreement with the determination and adoption of the following resolution and findings. An affirmative vote of a majority of the Commissioners present is required to pass the motion.

Resolution to Concur with Consistency Determination:

The Commission hereby concurs with consistency determination CD-001-13 by the U.S. EPA on the grounds that the project would be fully consistent, and thus consistent to the maximum extent practicable, with the enforceable policies of the CCMP, as provided for in 15 CFR §930.4.

III. FINDINGS AND DECLARATIONS

A. APPLICABLE LEGAL AUTHORITY

Standard of Review

The federal Coastal Zone Management Act ("CZMA"), 16 U.S.C. Section 1451-1464, requires that federal agency activities affecting coastal resources be "carried out in a manner which is consistent to the maximum extent practicable with the enforceable policies of approved State management programs." Id. at Section 1456(c)(1)(A). The implementing regulations for the CZMA ("federal consistency regulations"), at 15 C.F.R. Section 930.32(a)(1), define the phrase "consistent to the maximum extent practicable" to mean:

> *... fully consistent with the enforceable policies of management programs unless full consistency is prohibited by existing law applicable to the Federal agency.*

This standard allows a federal activity that is not fully consistent with California's Coastal Management Program ("CCMP") to proceed, if full compliance with the CCMP would be "prohibited by existing law." In its consistency determination, the U.S. EPA did not argue that full consistency is prohibited by existing law or provide any documentation to support a maximum extent practicable argument. Therefore, there is no basis to conclude that existing

law applicable to the Federal agency prohibits full consistency. Since the U.S. EPA has raised no issue of practicability, as so defined, the standard before the Commission is full consistency with the enforceable policies of the CCMP, which are the policies of Chapter 3 of the Coastal Act (Cal. Pub. Res. Code Sections 30200-30265.5).

B. PROJECT DESCRIPTION AND BACKGROUND

The United States Environmental Protection Agency, Region IX ("EPA") proposes to issue a general National Pollutant Discharge Elimination System ("NPDES") permit for oil and gas waste discharges from 23 Outer Continental Shelf ("OCS") oil and gas platforms located in federal waters off the coast of Southern California (from an area west of Point Arguello to an area southeast of Santa Barbara).[1] Most platforms are located within the Santa Barbara Channel (see Exhibit 1).[2] The term of the proposed general permit is five years.

The proposed general permit would apply to the existing 23 development and production platforms[3] and new exploratory drilling operations located in and discharging to 49 specified lease blocks in federal waters on the Pacific OCS. New source production platforms would not be covered by the proposed permit and would require individual NPDES permits. Also, the EPA may require any discharger authorized by the general permit to apply for and/or obtain an individual NPDES permit if the terms of the general permit are determined to be inappropriate for a particular facility.

Coastal Commission Review of Past NPDES Permits

For over three decades, the Commission has collaborated with the EPA, the Bureau of Ocean Energy Management (BOEM) and the Bureau of Safety and Environmental Enforcement (BSEE) (formerly the Minerals Management Service), the County of Santa Barbara, the State Water Resources Control Board ("SWRCB"), and others to establish discharge standards at oil and gas production platforms in State and federal waters. These efforts have occurred in the context of both general and individual NPDES permits.

The EPA began efforts to issue a general NPDES permit for oil and gas platforms in federal waters in the early 1980s. In February 1982, the EPA issued a general NPDES permit set to expire in January 1984. In January 1984, the Coastal Commission

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[1] See 40 CFR §122.28(c). ("The Regional Administrator shall, except as provided below, issue general permits covering discharges from offshore oil and gas exploration and production facilities within the Region's jurisdiction…")

[2] Existing platforms that are to be covered by the proposed general NPDES permit are: Platforms A, B, C, Edith, Ellen, Elly, Eureka, Gail, Gilda, Gina, Grace, Habitat, Harmony, Harvest, Henry, Heritage, Hermosa, Hillhouse, Hidalgo, Hogan, Hondo, Houchin, and Irene.

[3] Past permits have listed 22 platforms. Under the proposed permit, platforms Ellen and Ely, which have traditionally been grouped together, have been listed individually.

concurred in a consistency certification to extend the 1982 general permit's expiration date for an additional six months, through June 1984 (CC-26-83).

When the EPA sought to issue new general NPDES permits in February, 1986, the Coastal Commission objected to consistency certifications for NPDES permits nos. CAG280622 (development/production operations) and CAG280605 (exploratory operations) (CC-38-85/CC-39-85). The Commission based its objection on findings that the permits:

- provided insufficient protection for site-specific, sensitive marine resources;
- did not comply with all state water quality standards or fully explain reasons for excluding feasible standards;
- provided inadequate monitoring procedures to control discharges and ineffective testing methods to detect levels of discharge toxicity;
- provided inadequate enforcement measures to ensure permit compliance; and
- did not mitigate potential adverse impacts to coastal zone resources to the maximum extent feasible.

Based on this objection, the 1986 general permits were never issued. The EPA did not propose a revised or new version of a general permit until 2000. In the period between 1986 and 2000, the 1984 general permit remained active and new sources operated under individual NPDES permits. For example, the Commission concurred with consistency certifications for individual NPDES permits for the following five platforms:

- Exxon Platforms Harmony and Heritage *(CC-68-92, 8/12/92, for "Phase I" discharges; and CC-85-92, 4/14/93, for "Phase II" discharges)*;[4]
- Chevron Platform Gail (CC-68-93, 2/17/94);
- Chevron Platform Grace (CC-65-94, 11/15/94); and
- Torch Platform Irene (CC-45-94, 11/15/94).

In December 2000, the EPA submitted a consistency certification (CC-126-00) for revised general NPDES permit CAG280000 to cover discharges from 22 existing oil and gas platforms. At the January 2001 Commission hearing on the proposed new general permit, several Commissioners voiced concerns that the EPA's proposed effluent limitations did not address the California Ocean Plan standards adopted by the State Water Resources Control Board. In response to these concerns, the EPA agreed to require offshore platforms to meet either the EPA water quality criteria or California Ocean Plan standards for produced water discharges, whichever was more stringent, at

[4] Discharges from Platforms Harmony and Heritage are permitted under two individual NPDES permits. The Coastal Commission conducted its consistency review, however, for both platforms together, but considered the discharges from both platforms in two phases.

the edge of the 100-meter mixing zone. With these changes, the Commission concurred that the general permit was consistent with the CCMP.

Soon after the Commission hearing, however, the Western States Petroleum Association ("WSPA") objected to the imposition of Ocean Plan criteria applying at the point of compliance (*i.e.,* the edge of the 100-meter mixing zone) on the grounds that: (a) the Ocean Plan is not an enforceable policy of the CCMP, and (b) even if it is an enforceable policy of the CCMP, the Ocean Plan water quality criteria do not apply outside State waters, and should only be considered if a discharge outside State waters (i.e., discharges into federal waters) cause a violation of the Ocean Plan criteria within State waters. WSPA filed suit against the EPA to prevent them from issuing the permit, approved by the Commission in 2001, requiring adherence to the COP objectives. However, the suit was dismissed on the grounds that it was not yet ripe for adjudication.

Because of WSPA's opposition to the new Commission-approved general permit, the EPA refused to issue it. Instead, in December 2003, the EPA resubmitted for consistency review a revised general permit (CD-109-03) that moved the point of compliance with Ocean Plan requirements from the edge of the 100-meter mixing zone to the boundary between state and federal waters. On March 17, 2004, the Commission objected to the EPA's consistency determination. The Commission found that the revised general permit was not consistent with the enforceable policies of the CCMP due to the EPA's refusal to require each discharger to meet Ocean Plan requirements at the location of each platform's discharge (*i.e.,* at the edge of the 100-meter mixing zone). Based on this action, in September of 2004, the EPA issued the version of the permit that the Commission concurred with in 2001 (CC-126-00). The EPA modified this permit in 2009 based on new data submitted by the platforms between 2004 and 2009, but the Commission staff determined that no further federal consistency review was required. By and large, the proposed permit is similar to the existing permit as modified in 2009. Changes between the existing and proposed permits are discussed in more detail below.

Summary of the Proposed General Permit

Types of Discharges Authorized. Similar to prior permits, the proposed general permit would authorize the following discharges (subject to the terms and conditions of the permit) in all areas of coverage: drilling fluids and drill cuttings; produced water; well treatment, completion and workover fluids; deck drainage; domestic and sanitary waste; blowout preventer fluid; desalination unit discharge; fire control system water; non-contact cooling water; ballast and storage displacement water; bilge water; boiler blowdown; test fluids; diatomaceous earth filter media; bulk transfer material overflow; uncontaminated water; water flooding discharges; laboratory wastes; excess cement slurry; mud, cuttings and cement at sea floor; hydrotest water; and hydrogen sulfide gas processing waste water.

Of the 23 platforms, all discharge drilling muds and cuttings, but only 13 discharge produced water.[5] The remaining ten platforms either contribute to the discharge of the 13 via combined discharge, or re-inject produced waters onshore or offshore.

Effluent Limitations. The proposed general permit includes effluent limitations for individual constituents based on (a) Best Conventional Pollutant Control Technology ("BCT") for the control of conventional pollutants (i.e., pH, biochemical oxygen demand, oil and grease, total suspended solids and fecal coliform); (b) Best Available Treatment Economically Achievable ("BAT") for the control of toxic and non-conventional pollutants, and; (c) an evaluation of the Ocean Discharge Criteria, section 403(c) of the Clean Water Act (CWA; 33 USC Section 1343(c)), assuming BCT and BAT are in place.[6] These proposed effluent limitations are included in Exhibit 2. As with all NPDES permits, compliance with these effluent limits is demonstrated through self-monitoring and reporting. Additional information on monitoring protocols is included in Sections C and D.

In addition to effluent limitations for individual constituents, the proposed permit addresses water quality impacts associated with the aggregate toxic effects of multiple pollutants in produced water discharges through chronic whole effluent toxicity ("WET") monitoring requirements. WET tests involve measuring the acute and/or chronic toxicity of a discharge by exposing a standardized set of marine plant (i.e., giant kelp, *Macrocystis prifera*), invertebrate (i.e., red abalone, *Haliotis rufescens*) and vertebrate (i.e., topsmelt, *Atherinops affinis*) species to varying concentrations of effluent. The test is designed to determine the highest concentration of effluent at which no adverse effects are observed. If a WET analysis shows that a platform's produced water discharge is toxic, the permit requires the permittee to conduct additional, accelerated testing. If toxicity persists, the permittee must conduct a Toxicity Reduction Evaluation ("TRE") and potentially a Toxicity Identification Evaluation ("TIE") to identify the specific chemical(s) causing the toxicity. The proposed WET requirements can be found on pages 13-17 of Exhibit 2.

Ocean Discharge Criteria Evaluation ("ODCE"). The Ocean Discharge Criteria guidelines require EPA to impose effluent limitations to "prevent unreasonable degradation of the marine environment…"[7] The determination of unreasonable degradation is based on several factors, including quantities, composition, and potential for bioaccumulation or persistence of the pollutants discharges, the composition and vulnerability of biological communities exposed to such pollutants, and the applicable requirements of approved Coastal Zone Management Plans. To ensure compliance with

[5] Platforms A, B, Edith, Gail, Gilda, Gina, Habitat, Harmony, Harvest, Hermosa, Hidalgo, Hillhouse, Hogan.

[6] The EPA promulgated the BAT and BCT effluent limitation guidelines included in the permit on March 4, 1993 (*Effluent Limitations Guidelines for the Oil and Gas Extraction Point Source Category, Offshore Subcategory* [*58 Federal Register 12454, March 4, 1993*]).

[7] 49 CFR 65942, October 3, 1980.

the Ocean Discharge Criteria regulations, the proposed permit, similar to the 2004 permit, includes the following requirements:

- discharge restrictions (volume and nature of discharge) on drilling fluids, cuttings and produced water
- a requirement to use barite with low trace metal contaminant levels for drilling fluids
- limitations on the discharge of oil-based muds and diesel oil as a mud additive
- an oil and grease limitation for produced water
- a "no free oil" limitation on numerous discharges from the offshore facilities
- a requirement to use the static sheen test for detection of free oil before discharges occur
- limitations on solids and chlorine for sanitary discharges

To evaluate whether these requirements were sufficient to meet the Ocean Discharge Criteria regulations, the EPA revisited an ocean discharge criteria evaluation entitled "Ocean Discharge Criteria Evaluation South and Central California for NPDES Permit No. CAG280000," that assessed the discharges authorized under the 2004 general permit. The EPA reevaluated the conclusions of the 2000 ODCE in light of several new studies available after the 2000 analysis was conducted. After reviewing the 2000 ODCE and the new studies, the EPA concluded that the proposed discharges would not cause unreasonable degradation of the marine environment.

In 2009, the EPA issued a permit modification to the 2003 General NPDES permit for offshore oil and gas platforms. As part of this modification, the EPA revisited how to address the California Ocean Plan ("COP") objectives in the proposed general permit. The EPA concluded that to prevent unreasonable degradation of the marine environment, offshore platforms would be required to meet the most stringent effluent requirements for each constituent, either the EPA's federal chronic marine water quality criteria or the COP objectives, as measured at the platform.[8] Table 1 shows a comparison between the EPA's federal chronic marine water quality criteria and the equivalent COP objective. Consistent with the requirement in the 2009 permit modification, the proposed permit also requires platforms to meet either the EPA's federal chronic marine water quality criteria or the COP objectives, as measured at the platform, whichever is more stringent.

Monitoring. One of the most consistently challenging issues has been developing effective monitoring protocols that adequately demonstrate compliance with discharge standards. The EPA asserts that the legal basis for the NPDES compliance program strictly allows for a combination of self-monitoring, spot checks by agency personnel, and the levying of fines in cases of violations. In the past, however, many parties, including the Coastal Commission and the County of Santa Barbara, expressed concern about the EPA's reliance upon the veracity of self-collected, self-tested, and self-reported

[8] The point of compliance is the boundary of the 100-meter radius mixing zone allowed in the Ocean Discharge Criteria (40 CFR 125.123(d)(1)).

data. In response to these concerns, the EPA committed as part of its 2001 consistency certification to conduct independent (agency) monitoring, along with the Minerals Management Service (MMS) and RWQCB, as necessary, for the entire term of the NPDES permit. For the proposed permit, the EPA will maintain a similar independent monitoring protocol with the Bureau of Safety and Environmental Enforcement (BSEE), a successor agency to MMS. The principal difference in the proposed monitoring protocol is that the inspection frequency has been reduced to annual inspections instead of semi-annual inspections due to time and equipment constraints at BSEE. As under previous NPDES permits, monitoring results will be reported to the Coastal Commission on a quarterly basis.

Major Changes Since the 2004 General Permit

Although the proposed permit is generally similar to the permit issued in 2004, there are several changes that should be noted:

(1) Geographic Coverage. The geographic coverage of the proposed permit is approximately 40% less than the 2004 permit. This decrease reflects a reduction in the number of lease blocks considered active by the BOEM in 2012 as compared to 2004.
(2) Updated Reasonable Potential Analysis. A key component of the ODCE is a reasonable potential analysis, which measures a platform's potential to discharge at non-attainment levels. For the proposed permit, the EPA used monitoring data collected between 2009 and 2012 to re-evaluate the reasonable potential of produced water discharges to cause or contribute to exceedances of marine water quality criteria. Since the previous reasonable potential analysis was conducted in 2006, the laboratory detection limit for several constituents has decreased. As a result, many of the platforms no longer have a reasonable potential to emit a majority of the constituents listed in the 2004 general permit and thus, these effluent limitations have been removed from the proposed permit. This is discussed in more detail in Section D.
(3) WET Requirements. The proposed permit includes new WET requirements based on improved statistical procedures for analyzing WET data, resulting in effluent limits for platforms that demonstrate a reasonable potential to emit at toxic levels. These requirements are discussed in more detail in Section D.
(4) Cooling Water Intake Structures (CWIS) requirements. The proposed permit requires all platforms to analyze the potential effects of CWIS at the platforms and submit the findings of this analysis to the EPA within one year of the permit effective date.
(5) On-line Oil and Grease Monitors. In response to the Commission's recommendation in 2000 (CC-126-00), the proposed permit includes a requirement that all platforms install an on-line oil and grease monitor within one year of the permit effective date.
(6) Improved Monitoring Protocols for Produced Water Discharges. In response to concerns raised by Commission staff, the EPA amended the NPDES program to increase the monitoring frequency from quarterly to monthly for those platforms that have demonstrated a reasonable potential to emit a particular constituent at toxic levels. Similarly, the EPA revised the WET monitoring protocol to require platforms to conduct WET tests quarterly. Once the platform operator has passed four

consecutive WET tests, monitoring can be conducted annually. However, if the platform operator fails an annual WET test, monitoring frequency will revert back to quarterly. These requirements are discussed in more detail in Section D.

C. Fill of Open Coastal Waters

Coastal Act Section 30233(a) states in part:

> *The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:*
>
> *(1) New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities.*
>
> *(2) Maintaining existing, or restoring previously dredged depths on existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps.*
>
> *(3) In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities.*
>
> *(4) Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.*
>
> *(5) Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.*
>
> *(6) Restoration purposes.*
>
> *(7) Nature study, aquaculture, or similar resource dependent activities.*

Coastal Act Section 30108.2 defines "fill" as "earth or any other substance or material, including pilings placed for purposes of erecting structures thereon, placed in a submerged area." Under the proposed permit, OCS platform operators will continue to discharge muds and cuttings to ocean waters as a routine part of drilling operations. In addition, mussels and other species will continue to be scraped from platforms periodically, creating shellmound layers of invertebrate shells and drilling muds and

cuttings.[9] These shellmounds of drill muds and cuttings constitute "fill," as that term is defined in Coastal Act Section 30108.2.

Coastal Act Section 30233(a) restricts the Coastal Commission from authorizing a project that includes open coastal water fill unless it meets three tests. The first test requires the proposed activity to fit into one of seven categories of uses enumerated in Coastal Act Section 30233(a)(1)-(7). The second test requires that there be no feasible less environmentally damaging alternative. The third and last test mandates that feasible mitigation measures be provided to minimize the project's adverse environmental effects.

Allowable Use Test

The proposed NPDES permit extends to the operators of OCS oil and gas platforms the authority to discharge effluent from oil and gas exploration, development and production. As such, the discharges are part of a mineral extraction process and is therefore considered an allowable use under Coastal Act Section 30233(a)(5).

Feasible Less Environmentally Damaging Alternative

The Commission must further find that there is no feasible less environmentally damaging alternative to the proposed discharge into ocean waters of drill muds and cuttings. In its consideration of the reissuance of the 2000 general NPDES permit, the EPA evaluated two potential alternatives: (a) barging muds and cuttings to shore, and (b) the re-injection of muds and cuttings. The EPA determined in 2000 that based on the information available, the environmental impacts associated with barging muds and cuttings to shore outweighed the impacts associated with ocean discharge. However, the 2000 permit also included a requirement that the OCS platforms conduct a study analyzing the feasibility of alternatives to ocean discharge of drill muds and cuttings. In response to concerns raised by Commissioners at the January 9, 2001 hearing, the EPA expanded this study to include produced water discharges in addition to drill muds and cuttings. The permit was not issued until 2004 (for reasons discussed in Section III.B), and at that time, the study requirement went into effect. OCS platform operators collectively submitted two reports within the required time frame. These studies analyzed several alternatives to overboard discharge of drill muds and cuttings and produced water, including underground injection, land treatment, thermal treatment, chemical treatment, evaporation, recycling and landfill disposal. Two of these alternatives were determined to be potentially feasible: (1) reinjection into offshore geologic formations or depleted reservoir formations, (2) transportation to shore and reinjection using onshore commercial disposal wells or landfill disposal. Both of these alternavies is discussed in detail below.

[9] The proposed permit allows for the total annual discharge from existing platforms of 2,189,000 barrels (bbl) of drilling fluids, 666,150 bbl of cuttings, and 62,500 bbl of excess cement.

Offshore reinjection

Several of the platforms already reinject some percentage of drill muds and cuttings and/or produced water into offshore geologic formations. For example, according to the 2006 Discharge Alternatives Feasibility Study[10], while most platforms discharge 100% of their drill muds and cuttings to the ocean, a few, such as Gail, Houchin and Hogan, transport a portion to shore for disposal, and others, such as platforms Harmony and Heritage reinject up to 20% into offshore formations. For produced water, a few platforms (i.e., Gail, Irene, Elly/Ellen) reinject 94-100% of produced water either offshore or onshore. Others reinject either a small percentage (i.e., <15%) and discharge the remainder to the ocean, or discharge 100% of produced water to the ocean.

The 2006 Study identified several constraints to expanding the practice of offshore reinjection. The principal constraint is formation capacity, which is controlled by formation geology and is highly variable across different formations. Thus, while some platforms are able to inject 100% of produced water into offshore formations, other platforms have access to only a small fraction of the necessary capacity. Unfortunately, many of the platform operators have not conducted a comprehensive study of the formation capacity, and therefore, the technical feasibility of reinjection is uncertain for many platform operators. Reinjection of drill muds and cuttings is "geologically more limited and technically more challenging" (Tetra Tech, Inc., 2006) because the solid material in the muds and cuttings can easily clog the well or receiving formation. At the time of the 2006 study, the platform reinjecting the maximum amount of drill muds and cuttings was only able to inject 20% of the total volume produced. In addition to geologic constraints, reinjection requires specific equipment and dedicated deck space that could pose technical and economic contraints for several of the platforms. However, the necessary equipment is commercially available (and already in use by several platforms), and so these constraints do not appear to make reinjection infeasible.

In addition to these constraints, offshore reinjection results in secondary environmental impacts that must also be considered. For example, the reinjection equipment requires additional power to operate, resulting in increased air emissions. Discharges may require pretreatment before reinjection, creating the need for additional equipment that produces additional air emissions. For reinjection of drill muds and cuttings, the most significant impact is the potential for an accidental release of hydrocarbons into the ocean environment due to fractures created during the reinjection process propagating to the seafloor.

Transportation to Shore for Reinjection or Landfill disposal

The EPA has considered onshore disposal of drill muds and cuttings as an alternative to ocean discharge since the early 1990s. In the past, the primary mode of transportation

[10] Tetra Tech, Inc. 2006. Discharge Alternatives Feasibility Study. Prepared for the Western States Petroleum Association, December 21, 2006.

from the platforms to shore has been by barge. However, due to the adverse impacts associated with the long distances (offshore and onshore) required for transport, and the lack of permitted land disposal facilities suitable for disposal, the EPA has not required onshore disposal of these waste streams. The EPA currently requires barging-to-shore of all contaminated muds and cuttings. In addition, the Commission has also reviewed information on barging from OCS waters and found that while barging may be feasible for a project, it entails significant tradeoffs with other adverse environmental effects such as increased nitrogen oxide ("NOx") emissions, increased risk of spills during transit, and a lack of land disposal sites with the capacity to store the volumes of muds and cuttings generated at both state and OCS platforms. *(CC-47-87 February 1987; information from State Lands Commission (SLC), State Water Resources Control Board (SWRCB), Regional Water Quality Control Board (RWQCBs), State Waste Management Board, Minerals Management Service (MMS), Santa Barbara County and Texaco.)*

The 2006 Study analyzed the feasibility and environmental impacts associated with transporting both produced water and drill muds and cuttings to shore for disposal. According to the study, these discharges can be transported to shore by barge or through a subsea pipeline. Both of these options are technically feasible; the environmental impacts associated with each transportation method, however, are substantial. Barging would result in a substantial increase in air emissions from vessels and equipment and increased risk of spills during transit, loading/unloading, and fueling. Transporting discharges through a subsea pipeline is environmentally preferable to barging due to the reduction in air emissions and decreased risk of spill during normal operations. However, construction and installation of a subsea pipeline could result in impacts to marine resources including harassment and temporary displacement of marine mammals, fish and other marine organisms due to noise and movement of equipment, damage to archeological resources, fill of coastal waters, and the risk of an accidental release of hazardous material into ocean waters. Once the pipeline is installed, pumps and other equipment would be needed to operate the pipeline, resulting in increased air emissions.

Once the produced water and drill muds and cuttings discharges are transported to shore, platform operators must find a way to dispose of them. Most likely, this would require the construction of an onshore receiving facility. For drill muds and cuttings, disposal options include landfill disposal and reinjection into onshore formations. For landfill disposal, once onshore, the drill muds and cuttings would have to be dewatered and likely pre-treated before being transported to one of three class II landfills in Southern California that accept exploration and production waste. In addition to the environmental impacts associated with constructing and operating a receiving facility, this process would result in air emissions from truck transport and treatment processes and would produce a potentially hazardous sludge in need of disposal. Reinjection into onshore formations would also require truck trips and possible pre-treatment. In addition, according to the 2006 Study, there is limited available capacity, making onshore reinjection a feasible alternative for only a very small volume of drill muds and cuttings. For produced water, the onshore disposal options are even more limited. The only available disposal method is onshore injection. However, as with drill muds and cuttings,

the available capacity of onshore formations is small and could only accommodate a tiny percentage of the total volume of produced water generated by the platforms.

Analysis

To meet the second test of Section 30233(a), there must be no feasible less environmentally damaging alternative to the proposed activity. There are two alternatives to ocean discharge of produced water and drill muds and cuttings: offshore reinjection and transportation to shore for disposal. For produced water, given the large volumes generated, offshore reinjection is the only potentially feasible alternative to ocean discharge. Although transporting produced water to shore is possible, there is no viable alternative for disposing of it. The feasibility of offshore reinjection, analyzed on a platform-by-platform basis in the 2006 Study, hinges on the presence of a conducive geologic formation near the platform. The 2006 Study concluded that for most platforms, offshore reinjection was technically feasible. Unfortunately, beyond identifying the types of additional analyses required, the Study did not make a determination on the geologic feasibility of initiating reinjection, or of increasing rates of reinjection at each platform. Thus, with the information available, the feasibility of expanding the practice of offshore reinjection of produced water is uncertain, and there is no feasible, less environmentally damaging alternative to the ocean discharge of produced water. For drill muds and cuttings, the same conclusion applies. The reinjection of drill muds and cuttings, however, is a much more complex process and has the potential to lead to more significant impacts, such as unintended hydrocarbon releases.

Onshore disposal of drill muds and cuttings is also an alternative to ocean discharge. As stated above, transporting the drill muds and cuttings by barge or by pipeline is feasible. The two onshore disposal options, landfill and onshore reinjection, are also technically feasible, although there are a limited number of landfills that will accept this type of waste, and a limited capacity at onshore formations appropriate for injection. In addition, there are significant environmental impacts associated with these alternatives, including increases in air emissions associated with transportation by vessel and truck, increased air emissions associated with increased energy demand for the new equipment needed, an elevated risk of spills during transit, loading/unloading, and fueling and a variety of adverse impacts associated with the construction of new facilities (i.e., pipelines and/or onshore receiving and processing facilities). For these reasons, the Commission believes that onshore disposal of drill muds and cuttings are not a less environmentally damaging alternative to ocean discharge.

Therefore, the Commission finds that the proposed direct ocean discharge of produced water and drill muds and cuttings is the least environmentally damaging alternative at this time.

Mitigation Measures

Finally, the filling of open coastal waters may be permitted if feasible mitigation measures have been provided to minimize any adverse environmental effects. The EPA has included in the proposed permit the following requirements:

- Numerical limits on total discharge volume of drilling muds and cuttings, and excess cement;
- A prohibition on the use of non-aqueous based drilling fluids. Thus, future depositions of drilling muds and cuttings will not be characterized by layers of oil and gas constituents such as hydrocarbons;
- A prohibition on the discharge of free oil, oil-based fluids and diesel oil;
- Numerical limits on overall toxicity and the mercury and cadmium content of barite used in drill fluid.
- A requirement that OCS platform operators maintain a precise inventory of all drilling fluid consituents and conduct a bioassay for the final mud discharge.

These requirements are based on EPA's determination of the Best Control Technology ("BCT") for the control of conventional pollutants or the Best Available Treatment ("BAT") for the control of toxic and non-conventional pollutants. These measures limit the total volume of the discharges and require that concentrations of potentially toxic components of the discharge are small enough to ensure "no unreasonable degradation to the marine environment," thereby minimizing impacts to the marine environment from the discharges. In addition, the proposed permit requires the platform operators to monitor and report the volume and concentrations of the consituents listed above on a quarterly basis, allowing the EPA to determine compliance with the permit requirements. With these measures in place, the proposed permit adequately mitigates the impact of discharges constituting "fill" of the marine environment and the third and final test of Coastal Act Section 30233(a) has been met. The Commission therefore finds the proposed NPDES permit consistent with Coastal Act Section 30233(a).

D. Marine Resources and Water Quality

Coastal Act Section 30230 states:

> *Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.*

Coastal Act Section 30231 states in part:

> *The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges....*

The discharge of oil and gas wastes into marine waters has the potential to cause significant adverse impacts to marine resources and water quality. Under the new proposed permit, platform operators would continue to discharge drill muds and cuttings, produced water and other wastes. Researchers have conducted a substantial number of studies over the past forty years to assess the impacts of ocean discharges from offshore drilling platforms on the physical environment and biological communities surrounding the platforms. As might be expected from such a large body of research, these studies document substantial disagreement among experts regarding the degree to which drill muds and cuttings, produced water, and other oil and gas waste discharges affect the marine environment. In 1983, a National Research Council panel concluded that the effects and environmental risks of individual drilling discharges to most communities in high-energy depositional environments, such as OCS waters, are quite limited in extent and are confined mainly to the benthic environment. Uncertainties still exist, however, concerning the long and short-term sub-lethal effects on benthic communities that experience large inputs of drilling discharges over long periods of time.

As discussed in Section III.B, the Ocean Discharge Criteria guidelines require EPA to impose effluent limitations to "prevent unreasonable degradation of the marine environment..."[11] For the proposed permit, the EPA determined that, based on its analyses conducted prior to issuance of the 2004 permit and the review of more recent studies conducted since 2004, the proposed discharges would not cause unreasonable degradation of the marine environment. To ensure compliance with the Ocean Discharge Criteria, the EPA incorporated a variety of technology-based requirements in the proposed permit. These requirements include discharge restrictions on drilling fluids, cuttings and produced water, restrictions on the type of barite used in drilling fluids, limitations on the discharge of oil and grease, diesel oil and oil-based muds, and limitations on solids and chlorine in sanitary waste discharges.

Of the discharges typically accompanying offshore oil and gas operations, drill muds and cuttings and produced water are considered to have the greatest potential to degrade the marine environment. A more detailed examination of the effects of produced water and drill muds and cuttings discharges follows.

[11] 49 CFR 65942, October 3, 1980.

Produced Water

Produced water, resulting from the separation of water from the oil and gas mixture extracted from wells, often contains measurable amounts of hydrocarbons and other organic compounds, dissolved salts, and metals. During oil and gas production, produced water is the most significant production discharge in terms of volume and potential environmental effects. Over the economic life of a producing field, the volume of produced water can exceed the total volume of hydrocarbons extracted by ten times.[12] According to the EPA Industrial Technology Division (EPA-ITD), the "most obvious pollutant of concern for produced waters is oil and grease." (56 *Federal Register* 10682.) In addition to oil and grease, produced water contains other priority pollutants such as arsenic, cadmium, lead, benzene, ethylbenzene, naphthalene, toluene, and zinc.

Potential Impacts

Concerns with produced water discharges include changes in marine species populations resulting from impacts to the water column (e.g., turbidity or toxicity from effluent concentrations) and chronic toxicity. Chronic toxicity may include sublethal effects such as reduced reproductive success, diminished appetite, and changes in mating, sheltering, or predation behavior (*i.e.,* many marine organisms ingest the effluent, retain the constituents within body tissues, and eliminate the materials very slowly; thus wastes may accumulate until they reach toxic levels, even if the initial concentrations of the wastes are below acute toxic levels). Halogenated hydrocarbons and heavy metals such as mercury and lead have the greatest potential to bioaccumulate in marine organisms.

The Bureau of Ocean and Energy Management (BOEM) published a report in July of 2010 that summarizes the knowledge of selected areas of the Pacific Coast.[13] This report included a detailed literature review describing impacts to the marine environment from discharges of produced water and drill muds and cuttings from OCS offshore platforms. For example, the report discussed a series of studies, conducted under the Southern California Educational Initiative program, looking at impacts to marine species from produced water discharges from an oil processing facility near Carpinteria, CA. Osenberg et.al (1992) studied the spatial effects of produced water discharges and found that certain organisms (i.e., nematodes) reached greater densities near the discharge outfall, while other organisms (i.e., echinoderms, larval crustaceans, and several polychaete families) experienced the opposite effect, with increasing densities farther from the outfall. Density effects were most significant within 10 meters of the outfall, and populations returned to normal densities near 100 meters. Other research indicates that certain marine organisms are sensitive to minute concentrations of pollution. Cherr et al. (1993) detected abnormal development in embryos of purple sea urchin *(Strongylocentrotus purpuratus)* exposed to varying concentrations of produced water under controlled laboratory conditions; effects ranged from sensitivity at concentrations of 3% produced water, to delay in development at 3-5% produced water, to physical

[12] Stephenson, M.T. (1992)
[13] US Department of the Interior, BOEM (2010).

changes at 7% produced water.[14] Krause et al. (1992) found that while a 1% concentration of produced water was not acutely toxic to sea urchin eggs or embryo, it did greatly alter developmental rates of sea urchin embryos. In addition, results indicated sublethal responses at produced water concentrations as low as 1ppm (approximately 100-500 meters from the outfall).

Other studies conducted at the Carpinteria site or with discharges from the Carpinteria facility found that produced water discharges impact reproductive development and growth of mussels (Fan et al., 1992), early embryonic development in sea urchins (Baldwin et al., 1992; Krause et al., 1992), larval settlement and metamorphosis in abalone (Raimondi and Schmitt, 1992), and development in giant kelp (Garman et al., 1991). However, an important caveat to the results of the field studies discussed above is that the water depth at the study site is only 10-12 meters. Thus results may not be applicable in deeper waters where vertical dispersion could be greater. In addition, Cherr and Fan (1997) noted that the natural variability present in sites such as the Santa Barbara Channel make it difficult to determine causality or detect subtle impacts associated with contaminants. Nevertheless, the 2010 BOEM report concludes that "it is clear that sublethal effects can occur at anticipated concentrations within 100 m of any produced water discharge in offshore California OCS." The magnitude and extent of these sublethal effects on marine populations, however, is not well understood.

Proposed Effluent Limits

The proposed permit includes several BCT- and BAT-based effluent limitations for produced water discharges from OCS platforms. This includes numerical limits on the total volume of produced water, monthly average and daily maximum concentrations of oil and grease and concentrations of a variety of other toxic pollutants, and a requirement to meet whole effluent toxicity requirements. Similar to the previous permit, the proposed permit imposes platform-specific maximum allowable produced water discharges ranging from 1.6 million barrels at Platform Habitat to 55.8 million barrels at Platform Irene, with a total allowable discharge of 313 million barrels from all platforms. Oil and grease discharges in produced water may not exceed 29 mg/l, measured as a monthly average, and 42 mg/l, measured as a daily maximum.[15] Oil and grease limits were promulgated as BAT for offshore facilities as indicators of toxic and nonconventional pollutants. To ensure compliance with these effluent limits, the proposed permit requires platform operators to estimate the produced water flow rate on a daily basis, and take weekly grab samples to test for oil and grease concentrations. All monitoring results are compiled in a quarterly monitoring report provided to the EPA and Commission staff.

[14] The authors note that produced water composition may vary from batch to batch and that, since the results reported were derived from one batch only, a general conclusion of the impact of all produced waters cannot be drawn. (Krause et al., 1992, p. 112.)

[15] The proposed permit defines the term "maximum for one day" (i.e., daily maximum) to mean "the maximum concentration allowed as measured by the average of four grab samples collected over a 24-hour period that are analysed separately. Alternatively, one grab sample may be taken instead of four samples."

To further protect the marine environment from discharges of oil and grease in produced water, the proposed permit requires platform operators to install an on-line oil and grease monitor within one year of the permit effective date. This requirement was added in response to the Commission's recommendation at the 2001 permit hearing. The 2004 permit required platform operators to study the feasibility of installing this technology. Based on the results of these studies, the EPA concluded that installing on-line monitors was feasible and added this requirement to the proposed permit. On-line monitors will allow platform operators to monitor produced water discharges in close to real-time, allowing for a faster response to potential exceedances. The proposed permit does not require platform operators to report results from on-line monitors on a regular basis. However, the EPA can request that these results be submitted should the need arise.

In addition to required limits on total discharge and oil and grease concentrations, the proposed permit includes numerical limits on concentrations of toxic pollutants in produced water, or Water Quality Based Effluent Limitations (WQBEL). These limits have been the subject of some controversy over the years due to the discrepancy between the EPA's chronic marine water quality criteria and the California Ocean Plan ("COP") objectives. As discussed above, the EPA agreed to include the COP objectives in the NPDES general permit in 2001, and, despite opposition from the platform operators, the COP objectives remained in the general permit when it was finally issued in 2004. In a 2009 permit modification to the 2004 General NPDES permit, the EPA concluded that to prevent unreasonable degradation of the marine environment (under the Ocean Discharge Criteria requirements), offshore platforms would be required to meet the most stringent effluent requirements for each constituent, either the EPA's federal chronic marine water quality criteria or the COP objectives, as measured at the platform.[16] Table 1 shows a comparison between the EPA's federal chronic marine water quality criteria and the equivalent COP objective. As shown in Table 1, for most constituents, the COP objectives are more stringent. Consistent with their findings in the 2009 permit modification, the currently proposed permit also requires platforms to meet the more stringent effluent requirement between the EPA's federal chronic marine water quality criteria and the COP objectives as measured at the platform.

A key component of the NPDES program is that to impose a WQBEL on the discharge of a particular pollutant, the EPA must establish that the permittee has a reasonable potential to discharge at levels reaching or exceeding EPA's water quality criteria. The 2004 permit required that OCS platform operators complete a "reasonable potential monitoring study" to establish whether produced water discharges were likely to cause non-attainment of the marine water quality criteria for any of 26 pollutants at the boundary of the 100 meter mixing zone. If a discharge demonstrated a reasonable potential to cause non-attainment, the permit could be reopened and modified to include additional effluent limitations and monitoring requirements to ensure compliance with the water quality criteria. The OCS operators completed the study by providing monthly monitoring results during the first year of the 2004 permit. Of the 15 platforms that are authorized to

[16] The point of compliance is the boundary of the 100-meter radius mixing zone allowed in the Ocean Discharge Criteria (40 CFR 125.123(d)(1)).

discharge produced water, 13 demonstrated a reasonable potential to exceed water quality standards for one or more of the 26 pollutants monitored.[17] Based on these results, the 2009 permit modification included numerical limits and additional monitoring requirements for those platforms that had demonstrated a potential to discharge at non-attainment levels.

For the proposed permit, the EPA reevaluated the reasonable potential of produced water discharges using monitoring data collected between 2009 and 2012. According to EPA's fact sheet for the proposed permit, in the previous reasonable potential analysis, reasonable potential for several constituents was found because the detection limits the laboratory was able to achieve for several pollutants were relatively high in comparison to the water quality criteria values. To illustrate, if the lowest concentration of a particular pollutant a laboratory can measure is 10 ppm, and the monthly average water quality criteria is 11 ppm, it would not take very many measurements with concentrations above the effluent limit to result in the average concentration exceeding the limit. For example, if a platform took 5 measurements in a month, 4 of which resulted in the detection limit, 10ppm, and one that resulted in a concentration of 17ppm, the average monthly concentration would equal 11.4 ppm. Because this value is greater than the effluent limit, the platform has demonstrated a reasonable potential to emit at non-attainment levels. This situation was common for several of the regulated pollutants, leading to effluent limits for these pollutants at several platforms.

In subsequent years, laboratories were able to decrease the lower detection limit for some constituents. When the EPA performed the reasonable potential analysis with the more recent data that was analyzed by laboratories able to achieve lower detection limits, it found no reasonable potential for several constituents. Using our example above, if the laboratory was now able to accurately measure a concentration as low as 2 ppm, the same data may produce a different result. For example, if two of the measurements that previously resulted in the detection limit were now more accurately measured at 5 ppm, the overall average would be reduced to 9.4 ppm, a value less than the effluent limit. Thus, no reasonable potential to emit at non-attainment levels is demonstrated and an effluent limit is not required. This example oversimplifies how the EPA determines reasonable potential to discharge at non-attainment levels, but it illustrates how a lower detection value can affect this determination. The overall result is that eight platforms no longer have WQBELs and the rest of the platforms have fewer WQBELs. Appendix B of the proposed permit (see pp. 45-50 of Exhibit 2) includes the platform-specific limits. Each WQBEL is listed both as a maximum daily limit and an average monthly limit. The constituent limits that were deleted due to improvements in laboratory detection levels are now blank in the table for each platform.

In addition to numerical limits on toxic pollutants, the proposed permit includes monitoring requirements. Appendix B of Exhibit 2 (pp. 45-50) shows the platform-

[17] Platform Irene rarely discharges produced water and had not collected the minimum number of samples (10) at the end of the first year. Thus, the EPA deferred action on this platform until reissuance of the permit.

specific monitoring requirements for toxic pollutants in produced water discharges proposed by the EPA. If a platform demonstrated reasonable potential to discharge particular pollutants at toxic levels, the EPA requires that platform to collect samples and report those pollutant concentrations once a quarter. If a platform has not demonstrated a reasonable potential to emit at toxic levels, the permit requires that the platform operators collect annual samples and test those samples for all pollutants where a platform has previously demonstrated a reasonable potential to emit at toxic levels. Staff raised concerns to the EPA that sampling once a quarter was not sufficient to show compliance with the maximum daily limits and average monthly limits included in the permit, especially since discharges from the platform have exceeded permit limits in the past. In response, the EPA revised the proposed permit to require monthly sampling for those platforms with a reasonable potential to discharge one or more pollutants at toxic levels. This is a marked improvement from quarterly sampling that will provide a more complete record from which to determine compliance with the permit requirements. As under previous NPDES permits, monitoring results will be reported to the Coastal Commission on a quarterly basis.

In addition to the self-monitoring program described above, the EPA has also committed to continuing an independent monitoring program in partnership with BSEE. In 2001, in response to concerns raised by the Commission and other concerned parties, the EPA agreed as part of its 2001 consistency certification to conduct independent (agency) monitoring, along with the Minerals Management Service (MMS) and RWQCB, as necessary, for the entire term of the NPDES permit. For the proposed permit, the EPA will maintain a similar independent monitoring protocol with the Bureau of Safety and Environmental Enforcement (BSEE), a successor agency to MMS. The principal difference in the proposed monitoring protocol is that the inspection frequency has been reduced to annual inspections instead of semi-annual inspections due to time and equipment constraints at BSEE.

Finally, in addition to limitations on the total volume of produced water, and concentrations of oil and grease and toxic pollutants in produced water, the proposed general NPDES permit includes limitations on chronic whole effluent toxicity (WET). WET measures the aggregate effect of various pollutants in a discharge by exposing a set of standardized, surrogate marine plants, invertebrates and vertebrates to increasing concentrations of a particular discharge. These tests can be used to measure the acute or chronic toxicity of an effluent. WET requirements were first included in the 2004 permit.

In 2010, the EPA published a new method for conducting WET testing, including a procedure to evaluate the reasonable potential of a discharge to cause toxicity in the receiving marine environment. The EPA used this new procedure to evaluate data submitted by the platforms under the 2004 WET requirement. Results indicated that most of the platform discharges did not cause toxicity for the three species tested: giant kelp (*Macrocystis prifera*), red abalone (*Haliotis rufescens*) and topsmelt (*Atherinops affinis*). However, several platforms did demonstrate a reasonable potential to cause toxicity in giant kelp and topsmelt. Thus, in the proposed permit, the EPA imposed a

WET permit limit for those platforms that demonstrated a reasonable potential to discharge at toxic levels.

Originally, the EPA had proposed that those platforms with a WET limit conduct annual WET testing. Platforms without a WET limit would also be required to conduct annual WET testing to ensure no unreasonable degradation of the marine environment. Staff raised concerns to the EPA that an annual WET testing requirement for those platforms that had demonstrated a reasonable potential to emit at toxic levels would not protect marine resources. In response, the EPA proposed an alternative monitoring approach that is similar to the requirements of the recently re-issued general NPDES permit for oil and gas facility discharges in the Gulf of Mexico. Under the new approach, WET tests would be required quarterly for all platforms for at least the first year of the permit. Once a platform passes four quarterly WET tests (i.e., the produced water discharge is not found to be toxic to any of the test species), the monitoring frequency decreases to annual WET tests. However, if a platform fails an annual WET test for any species, it must resume quarterly monitoring until the platform is able to pass four consecutive quarterly tests, at which time the monitoring frequency can revert back to annual. This revised monitoring protocol for WET testing is a significant improvement from the originally proposed protocol. The revised protocol imposes a heavier monitoring burden, in the form of more frequent testing, on the platforms until they can demonstrate that produced water discharges are not toxic to marine species. This burden provides an incentive to platform operators to keep WET low enough to pass the WET tests and thus convert to or maintain an annual WET monitoring requirement.

The EPA concludes that with the proposed effluent limits and monitoring requirements in place, the authorized discharges do not cause unreasonable degradation to the marine environment. However, this analysis is based on compliance with effluent limits at the boundary of the 100-meter mixing zone and does not address impacts within the 100-meter zone. Prior to the issuance of the 2004 permit, the National Marine Fisheries Service ("NMFS") raised concerns about the discharges' potential effects on Essential Fish Habitat. Specifically, NMFS concluded that more information on the direct lethal, sublethal and bio-accumulative effects of platform discharges on federally managed fish species was needed, particularly within a platform's 100-meter mixing zone. NMFS made the following recommendations, which the EPA incorporated into the body of the proposed NPDES permit: (a) evaluate the direct lethal, sublethal, and bioaccumulative effects of produced water on federally managed fish species; (b) model dilution and dispersion plumes from the point of production water discharge to determine the extent of the area in which federally managed fish species may be adversely affected, and; (c) propose mitigation measures warranted by the results of recommendations "a" or "b". The EPA submitted an evaluation of the potential effects of produced water discharges inside the 100-meter mixing zone to NMFS in 2005. The evaluation concluded that the volume fraction of the mixing zone which would contain pollutants in concentrations exceeding the NPDES limits was very small and thus, effects on Essential Fish Habitat would be insignificant. A similar analysis was conducted in 2003 for the former Minerals Management Service for a revised Development and Production Plan for the

Eastern Half of Lease Parcel P-0451, resulting in the same conclusion. Based on this study, NMFS staff concluded that produced water discharges were not likely to result in a substantial impact to Essential Fish Habitat.

Drill Fluids ("Muds") and Cuttings

Under the proposed permit, platforms will continue to discharge water-based muds and cuttings to ocean waters as a routine part of drilling operations. Drill muds are a complex mixture of clays, barite and specialty additives used to remove cuttings from the drill hole, and to maintain hydrostaic pressure within the hole and equilibrium between the hole and formation. Cuttings are drilled formation solids that are carried by the drilling fluids from the hole to the surface.

The rates at which muds and cuttings are discharged are highly variable, and depend on the stage of drilling operations and well depth. A common practice of drilling operators is to dump large volumes of muds and cuttings when changing drilling formations (*i.e.,* when muds are changed to accommodate varying geologic conditions in the well hole). Muds and cuttings are released several times during drilling operations on a single well with the final mud dump frequently the largest discharge.

Potential Impacts

Drill muds, including *water-based* drill muds, may contain a number of trace metals (*e.g.*, lead, zinc, mercury, arsenic, cadmium, and chromium may be present) and petroleum hydrocarbons at concentrations that are higher than corresponding levels found in marine sediments at platform sites. Site-specific effects of muds and cuttings discharges include burial of benthos immediately below or adjacent to the platform, bioaccumulation of contaminants found in drilling fluids, and changes in benthic species composition resulting from accumulation of contaminants in sediments. These effects have the potential to impair the food web found in the platform vicinity, thereby detrimentally affecting coastal resources. Burial of hard bottom habitat areas is of particular concern due to the limited number of these areas and their importance to regional productivity. Marine organisms in the water column near drilling operations are also subject to large fluctuations or changes in water column chemistry because muds and cuttings discharges occur sporadically.

The 2010 BOEM report described in the previous section also includes a discussion of recent studies examining the effects of drilling muds and cuttings. Hyland et al. (1994) studied the impacts on the benthos from oil development off Point Arguello and found that concentrations of pollutants in suspended sediment associated with drilling discharges were below toxic levels. This suggests that observed biological effects are due to the physical impact of increased turbidity and flux of material from the discharges as opposed to chemical impacts from toxic material contained in the discharge. A related study (Steinhauer at el 1994) found that during active drilling, barium concentrations in surface sediments and suspended sediments increased by 30-40% and 200-300%, respectively, although the concentrations detected were not believed to reach levels that

would impact benthic biota. Raimondi et al. (1997) looked at impacts to red abalone from exposure to drilling muds and found that while fertilization and early development were not affected, the ability of exposed competent larvae to colonize natural settlement sites was adversely affected.

Also discussed in the 2010 BOEM report, Holdway (2002) conducted a literature review of studies documenting the effects of offshore drilling discharges, including drill muds and cuttings. Holloway concluded that due to the variation in chemical constituents in different muds commercially available, there is a potential for large variations in the toxicity of the discharges. Holdway (2002) also reviewed a study that found adverse impacts to adult scallop growth from suspended clay and barite associated with drilling muds discharge. However, this study, like other similar laboratory studies, doesn't accurately mimic the high-energy conditions present in the OCS environment. Thus, although long-term impacts may exist, the results presented in these studies aren't directly translatable to actual OCS conditions. Overall, these studies show that discharges of drilling muds and cuttings do cause some adverse impacts to benthic species, especially in the immediate vicinity of the platforms. However, similar to research on impacts from produced water discharge, the body of research has not demonstrated that discharges of drill muds and cuttings, as currently authorized, cause significant, community-scale impacts to marine species.

The EPA reviewed these studies and others as part of an updated Ocean Discharge Criteria Evaluation (ODCE) for the proposed permit. The EPA continues to believe that although localized effects may occur, the discharges authorized in the proposed permit, including drill muds and cuttings, would not cause unreasonable degradation to the marine environment. In making this finding, the EPA reaffirms the conclusions of the ODCE analysis conducted prior to the issuance of the 2004 permit.[18]

Proposed Effluent Limits

To ensure that the proposed discharges of drill muds and cuttings do not cause unreasonable degradation to the marine environment, the EPA included the following measures in the proposed permit:

1. A limit on the discharge volume of drilling muds and cuttings. The proposed permit allows for the total annual discharge from existing platforms of 2,189,100

[18] The 2004 ODCE study was based on a prior analysis conducted in support of the 1993 *Effluent Guidelines* (upon which the permit's discharge limitations are based). The EPA conducted an extensive, updated review of the available literature and analyzed 23 field impact studies on localized environmental impacts of drill fluids and cuttings discharges near oil and gas drill sites and platforms in waters of the Gulf of Mexico, Southern California, and Alaska. (EPA, *"Regulatory Impact Analysis of Final Effluent Limitations Guidelines and Standards for the Offshore Oil and Gas Industry, " January* 1993) The majority of the case studies originated in the Gulf of Mexico with one study from offshore California: the five-year California OCS Phase H Monitoring Program ("CAMP"), a multidisciplinary study to monitor potential environmental changes resulting from OCS oil and gas development in the Santa Maria Basin.

barrels (bbl) of drilling fluids, 666,150 bbl of cuttings, and 62,500 bbl of excess cement. These are the same limits included in the previous permit.

2. A prohibition on the discharge of free oil from drill muds and drill cuttings. The discharge of *oil-based* mud is prohibited since oil-based fluids would violate the BCT effluent limitations on no discharge of free oil. If a discharger elects to use an oil-based mud, it must transport the muds to shore for onshore disposal. The permit also does not authorize the use of *synthetic-based* drilling mud. If a discharger wishes to use a synthetic-based drilling fluid, it must either request a modification to the permit or request an individual NPDES permit.

3. Prohibition on the discharge of drill muds and cuttings that have been contaminated by diesel oil[19].

4. Limitations on concentrations of mercury and cadmium. Mercury discharges are limited to 1mg/kg and cadmium discharges are limited to 3 mg/kg.[20] Both of these elements are found in barite, a major component of drilling fluid (including water-based drilling fluids).

5. Limitations on toxicity. The proposed permit includes a toxicity limit of 30,000 ppm in the Suspended Particulate Phase. This effluent limit is based on BAT guidelines.

The proposed permit also contains monitoring requirements to allow platform operators to demonstrate compliance with the effluent limits. Platform operators are required to estimate the total discharge volume of drill muds and cuttings on a daily basis. In addition, they must perform a Static Sheen Test weekly and before bulk discharges to ensure zero discharge of free oil. Compliance with the diesel oil, cadmium and mercury limits can be demonstrated through an inventory of drilling fluids or stock barite content. Toxicity of drill fluids and cuttings is measured either through a bioassay of bulk discharges or through reporting of mud components using a clearinghouse approach.[21] A bioassay is required for the final bulk discharge when the end-of-well is reached.

Conclusion

The Commission must weigh all of the evidence presented above in making a determination as to whether the proposed discharges from offshore oil and gas platforms

[19] Diesel oil, which is sometimes added to a water-based mud system, is a complex mixture of petroleum hydrocarbons known to be highly toxic to marine organisms and to contain numerous toxic and nonconventional pollutants.

[20] In 1992, individual permits for Exxon platforms Harmony and Heritage included a limit of 2mg/kg of cadmium. This lower limit was retained in the 2004 permit and is again retained in the proposed permit.

[21] The EPA has developed a clearinghouse of several generic muds with known formulations that meet the toxicity requirement. If platform operators use these muds, they are not required to perform a bioassay, except during the final bulk mud discharge. The clearinghouse approach allows for the use of additives as long as the platform operator can demonstrate that the whole mud toxicity is below the effluent limit.

can be found consistent with the water quality and marine resource policies of the Coastal Act. The relatively extensive body of research on this topic shows that discharges from offshore OCS oil and gas platforms, most notably produced water and drill muds and cuttings, do impact marine coastal waters. The question is whether these impacts are significant enough to compromise the biological productivity of coastal waters or inhibit the maintenance of optimum populations of marine organisms as required by Sections 30230 and 30231 of the Coastal Act.

The EPA contends that the discharges authorized by the proposed permit will not lead to unreasonable degradation of the marine environment and are consistent with the marine resource protection and water quality policies of the Coastal Act. The Commission concurs with this conclusion for several reasons. First, the EPA has agreed to increase the proposed frequency of monitoring of produced water discharges from quarterly to monthly for those platforms that have demonstrated a potential to discharge at toxic levels. Second, the EPA has proposed a more robust WET monitoring program that includes an improved testing method and increased frequency of testing during the first year of the permit and for those platforms that fail WET tests. The EPA has also committed to continue the facilitation of independent compliance monitoring. BSEE, under an updated agreement with the EPA, will conduct random, unannounced site visits to each platform at least once a year to monitor for compliance with the provisions of the general permit. In addition, the proposed permit requires platforms to install online oil and grease monitors, allowing a faster response to potential exceedances and diagnosis of systemic problems. The overall monitoring program currently proposed is an improvement over the existing monitoring program. It increases the monitoring burden to those platforms that have demonstrated the potential to discharge at non-attainment levels, and emphasizes the importance of compliance with proposed effluent limits. With this additional monitoring, the EPA will have a higher likelihood of determining if discharges exceed authorized limits, allowing it to initiate necessary corrective or enforcement action more quickly.

Finally, the scientific community has not made a conclusive case that impacts from discharges, as currently proposed, are significant and widespread enough to result in the reduced biological productivity or the reduction in populations of marine species. Several studies, as discussed in the previous sections, have shown impacts to various marine species from produced water discharges and drill muds and cuttings in a specific setting or in the laboratory. However, the authors of these studies have not conclusively translated these measured experimental impacts into significant effects in the OCS region. That does not mean that future research will not demonstrate significant marine resource impacts. Commission staff will continue to track research on the impacts from offshore oil and gas platform discharges, and will reevaluate this finding when the EPA proposes the next general permit in five years.

Thus, for the reasons described above, the Commission finds that the EPA's proposed general NPDES permit for offshore oil and gas platforms is consistent with Sections 30230 and 30231 of the Coastal Act.

APPENDIX A
SUBSTANTIVE FILE DOCUMENTS

Adopted Findings on Consistency Determination CD-109-03. California Coastal Commission. Adopted 3/17/2004.

Adopted Findings on Consistency Certification CC-126-00. California Coastal Commission. Adopted 12/13/2001.

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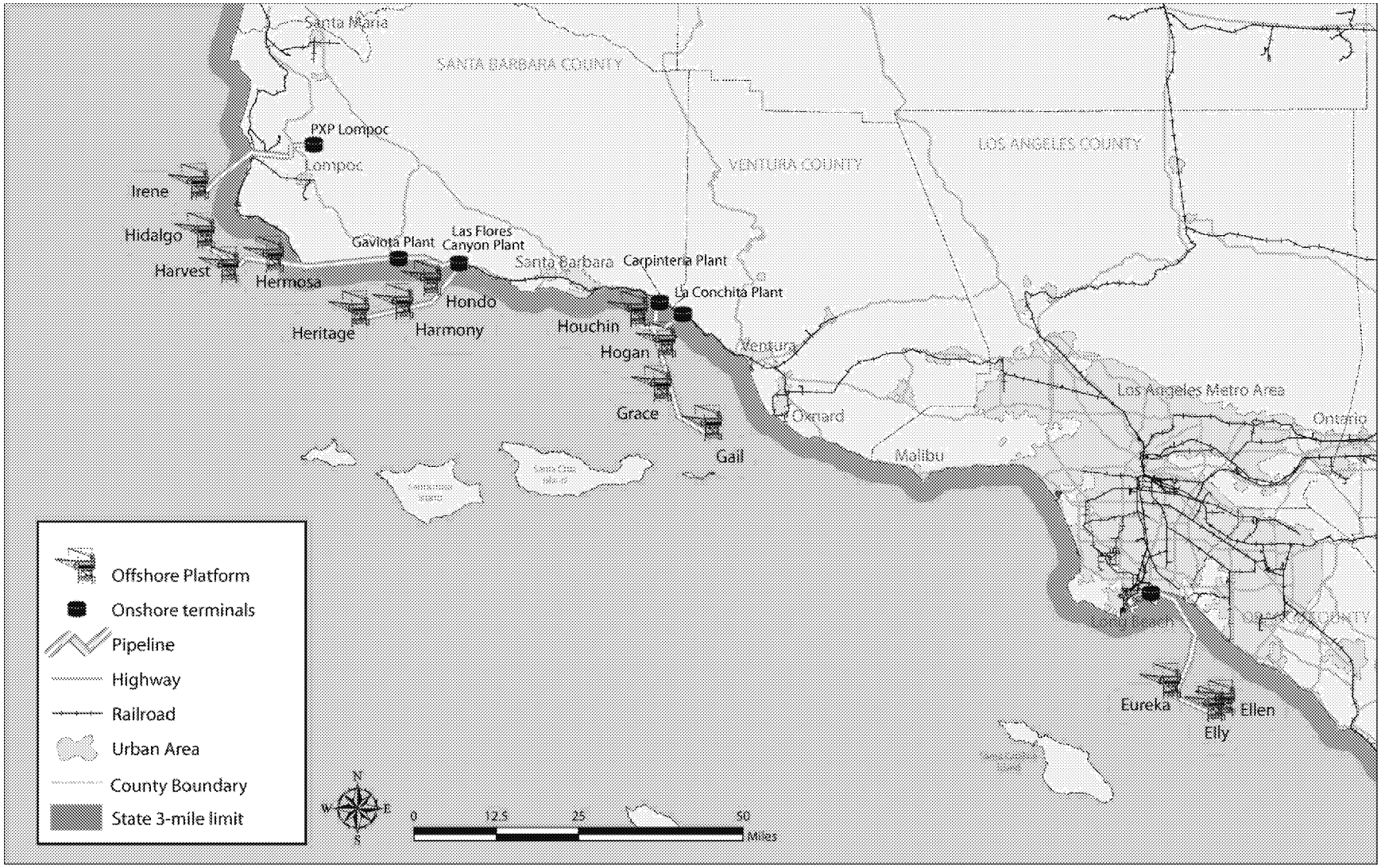
Table 1 -- Relative Stringency of Water Quality Criteria[1] (micrograms/liter)					
Constituent	EPA Proposed Standards (4-day averages)[2]	COP Standards (6-month medians)	Approximate Converted COP (4-day averages)[3]	EPA/Converted COP	Relative Stringency
Ammonia	1,300	600	618	2.1	COP
Arsenic	36	8	8	4.5	COP
Cadmium	8.8	1	1	8.8	COP
Copper	3.1	3	2.6	1.2	COP
Cyanide	1	1	1	1	EPA
Lead	8.1	2	2	4.1	COP
Manganese	100**	na	na	na	EPA****
Mercury	0.051	0.04	0.04	1.3	COP
Nickel	8.2	5	5.1	1.6	COP
Selenium	71	15	15	4.7	COP
Silver	1.9	0.7	0.6	3.2	COP
Zinc	81	20	19.5	4.2	COP
Benzene	51**	5.9***	na	na	COP
Benzo (a) Anthracene	0.018**	na	na	na	EPA****
Benzo (a) Pyrene	0.018**	na	na	na	EPA****
Chrysene	0.018**	na	na	na	EPA****
Benzo (k) Flouranthene	0.018**	na	na	na	EPA****
Benzo (b) Flouranthene	0.018**	na	na	na	EPA****
Dibenzo (a,h) Anthracene	0.018**	na	na	na	EPA****
Hexavalent Chromium	50	2	2	25	COP
Phenolic Compounds	1,700,000**	30	30.9	na	EPA*
Toluene	15,000**	85,000***	na	na	COP
Ethylbenzene	2,100**	4,100***	na	na	COP
Naphthalene	na	na	na	na	na
2,4-Dimethylphenol	2,300**	na	na	na	EPA****
Undissociated Sulfides	2	na	na	na	EPA****

* The EPA standard for phenol is a human health-based lifetime average and the COP standard is based on the protection of aquatic life. Therefore, no direct comparison can be made.
** Human health-based lifetime average
*** Human health-based 30-day average
**** No COP equivalent

[1] Because the EPA and COP standards are expressed over different time periods (4-day average vs, 6 month median), it is not immediately clear which standard is more stringent. The EPA developed a procedure to convert the COP 6 month median to an equivalent 4-day average. The results are presented in this table and are used to compare the two standards.
[2] Applicable at the edge of the 100-meter mixing zone.
[3] The approximate converted COP value is based on an estimate of the coefficients of variation (CV) of the monitoring data (CV=0.6). The actual converted COP value used in the reasonable potential analysis was based on the actual CV for each platform. However, the approximate values listed here provide a good indication of the actual value, especially in relation to the EPA standards.



Oil and Gas Platforms Offshore of Southern California

General Permit No. CAG280000

AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
FOR OIL AND GAS EXPLORATION, DEVELOPMENT, AND PRODUCTION FACILITIES

In compliance with the provisions of the Clean Water Act, 33 U.S.C. 1251 et seq., ("the Act"), the following discharges are authorized in accordance with this general National Pollutant Discharge Elimination System ("NPDES") permit: Drilling Fluids and Cuttings (001), Produced Water (002), Well Treatment, Completion and Workover Fluids (003), Deck Drainage (004), Domestic and Sanitary Waste (005), Blowout Preventer Fluid (006), Desalination Unit Discharge (007), Fire Control System Water (008), Non-Contact Cooling Water (009), Ballast and Storage Displacement Water (010), Bilge Water (011), Boiler Blowdown (012), Test Fluids (013), Diatomaceous Earth Filter Media (014), Bulk Transfer Material Overflow (015), Uncontaminated water (016), Water Flooding Discharges (017), Laboratory Waste (018), Excess Cement Slurry (019), Muds, Cuttings and Cement at Sea Floor (020); Hydrotest Water (021); and H_2S Gas Processing Waste Water (022) from oil and gas exploration, development and production facilities to federal waters off Southern California as specified below.

These exploration, development and production facilities are classified in the Offshore Subcategory of the Oil and Gas Extraction Point Source Category, as defined in 40 CFR Part 435, Subpart A. Discharges shall be in accordance with effluent limitations, monitoring and reporting requirements, and other conditions set forth in Parts I through V herein. The discharge of pollutants not specifically set forth in this permit is not authorized.

This permit authorizes discharges from all exploratory facilities operating within the permit area and development and production facilities which are not new sources including the following: Platforms A, B, C, Edith, Ellen, Elly, Eureka, Gail, Gilda, Gina, Grace, Habitat, Harmony, Harvest, Henry, Heritage, Hermosa, Hillhouse, Hidalgo, Hogan, Hondo, Houchin, and Irene.

After issuance, this permit shall become effective date the first day of the month that begins at least 45 days after the California Coastal Commission ("CCC") concurs with the certification provided by EPA that the discharges authorized by this permit are consistent with the approved California Coastal Zone Management Program ("CZMP"). This permit and the authorization to discharge shall expire at midnight, , 2017.

Signed this day of , 2012

_____
John Kemmerer
Acting Director, Water Division
U.S. EPA, Region 9

I. REQUIREMENTS FOR NPDES PERMITS AND COVERAGE CONDITIONS

A. Permit Applicability and Coverage Conditions

1. Operations Covered. This permit establishes effluent limitations, prohibitions, reporting requirements, and other conditions on discharges from oil and gas facilities engaged in production, field exploration, developmental drilling, well completion, well treatment operations, well workover, and abandonment operations.

2. Location of Coverage. The permit coverage area consists of the following lease blocks (by OCS lease parcel number as maintained by the Bureau of Ocean Energy Management (BOEM) and described in BOEM's Summary Lease Report):

in waters west and northwest of Point Arguello,

P-0433 P-0437 P-0438 P-0440 P-0441 P-0444 P-0450 P-0451

in waters south and west of Pt. Conception,

P-0315 P-0316 P-0320 P-0322 P-0323A

in the Santa Barbara Channel from Pt. Conception to Goleta Pt.,

P-0180 P-0181 P-0182 P-0183 P-0187 P-0188 P-0189 P-0190
P-0191 P-0192 P-0193 P-0194 P-0195 P-0326 P-0329 P-0460
P-0461 P-0464

in the Santa Barbara Channel from Santa Barbara to Ventura,

P-0166 P-0202 P-0203 P-0204 P-0205 P-0208 P-0209 P-0215
P-0216 P-0217 P-0234 P-0240 P-0241 P-0346

in the San Pedro Channel between San Pedro and Laguna,

P-0296 P-0300 P-0301 P-0306

which are located in Federal waters off the Southern California coast, seaward of the outer boundary of the territorial seas. This permit does not authorize discharges from facilities discharging to or in territorial seas of California or from facilities defined as "coastal", "onshore", or "stripper" (see 40 CFR Part 435, Subparts C, D, and F). Land based facilities operating in support of activities on the covered lease blocks are considered part of the Offshore Subcategory and discharges to Federal waters from these facilities are authorized by this permit.

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3. Facilities Covered. This permit covers development and production facilities including Platforms A, B, C, Edith, Ellen, Elly, Eureka, Gail, Gilda, Gina, Grace, Habitat, Harmony, Harvest, Henry, Heritage, Hermosa, Hillhouse, Hidalgo, Hogan, Hondo, Houchin, and Irene. The permit also covers exploration facilities discharging in the permit area. Facility coverage is not effective until Notices of Intent ("NOIs") are received as described below.

4. Modifications and Revocations. This permit may be modified or revoked at any time on the basis of any new data that was not available at the time of permit issuance if the new data would have justified the application of different permit conditions at the time of issuance. This includes any information indicating that cumulative effects on the environment are unacceptable. Such cumulative effects on the environment include unreasonable degradation of the marine environment due to continued discharges, in which case the Director, Water Division, Region 9 may determine that additional conditions are necessary to protect the marine environment or special aquatic sites. Permit modification will be conducted in accordance with 40 CFR Parts 122.62, 122.63 and 124.

5. Prohibitions. During the term of this general permit, operators are authorized to discharge under the general permit the enumerated waste streams subject to the restrictions set forth herein. This permit does not authorize the discharge of any waste streams, including spills and other unintentional or non-routine discharges of pollutants, that are not part of the normal operation of the facility, or any pollutants that are not ordinarily present in such waste streams.

6. Notification Requirements.

a. Coverage Under This Permit. For the development and production, and exploration facilities located on platforms listed above in Part I.A.3, written notification of intent to be covered under this permit shall be submitted no later than 30 days after the effective date of this permit. The Notice of Intent to be covered shall include the legal name and address of the operator, the lease block number assigned by the Department of the Interior, and the number and type of facilities located within the lease block.

For development and production facilities other than those listed above in Part I.A.3, the NOI shall include the above information and shall also include information to substantiate that the facility is not a new source, as defined in Part V of this permit. Initiation of discharges may not begin until EPA has reviewed the submitted information and notified the permittee in writing that this general permit is appropriate for the proposed operation, and the permittee has obtained all applicable approvals and certifications by BOEM, Bureau of Safety and Environmental Enforcement (BSEE) and the California Coastal Commission (CCC) of the development and production plan.

For exploratory operations conducted by exploration facilities not located on platforms listed above in Part I.A.3, the Notice of Intent shall be submitted at least 30 days prior to initiation of discharges. Initiation of discharges may not begin until EPA has reviewed the proposed operation and notified the permittee in writing that this general permit is appropriate for the

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proposed operation, and the permittee has obtained all applicable approvals and certifications by BOEM, BSEE and the CCC of the exploration plan.

b. Termination of Operations. Facility or lease block operators shall notify the Director in writing within 60 days after permanent termination of discharges from their facilities within the lease block.

c. Duty to Provide Notice of Intent for Continued Activity. If the permittee wishes to discharge under the authority of this permit after its expiration date, the permittee must submit a notice of intent to EPA to do so. The Notice of Intent shall be submitted at least 180 days before the expiration date of this permit, and shall include the information specified in Part I.A.6.a above. Timely receipt of a complete Notice of Intent by EPA shall qualify the Permittee for an administrative extension of its authorization to discharge under this permit pursuant to 5 U.S.C. Section 558(c), until a new permit is issued and becomes effective.

d. Submission of Requests to be Covered and Other Reports. Reports and notifications, including discharge monitoring reports and notifications of non-compliance required herein shall be submitted either to the following addresses, or electronically (EPA only) using NetDMR.

US EPA, Region 9
NPDES/DMR, WTR-7
75 Hawthorne Street
San Francisco, California 94105-3901
Phone: (415) 972-3507

Regional Supervisor
Bureau of Safety and Environmental Enforcement (BSEE)
770 Paseo Camarillo
Camarillo, CA 93010

Regional Supervisor
Office of Environment
Bureau of Ocean Energy Management (BOEM)
770 Paseo Camarillo
Camarillo, CA 93010
Attn: Chief, Environmental Analysis Section

Alison Dettmer, Manager
Energy & Ocean Resources Unit
California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco, CA 94105-2219

B. Requiring an Individual Permit

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1. The Director may require any Permittee discharging under the authority of this permit to apply for and obtain an individual NPDES permit. The following criteria (40 CFR Part 122.28(b)(3)), as well as other relevant considerations, may be used in making such determinations:

a. Whether the discharger is in compliance with the conditions of this general permit.

b. A change has occurred in the availability of demonstrated technology or practices for the control or abatement of pollutants applicable to the point source.

c. Effluent limitations guidelines are promulgated for point sources covered by the general permit.

d. A Water Quality Management plan containing requirements applicable to the point sources is approved.

e. Circumstances have changed since the time of the request to be covered so that the discharger is no longer appropriately controlled under the general permit, or either a temporary or permanent reduction or elimination of the authorized discharge is necessary.

f. The discharger(s) is a significant contributor of pollutants. In making this determination, the Director may consider the following factors:

(1) The location of the discharge with respect to waters of the United States;
(2) The size of the discharge;
(3) The quantity and nature of the pollutants discharged to waters of the United States; and
(4) Other relevant factors.

2. The Director may require any Permittee authorized by this permit to apply for an individual NPDES permit only if the Permittee has been notified in writing that an individual permit application is required.

3. Any Permittee authorized by this permit may request to be excluded from the coverage of this general permit by applying for an individual permit. The owner or operator shall submit an application together with the reasons supporting the request to the Director.

4. When an individual NPDES permit is issued to a Permittee otherwise subject to this general permit, the applicability of this general permit to that owner or operator is automatically terminated on the effective date of the individual permit.

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II. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

A. Drilling Fluids and Cuttings (Discharge 001)

1. Effluent Limitations. The Permittee shall comply with the following effluent limitations and monitoring requirements.

Table 1 - Drilling Fluids and Cuttings[1] Effluent Limitations and Monitoring Requirements

Effluent Characteristic	Discharge Limitation	Measurement Frequency	Sample Type/Methods	Reported Values[5]
Total Discharge Volume	See note 2.	Daily	Estimate	Per well total
Toxicity of Drilling Fluids and Cuttings	MinimumLC50 of the SPP shall be 3% by volume	End-of-well (at least 80% of permitted well footage)[4]	Grab/Drilling Fluids Toxicity Test	96-hr LC50 Part II.A.2.d
Free Oil	No discharge	Weekly[7] & before bulk discharges	Grab/Static Sheen test Part II.A.2.b.	Number of days sheen observed
Oil-based fluids[3]	No discharge	--N/A--	--N/A--	--N/A--
Diesel oil content	No discharge	--N/A--	Part II.A.2.a.	--N/A--
Barite: Cadmium	3 mg/kg[6]	See II.A.2.c	Method 3050B followed by 6010B	mg/kg dry wt.
Barite: Mercury	1 mg/kg	See II.A.2.c	Method 7471A	mg/kg dry wt.
Chemical Inventory	--N/A--	Once per mud system	Part II.A.3.	--N/A--
Non-Aqueous Based Drilling Fluids and Associated Cuttings	No discharge	--N/A--	--N/A--	--N/A--

Notes:

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[1] All cuttings limitations except the "no free oil" requirements as determined by the Static Sheen Test are monitored by sampling and analysis of drilling fluid samples. Compliance with the drilling fluids limitation demonstrates compliance with the corresponding cuttings limitation.

[2] The Permittee shall estimate and report the total discharge volume per well for drilling fluids and drill cuttings. The volumes for fluids and cuttings shall be reported separately. The Permittee shall also report the number of days of discharge of each drilling fluid system used.

[3] The discharge of drilling muds which contain waste engine oil, cooling oil, gear oil, or lubricant which has previously been used for purposes other than borehole lubrication is prohibited. The discharge of cuttings generated using drilling fluids which contain mineral oil is prohibited except when the mineral oil is used as a carrier fluid (transporter fluid), lubricity additive, or pill.

[4] Intermediate depth mud systems are also subject to the 30,000 ppm limit by testing or by using generic fluids; see "Use of generic drilling fluids." The "permitted well footage" refers to the well footage permitted by BSEE.

[5] The permittees shall submit the Well DMR on the established DMR schedule (see Part III.C.). The Well DMR shall be submitted at the next scheduled DMR date at least 45 days after the completion of drilling activity. The Well DMR shall report all discharges for each well from a mobile drilling unit or all rig associated discharges listed in this table for platform mounted rigs. Copies of the toxicity test reports, barite certifications, and drilling fluids inventory information shall be included with the Well DMR.

[6] The discharge limitation for cadmium in barite is 2 mg/kg for Platforms Harmony and Heritage.

[7] The sampling frequency for the static sheen test shall be weekly. When drilling into a hydrocarbon bearing zone, sampling frequency shall be daily.

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2. Monitoring Requirements.

a. Diesel Oil. Compliance with the limitation on diesel oil shall be demonstrated through the Drilling Fluids Inventory.

b. Static Sheen Test. The Permittee shall perform the Static Sheen Test on separate samples of drilling fluids and cuttings. The test shall be conducted in accordance with "Approved Methodology; Laboratory Sheen Tests for the Offshore Subcategory, Oil and Gas Extraction Industry," which is Appendix 1 to Subpart A of 40 CFR Part 435. If the static sheen test indicates

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the presence of free oil, discharge of the tested material shall cease; if subsequent tests do not indicate free oil, discharge may continue.

c. Mercury and Cadmium Content of Barite. Compliance shall be demonstrated by analysis of the stock barite or by certification based on supplier documentation. Results for total mercury and total cadmium shall be submitted in the DMR for the well. Analysis for cadmium shall be conducted using method 3050B followed by 6010B (EPA SW 846) and results expressed as mg/kg (dry weight) of barite. Analysis for mercury shall be conducted using method 7471A (EPA SW 846) and expressed as mg/kg (dry weight) of barite.

The Permittee may provide analysis of representative samples of stock barite once prior to drilling each well. If more than one well is drilled using the same stock supply, new analyses are not required for subsequent wells if no new supplies of barite have been received since the previous analyses. In this latter case, the DMR should state that no new barite was received since the last reported analyses.

Alternatively, operators may provide certification, as documented by the supplier(s), that the barite meets the above limits. The concentration of mercury and cadmium in stock barite shall be reported on the well DMR as documented by the supplier.

d. Toxicity Test for Drilling Fluids and Cuttings. The minimum 96 hour LC50 value, using the *Mysidopsis bahia,* for drilling fluids and cuttings discharged in compliance with this permit is 3% of the Suspended Particulate Phase ("SPP") by volume. The Permittee shall demonstrate compliance with this limit for both drilling fluids and cuttings by conducting and reporting the results of a drilling fluids bioassay for each mud system which is used and discharged except as provided in Part II.A.3 below. Drilling fluid samples for the bioassay shall be taken at the time that maximum well footage is reached for each mud system (defined as at least 80% of the actual permitted well footage at the time of discharge within each interval during the drilling of the well for which a separate mud system is used and discharged).

The bioassay procedure to be used is "Drilling Fluids Toxicity Test" (Appendix 2 to Subpart A of 40 CFR Part 435). Bioassay results shall be submitted with the Well DMR (see note 5, Section II.A.1.)

3. Drilling Fluids Systems and Inventories

a. Drilling Fluids Inventory and Reporting Requirements. The Permittee shall maintain a precise inventory of all drilling fluid constituents added downhole for each well. The composition of each mud system used and discharged by the Permittee shall be reported to EPA. Mud composition data shall be submitted to EPA with the Well DMR. The Permittee shall report the following for <u>each</u> mud system: 1) base (generic) drilling fluid type, 2) product name and total amount (volume or weight) of each constituent in discharged drilling fluid; 3) the total volumes of drilling fluids discharged; and 4) the number of days of discharge. The permittee shall also report the estimated maximum concentration of each constituent in the discharged drilling fluid, if no toxicity test is conducted on the drilling fluid system.

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b. Use of Generic Drilling Fluids. With the exception of the drilling fluids system discharged when the well reaches its maximum footage, the toxicity requirement shall be met by a toxicity test as described above in Part II.A.2.d or by the demonstration by the Permittee that a discharged drilling fluid complies with the requirements of (1), (2) or (3) below:

(1) The drilling fluid is generic as defined in Part II.A.3.c below.

(2) The drilling fluid is generic (excluding generic mud #1) and all specialty additives included in the fluid satisfy either of the following conditions:

(a) When each additive is included at its maximum concentration in generic fluid #7 (lightly treated lignosulfonate mud), the 96 hour LC50 value of the resulting fluid exceeds 100,000 ppm for the suspended particulate phase; or

(b) Other toxicity data is available for the additive upon which EPA may reasonably conclude that (a) above would be satisfied.

(3) The drilling fluid is generic and contains additives used in quantities such that the resulting whole fluid may, based on toxicity data for similar whole fluids or toxicity data for the additives, be shown to comply with the overall toxicity limit of 30,000 ppm. The Permittee shall be responsible for providing this demonstration of compliance. The method in "Separate and Joint Toxicity to Rainbow Trout of Substances Used in Drilling Fluids for Oil Exploration" (Sprague and Logan, *Environmental Pollution*, Volume 19, No. 4, August, 1979) may be used to estimate joint toxicity.

c. Generic Drilling Fluids. Hematite or other weighting materials may be substituted for barite at the following maximum allowable concentrations.

Table 2 - Generic Drilling Fluids

Generic Mud Number	Maximum Allowable Concentration (pounds/barrel)
1. Seawater/Potassium/Polymer Mud	
KCl	50
Starch	12
Cellulose Polymer	5
XC Polymer	2
Drilled Solids	100
Caustic	3
2. Seawater/Lignosulfonate Mud	
Attapulgite or Bentonite	50
Lignosulfonate	15

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Lignite	10
Caustic	4
Barite	450
Drilled Solids	100
Soda Ash/Sodium Bicarbonate	2
Cellulose Polymer	5
Seawater	As Needed
3. Lime Mud	
Lime	20
Bentonite	50
Lignosulfonate	15
Lignite	10
Barite	180
Caustic	5
Drilled Solids	100
Soda Ash/Sodium Bicarbonate	2
Freshwater	As Needed
4. Nondispersed Mud	
Bentonite	15
Acrylic Polymer	2
Barite	180
Drilled Solids	70
Freshwater	As Needed
5. Spud Mud (slugged intermittently with seawater)	
Attapulgite or Bentonite	50
Caustic	3
Cellulose Polymer	2
Drilled Solids	100
Barite	50
Soda Ash/Sodium Bicarbonate	2
Lime	2
Seawater	As Needed
6. Seawater Gel Mud	
Attapulgite or Bentonite	50
Caustic	3
Cellulose Polymer	2
Drilled Solids	100
Barite	50
Soda Ash/Sodium Bicarbonate	2
Lime	2

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Seawater	As Needed
7. Lightly Treated Lignosulfonate Freshwater/Seawater Mud	
Bentonite	50
Barite	180
Caustic	3
lignosulfonate	6
Lignite	4
Cellulose Polymer	2
Drilling Solids	100
Soda Ash/Sodium Bicarbonate	2
Lime	2
Seawater to Freshwater Ratio	1:1
8. Lignosulfonate Freshwater Mud	
Bentonite	5
Barite	450
Caustic	5
Lignosulfonate	15
Lignite	10
Drilling Solids	100
Cellulose Polymer	2
Soda Ash/Sodium Bicarbonate	2
Lime	2
Seawater to Freshwater Ratio	As Needed

d. Notice of Final Mud Dump. The Permittee shall provide verbal notice to EPA (or other Federal Agency designated by EPA at a later date) at least 48 hours prior to the final mud dump upon completion of each well. Reports during normal business hours shall be provided to the CWA Compliance Office, Water Division, at telephone number 415-972-3507. Twenty-four hour reporting may be made at 415-947-4400.

e. Restrictions on the Use of Mineral Oils in Drilling Fluids. Mineral oil may be used only as a carrier fluid (transporter fluid), lubricity additive, or pill.

4. Maximum Allowable Annual Discharge Volumes for Drilling Fluids, Cuttings and Excess Cement.

Table 3 - Maximum Discharge Volumes for Drilling Fluids, Cuttings and Excess Cement Slurry

Facility	Maximum Annual Allowable Cuttings	Maximum Annual Allowable Drilling Fluids	Maximum Annual Allowable Excess

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	discharged, bbls	discharged, bbls	Cement Slurry Discharged, bbls
A	30,000	105,000	3,000
B	30,000	105,000	3,000
C	30,000	105,000	3,000
Edith	90,000	105,000	6,500
Ellen	18,150	49,950	1,200
Eureka	13,350	36,650	1,200
Gail	28,700	49,500	2,000
Gilda	30,000	105,000	2,500
Gina	30,000	105,000	2,500
Grace	28,700	49,500	2,000
Habitat	30,000	105,000	2,500
Harmony	40,000	200,000	4,000
Harvest	12,000	53,500	2,000
Henry	30,000	105,000	3,000
Heritage	40,000	200,000	4,000
Hermosa	11,250	41,000	2,000
Hidalgo	6,000	23,000	2,000
Hillhouse	30,000	105,000	3,000
Hogan	34,000	118,000	3,300
Hondo	40,000	200,000	4,000
Houchin	34,000	118,000	3,300
Irene	30,000	105,000	2,500

B. Produced Water (Discharge 002)

1. Platform-Specific Effluent Limits and Monitoring Requirements. Platform-specific effluent limitations and monitoring requirements are set forth in Appendix B.

a. Permittees with platforms not listed in Appendix B, which may discharge produced water during the term of this permit, shall follow the procedures of Appendix D in conducting an analysis of the reasonable potential of the discharges to cause or contribute to exceedances of applicable marine water quality criteria.

b. Monitoring for Constituents of Concern. For all platforms with produced water discharges, the constituents listed in Appendix D (Table D-1) shall be sampled at least once during the last two years of the term of this permit, and the results shall be submitted on the DMR at least 180 days before this permit expires. For platforms with a platform specific monitoring requirement in Appendix B, the permittee may substitute the sampling results conducted in accordance with Appendix B for constituents listed in Appendix D.

c. Dilution Ratio Changes. The permittee shall calculate the quarterly dilution value each quarter and submit the results with the DMR. If the quarterly dilution value decreases relative to the value at the time of the permit issuance, this permit may be reopened and modified to include additional effluent limitations and monitoring requirements based on the reasonable potential for the exceedance of a water quality criterion found in Appendix D, Table D-1.

2. Chronic Whole Effluent Toxicity (WET) Requirements

a. Monitoring Frequency. Once each calendar year, during a different quarter of the year from the previous years, the permittee shall split a 24-hour composite effluent sample and concurrently conduct three toxicity tests using a fish, an invertebrate, and an alga species (see below for specific species information).

Chronic toxicity test samples shall be collected for each point of discharge at the designated NPDES sampling station for the effluent (i.e., downstream from the last treatment process and any in-plant return flows where a representative effluent sample can be obtained). During years ***1, 2, 3, 4, and 5*** of the permit, a split of each sample shall be analyzed for all other monitored parameters at the minimum frequency of analysis specified by the effluent monitoring program.

b. Species and EPA WET Test Methods. Species and short-term EPA WET test methods for estimating chronic toxicity are found in "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms," EPA/600/R-95/136, August 1995. The permittee shall conduct the following chronic toxicity tests:

• Red abalone (*Haliotis rufescens*) larval development test

• Giant kelp, *Macrocystis pyrifera,* germination and germ-tube length tests

• Topsmelt, *Atherinops affinis,* larval survival and growth tests

c. Chronic WET Permit Triggers and Effluent Limits

Table 4 - Chronic WET Permit Triggers and Effluent Limits

Platform	Red abalone	Giant kelp	Topsmelt
A	permit trigger	permit trigger	effluent limit
B	permit trigger	permit trigger	effluent limit
Edith	permit trigger	effluent limit	effluent limit
Elly	permit trigger	permit trigger	permit trigger
Gail	permit trigger	permit trigger	permit trigger
Gilda	permit trigger	permit trigger	permit trigger
Gina	permit trigger	permit trigger	effluent limit
Habitat	permit trigger	effluent limit	effluent limit
Harmony	permit trigger	permit trigger	permit trigger
Harvest	permit trigger	permit trigger	effluent limit
Hermosa	permit trigger	permit trigger	effluent limit
Hidalgo	permit trigger	effluent limit	permit trigger
Hillhouse	permit trigger	effluent limit	effluent limit
Hogan	permit trigger	effluent limit	effluent limit

The chronic WET permit trigger or effluent limit is any one WET test (either biological endpoint of survival or sublethal) where a test result is *Fail* (during the reporting period) at the chronic in-stream waste concentration (IWC). For this discharge, the IWC is the percent effluent subsequent to dilution in the mixing zone as determined in Appendix A of the permit.

To calculate either a Pass or Fail of the multiple-effluent concentration chronic toxicity test at the IWC, follow the instructions in Appendix A in the *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA/833-R-10-003). A Pass result indicates no toxicity at the IWC, and a Fail result indicates toxicity at the IWC. The permittee shall report either a Pass or a Fail on the DMR form. If a result is reported as Fail, the permittee shall follow Part II.B.2.g (Reporting of Chronic Toxicity Monitoring Results) of this permit.

d. Quality Assurance.

1) Quality assurance measures, instructions, and other recommendations and requirements are in the EPA WET test methods referenced above.

2) This permit is subject to a determination of Pass or Fail from a multiple-effluent concentration chronic toxicity test at the IWC (for statistical flowchart and procedures, see *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document*, Appendix A, Figure A-1).

3) Control and dilution water will be standard laboratory water. If organisms are cultured in-house and the dilution water used is different from culture water, a second control, using culture water shall also be used.

4) If organisms are not cultured in-house, then concurrent testing with a reference toxicant shall be conducted. If organisms are cultured in-house, then monthly reference toxicant testing is sufficient. Reference toxicant tests and effluent toxicity tests shall be conducted using the same test conditions (e.g., same test duration).

5) If either the reference toxicant or effluent toxicity tests do not meet all test acceptability criteria in the EPA WET test methods manual, then the permittee shall resample and retest within 14 days.

6) Following Paragraph 10.2.6.2 of the freshwater EPA WET test methods manual, all chronic toxicity test results from the multi-concentration tests required by this permit shall be reviewed and reported according to EPA guidance on the evaluation of concentration-response relationships in *Method Guidance and Recommendations for Whole Effluent Toxicity (WET) Testing (40 CFR Part 136)* (EPA/821/B-00-004, 2000).

7) One initial composite sample may be used for all renewals for the chronic seven day topsmelt larval growth and survival test, only if safety or unexpected process shut down does not allow for multiple sample renewals. The Permittee shall attempt to collect the three sample renewals.

8) If the discharged effluent is chlorinated, then chlorine shall not be removed from the effluent sample before toxicity testing without written approval by the permitting authority.

e. Initial Investigation TRE Work Plan

Within 90 days of the permit effective date, the permittee shall prepare and submit to the U.S. EPA Director a copy of its Initial Investigation Toxicity Reduction Evaluation (TRE) Work Plan (1–2 pages) for review. This plan shall contain steps the permittee intends to follow if toxicity is measured above a chronic WET permit limit or trigger and should include the following, at minimum:

1) A description of the investigation and evaluation techniques that would be used to identify potential causes and sources of toxicity, effluent variability, and treatment system efficiency.

2) A description of methods for maximizing in-house treatment system efficiency, good housekeeping practices, and a list of all chemicals used in operations at the facility.

3) If a Toxicity Identification Evaluation (TIE) is necessary, an indication of who would conduct the TIEs (i.e., an in-house expert or outside contractor).

f. Accelerated Toxicity Testing and TRE/TIE Process

1) If a chronic WET permit limit or trigger is exceeded and the source of toxicity is known (e.g., a temporary plant upset), then the permittee shall conduct one additional toxicity test using the same species and EPA WET test method. This WET test shall begin within 14 days of receipt of WET test results exceeding a chronic WET permit limit or trigger. If the additional toxicity test does not exceed a chronic WET permit limit or trigger, then the permittee may return to their regular testing frequency.

2) If a chronic WET permit limit or trigger is exceeded and the source of toxicity is not known, then the permittee shall conduct six additional toxicity tests using the same species and EPA WET test method, approximately every two weeks, over a 12 week period. This testing shall begin within 14 days of receipt of WET test results exceeding a chronic WET permit limit or trigger. If none of the additional toxicity tests exceed a chronic WET permit limit or trigger, then the permittee may return to their regular testing frequency.

3) If one of the additional toxicity tests (in paragraphs f.1 or f.2 above) exceeds a chronic WET permit limit or trigger, then, within 14 days of receipt of this WET test result, the permittee shall initiate a TRE using as guidance, the EPA TRE manual, *Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations* (EPA/600/2-88/070, 1989). In conjunction, the permittee shall develop and implement a Detailed TRE Work Plan which shall contain the following: further actions undertaken by the permittee to investigate, identify, and correct the causes of toxicity; actions the permittee will take to mitigate the effects of the discharge and prevent the recurrence of toxicity; and a schedule for such actions.

4) The permittee may initiate a TIE as part of a TRE to identify the causes of toxicity using the same species and EPA WET test method and, as guidance, EPA WET TIE/TRE method manuals: *Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I* (EPA/600/6-91/005F, 1992); *Methods for Aquatic Toxicity Identification Evaluations, Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity* (EPA/600/R-92/080, 1993); *Methods for Aquatic Toxicity Identification Evaluations, Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity* (EPA/600/R-92/081, 1993).

g. Reporting of Chronic Toxicity Monitoring Results

1). The permittee shall submit a full laboratory report as an attachment to the DMR for all toxicity testing for the month in which the toxicity test was conducted; the laboratory report shall contain the following: the toxicity test results, the dates of sample collection and initiation of each toxicity test; all results for effluent parameters monitored concurrently with the toxicity test(s); and progress reports on TIE/TRE investigations.

2) The permittee shall provide the actual test endpoint responses for the control (i.e., control mean) and IWC concentration (i.e., IWC mean) for each WET test conducted to make it easier for permit writers to find the necessary WET test results when determining WET RP.

3) The permittee shall notify the U.S. EPA Region 9 Director in writing within 14 days of exceedance of a chronic WET permit limit or trigger. The notification shall describe actions the permittee has taken or will take to investigate, identify, and correct the causes of toxicity; the status of actions required by this permit; and schedule for actions not yet completed; or reason(s) that no action has been taken.

h. Reopener. In accordance with 40 CFR Parts 122 and 124, this permit may be modified to include effluent limitations or permit conditions to address chronic toxicity in the effluent or receiving waterbody, as a result of the discharge; or to implement new, revised, or newly interpreted water quality standards applicable to chronic toxicity.

3. Commingled Waste Streams. If workover, completion, well treatment or test fluids are mixed with produced water, then all of the effluent limitations and monitoring requirements applied to produced water shall apply and supersede limits for the separate waste streams. Likewise, if deck drainage is commingled with produced water, then all of the effluent limitations and requirements applied to produced water shall apply (Part II.B) and supersede limits for the separate discharge of deck drainage. If other authorized discharges are mixed with produced water, then all of the effluent limitations and monitoring requirements applied to produced water shall apply and supersede limits for the separate waste streams. If deck drainage, work over, completion, well treatment or test fluids or other authorized discharges are commingled with produced water, "commingled" shall be reported on the DMRs for both produced water and the waste stream mixed with it.

4. Table 5 - Maximum Annual Allowable Produced Water Discharges

Facility	Maximum Annual Allowable Produced Water Discharged, bbls
A	13,140,000
B	16,425,000
C	13,140,000
Edith	3,285,000
Elly	10,950,000
Eureka	Included with Elly
Gail	4,380,000
Gilda/Gina	25,500,000
Grace	2,190,000

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Habitat	1,642,500
Harmony, Heritage, Hondo	33,762,500[note 1]
Harvest	32,850,000
Henry	6,570,000
Hermosa	40,250,000
Hidalgo	18,250,000
Hillhouse	7,300,000
Hogan	13,900,000
Houchin	13,900,000
Irene	55,845,000

Notes:

1. Any produced water volumes discharged from Hondo and Heritage platforms shall reduce the volume discharge at Harmony platform by an equal amount. Currently all produced water from Hondo and Heritage platforms is discharged at Platform Harmony as part of the Santa Ynez Unit operations.

5. Effluent Limitations.

a. Effluent Limitations and Monitoring Requirements. The discharge of produced water shall comply with the following effluent limitations and monitoring requirements.

Table 6 -Produced Water Effluent Limitations and Monitoring Requirements

Effluent Characteristic	**Discharge Limitation**	**Measurement Frequency**	**Sample Type/Method**	**Reported Values**
Flow rate (BWD)	--N/A-	Daily	Estimate	Monthly average
Oil and Grease	29 mg/l monthly avg. 42 mg/l daily max.	Weekly Weekly	Grab/Composite Grab/Composite	The average of daily values for 30 consecutive days; the maximum for any one day.

b. Test Method for Oil and Grease. The test method for oil and grease is EPA Method 1664.

The term *maximum for any one day* as applied to BPT, BCT and BAT effluent limitations for oil and grease in produced water shall mean the maximum concentration allowed as measured by the average of four grab samples collected over a 24-hour period that are analysed separately. Alternatively, one grab sample may be taken instead of four samples. If only one grab sample is taken for any one week, it must meet the maximum for any one day limit. If four samples are taken for oil and grease over a 24-hour period, the maximum value for reporting purposes under Part III.A.2.a.i. of the permit is the average of the four samples rather than the maximum of the four samples. EPA may reopen and modify this permit to require four samples of oil and grease in produced water taken at equally spaced intervals over a 24-hour period.

6. Monitoring Requirements. Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures are specified here or elsewhere in this permit. Samples for monitoring produced water toxicity and specific chemicals other than oil and grease shall be collected after addition of any added substances, including seawater, that are added prior to discharge, and before the flow is split for multiple ports.

7. Flow Rate with Flow Augmentation. When seawater or other flow augmentation is added to the produced water prior to discharge, the total produced water flow, including the added materials, shall be used in determining the dilution.

C. Well Treatment, Completion and Workover Fluids (Discharges 003)

1. Effluent Limitations. The discharge of well treatment, completion and workover fluids shall comply with the following effluent limitations and monitoring requirements.

Table 7 - Effluent Limitations and Monitoring Requirements

Waste Type	Effluent Characteristic	Discharge Limitation	Measurement Frequency	Sample Type/Methods	Reported Values
All	Number of Jobs	--N/A--	Once/job[1]	Count	Type & total number of jobs
	Discharge volume (Bbls)	--N/A--	Once/job	Estimate	Discharge Volume per Job
	Free Oil	No discharge	Once/discharge	Grab/Static Sheen test	Number of times sheen observed

	Oil and grease	42 mg/l max daily 29 mg/l monthly avg.	Once/job	Grab	Max for any one day and the average of daily values for 30 consecutive days

[1] The type of job where discharge occurs (i.e., completion, workover, treatment, or any combination) shall be reported.

2. Commingled Waste streams. If work over, completion, or well treatment fluids are commingled with produced water, then effluent limitations and monitoring requirements for work over, completion, and well treatment fluids do not apply. Effluent limitations and monitoring requirements for produced water apply.

D. Deck Drainage (Discharges 004)

1. Effluent Limitations. The Permittee shall comply with the following effluent limitations and monitoring requirements.

Table 8 - Effluent Limitations and Monitoring Requirements

Effluent Characteristic	Discharge Limitation	Measurement Frequency	Sample Type/Method	Reported Values
Flow rate (bbl/d)	--N/A--	Monthly	Estimate	Monthly Avg.
Free Oil	No Discharge	Daily, during discharge	Visual/Sheen on receiving water	Number of days sheen observed

2. Commingled Waste streams. If deck drainage is commingled with produced water, then effluent limitations and monitoring requirements for deck drainage do not apply. Effluent limitations and monitoring requirements for produced water apply.

E. Domestic and Sanitary Wastes (Discharges 005)

1. Effluent Limitations. The Permittee shall comply with the following effluent limitations and monitoring requirements.

Table 9 - Effluent Limitations and Monitoring Requirements

Waste Type	Effluent Characteristic	Discharge Limitation	Measurement Frequency	Sample Type/Method	Reported Values

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Sanitary	Flow Rate (bbl/d)	--N/A--	Monthly	Estimate	Monthly Average
Domestic	Flow Rate (bbl/d)	--N/A--	Monthly	Estimate	Monthly Average
Sanitary[1,2] (Facilities continuously manned by nine (9) or fewer persons or only inter-mittently manned by any number of persons)	Floating Solids[1]	No discharge	Daily	Observation[3]	Number of days solids observed
Sanitary[1,2] (Facilities continuously manned by ten (10) or more persons)	Total Residual Chlorine (TRC)	Minimum of 1 mg/l and main-tain ed as close to this concentra-tion as possible; maximum concentra-tion is 10 mg/l.	Monthly	Grab	Concentration in mg/l
Domestic[4]	Foam or Floating Solids	No Discharge	Daily	Observation[3]	Number of days foam or floating solids observed

[1] In cases where sanitary and domestic wastes are mixed prior to discharge, and sampling of the sanitary waste component stream is infeasible, the discharge may be sampled after mixing. In such cases, the discharge limitations for sanitary wastes shall apply to the mixed waste stream.

[2] Any facility which properly operates and maintains a marine sanitation device ("MSD") that was certified by the United States Coast Guard ("USCG") under Section 312 of the Act shall be deemed to be in compliance with permit limitations for sanitary wastes and the requirements for total residual chlorine do not apply. The MSD shall be inspected yearly for proper operations, and inspection results maintained with the permit records.

[3] Monitoring by visual observation of the surface of the receiving water in the vicinity of the outfall(s) shall be conducted during daylight hours.

[4] The discharge of food waste is prohibited within 12 nautical miles from the nearest land. Comminuted food waste able to pass through a 25 mm mesh screen may be discharged more than 12 miles from the nearest land.

F. Miscellaneous Discharges (Discharges 006-022)

1. Effluent Limitations. The discharge of blowout preventer fluid (006); desalination unit discharges (007); fire control system water (008): noncontact cooling water (009); ballast and storage displacement water (010); bilge water (011); boiler blowdown (012); test fluids (013); diatomaceous earth filter media (014); bulk transfer material overflow (015); uncontaminated water (016); water flooding discharges (017); laboratory wastes (018); excess cement slurry (019); muds, cuttings & cement at sea floor (020); hydrotest water (021); and H_2S gas processing waste water (022) shall comply with the following effluent limitations and monitoring requirements.

Table 10 - Effluent Limitations and Monitoring Requirements

Waste Type	Effluent Characteristic	Discharge Limitation	Measurement Frequency	Sample Type/Method	Reported Values
Noncontact Cooling Water, Ballast and Storage Displacement Water, Bilge Water, Test Fluids, Excess Cement Slurry, Hydrotest Water, H_2S Gas Processing Waste Water	Flow Rate (bbl/d)	--N/A--	Monthly	Estimate	Monthly Average
Blowout Preventer, Excess Cement	Free Oil	No discharge	Once/discharge for discharges lasting < 24	Visual sheen on receiving	Number of days sheen

Slurry, Water flooding, Muds, Cuttings & Cement at Sea floor, Ballast and Storage Displacement Water, Bilge Water, Test Fluids, Diatomaceous Earth Filter media, Laboratory Wastes, Hydrotest Water, H_2S Gas Processing Waste Water			hours Once/24 hours for discharges lasting >24 hours	water	observed
Hydrotest Water, Fire Control System Test Water, Non-contact Cooling Waters, Test Fluids, Water Flooding Discharges	Chemical Inventory	--N/A--	Monthly	See Part II.F.3	–N/A--
Fire Control System Test Water, Noncontact Cooling Water, Hydrotest Water	Chlorine	Monitor only. See II.F.4 below.		Grab	ug/l
Discharges 006-022	Floating Solids and Foam	No Discharge	Once/Day	Visual Observation During Daylight Hours	Number of Days Floating Solids or Foam

					Observed

2. Ballast and Storage Displacement Water (010) and Bilge Water (011). Ballast and storage displacement water and bilge water shall be processed through an oil-water separator prior to discharge.

3. Chemical Inventory. The Permittee shall maintain an inventory of the quantities and application rates (concentration) of chemicals (other than fresh or seawater) added to listed discharges. The inventory shall be submitted with the DMR.

4. Chlorine Reasonable Potential Monitoring. Permittees not listed in Appendix C that initiate the addition of chlorine to a wastestream shall monitor for chlorine at end-of-pipe and follow the procedures of Appendix D in conducting an analysis of the reasonable potential of the discharges to cause or contribute to exceedances of applicable marine water quality criteria. For reasonable potential determinations, water quality criteria for chlorine in seawater are 7.5 ug/l (criteria continuous concentration) and 13 ug/l (criteria maximum concentration).

G. Other Discharge Conditions and Limitations

1. Surfactants, Dispersants, and Detergents. The discharge of surfactants, dispersants, and detergents shall be minimized except as necessary to comply with the safety requirements of the Occupational Health and Safety Administration and BSEE. The discharge of dispersants to marine waters in response to oil or other hazardous spills is not authorized by this permit.

2. Other Toxic and Non-conventional Compounds. There shall be no discharge of diesel oil, halogenated phenol compounds, or chrome lignosulfonate.

3. Produced Sands. There shall be no discharge of produced sands.

4. Tracer Materials. Radioactive tracer concentration above the background in the parent, discharged waste stream shall be limited as given in 10 CFR 20 Appendix B, Table II, Column 2, Effluent Concentrations, Water.

5. Reopener Clause.

a. This permit shall be modified, or alternatively, revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) of the Act, as amended, if the effluent standard, limitation or requirement so issued or approved:

1) Contains different conditions or is otherwise more stringent than any condition in the permit; or

2) Controls any pollutant or disposal method not addressed in the permit.

The permit as modified or reissued under this paragraph shall also contain any other requirements of the Act then applicable.

6. On-Line Oil and Grease Monitors.

For all permittees that may discharge produced water, within one year of the effective date of this permit, the permittee shall do either of the following:

a. Install on-line monitoring equipment along with operating procedures ensuring that the operator is provided with rapid information (real-time or with a brief lag time such as one hour) concerning potential noncompliance with the effluent limits in this permit for oil and grease in produced water, or

b. Provide information to Region 9 demonstrating that the operator has already installed monitoring equipment along with operating procedures meeting the above objective in 6.a.

7. Garbage

The discharge of "garbage" (as defined in Part V) is prohibited. Exception: comminuted food waste (able to pass through a 25 mm mesh screen) may be discharged when 12 nautical miles or more from the nearest land.

8. Cooling Water Intake Structure (CWIS) Requirements

Within one year of the effective date of this permit, each permittee operating a production or development facility covered by this permit with a cooling water discharge shall submit a report with the information described below. (Alternatively, permittees may jointly submit the information; joint submittals shall constitute compliance for those permittees who participate in submitting the information jointly.)

a. description of current CWIS and existing measures to minimize entrainment/impingement;

b. assessment of the environmental impacts from entrainment/impingement given current practices; and

c. practicality of additional measures to reduce environmental impacts from entrainment/impingement.

This permit may be reopened and modified to include additional effluent limits or monitoring requirements depending on the information in the report described above.

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III. MONITORING, RECORDING AND REPORTING REQUIREMENTS

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A. Monitoring Procedures (40 CFR Part 122.41(j)(4)). Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in the permit.

1. Additional Monitoring Requirements. For effluent monitoring, the Permittee shall utilize an EPA-approved test procedure with a minimum level ("ML") which is lower than the effluent limitations. The Permittee must utilize a standard calibration where the lowest standard point is equal to or less than the concentration of the minimum level, ("ML"). In accordance with 40 CFR 122.45(c), effluent analyses for metals shall measure "total recoverable metal."

2. Additional Reporting Requirements. The permittee shall report the analytical results on Discharge Monitoring Report (DMR) forms (EPA Form 3320-1).

a. Report for maximum daily effluent limitation (or if no limitation applies but samples are collected during the monthly reporting period):

   i. The maximum value of all analytical results, if the maximum value is greater than the ML; or

   ii. No discharge/no data (not quantifiable) (NODI (Q)), if the maximum value of all analytical results is greater than or equal to the laboratory's MDL, but less than the ML; or

   iii. NODI (B) (below detection level)), if the maximum value of all analytical results is less than the laboratory's MDL.

b. Report for average monthly effluent limitation (or if no limitation applies but samples are collected during the monthly reporting period):

   i. As directed for maximum daily effluent limitation, if only one sample is collected during the monthly reporting period; or

   ii. The average value of all analytical results where 0 (zero) is substituted for NODI (B) and the laboratory's MDL is substituted for NODI (Q), if more than one sample is collected during the monthly reporting period.

c. Report as an attachment to the DMR form for each value reported under paragraphs 2.a and 2.b:

   1. The number or title of the approved analytical method, preparation procedure utilized by the laboratory, and MDL or ML of the analytical method for the pollutant available under 40 CFR 136;

   2. The laboratory's MDL for the analytical method computed in accordance with Appendix B of 40 CFR 136, the standard deviation (S) from the laboratory's

MDL study, and the number of replicate analyses (*n*) used to compute the laboratory's MDL; and

3. The lowest calibration standard (i.e., the ML, or lower value).

B. Representative Sampling (40 CFR Part 122.41(j)(1)). Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

C. Reporting Monitoring Results (40 CFR 122.41). The Permittee shall summarize monitoring results each month on the DMR form (EPA No. 3320-1)(40 CFR Part 122.41(l)(4)). The Permittee shall submit reports quarterly, postmarked by the 28th day of the month following each quarter, as scheduled below. The Permittee shall sign and certify all DMRs and all other reports, in accordance with the requirements of Part IV.(k) of this permit ("Signatory Requirements").

Quarterly DMR Reporting Periods	Facilities
Jan-Mar, Apr-Jun, Jul-Sep, Oct-Dec	A, B, C, Harvest, Ellen, Elly, Eureka, Harmony
Feb-Apr, May-Jul, Aug-Oct, Nov-Jan	Henry, Hillhouse, Habitat, Irene, Hermosa, Grace, Heritage
Mar-May, Jun-Aug, Sep-Nov, Dec-Feb	Edith, Gilda, Gina, Hidalgo, Gail, Hogan, Hondo, Houchin

D. Additional Monitoring by Permittee (40 CFR Part 122.41(l)(4)(ii)). If the permittee monitors any pollutant more frequently than required by this permit, using test procedures approved under 40 CFR Part 136 or as specified in this permit, the permittee shall include the results of this monitoring in the calculation and reporting of the data submitted in the DMR.

E. Records Contents (40 CFR 122.41(j)(3)). All records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements;

2. The individual(s) who performed the sampling or measurements;

3. The date(s) analyses were performed;

4. The individual(s) who performed the analyses;

5. The analytical techniques or methods used; and

6. The results of such analyzes.

F. Retention of Records (40 CFR 122.41(j)(2)) The permittee shall retain records of all monitoring information, including, all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this

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permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report or application. This period may be extended by request of the Director at any time. Records retained by the permittee in accordance with this requirement shall be maintained at the offshore facility.

IV. STANDARD CONDITIONS

(a) *Duty to comply (40 CFR Part 122.41(a)).* The Permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

(1) The permittee shall comply with effluent standards or prohibitions established under section 307(a) of the Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if the permit has not yet been modified to incorporate the requirement.

(2) The Clean Water Act provides that any person who violates section 301, 302, 306, 307, 308, 318, or 405 of the Act, or any permit condition or limitation implementing any such sections in a permit issued under section 402, or any requirement imposed in a pretreatment program approved under section 402(a)(3) or 402(b)(8) of the Act, is subject to a civil penalty not to exceed $25,000 per day for each violation. The Clean Water Act provides that any person who *negligently* violates sections 301, 302, 306, 307, 308, 318, or 405 of the Act, or any condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, or any requirement imposed in a pretreatment program approved under section 402(a)(3) or 402(b)(8) of the Act is subject to criminal penalties of $2,500 to $25,000 per day of violation, or imprisonment of not more than 1 year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than $50,000 per day of violation, or by imprisonment of not more than 2 years, or both. Any person who *knowingly* violates such sections, or such conditions or limitations is subject to criminal penalties of $5,000 to $50,000 per day of violation, or imprisonment for not more than 3 years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than $100,000 per day of violations, or imprisonment of not more than 6 years, or both. Any person who knowingly violates section 301, 302, 303, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction be subject to a fine of not more than $250,000 or imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing endangerment violation, a person shall be subject to a fine or not more than $500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in section 309(c)(3)(B)(iii) of the CWA, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than $1,000,000 and can be fined up to $2,000,000 for second or subsequent convictions.

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(3) Any person may be assessed an administrative penalty by the Administrator for violating section 301, 302, 306, 307, 308, 318, or 405 of this Act, or any permit condition or limitation implementing any such sections in a permit issued under section 402 of this Act. Administrative penalties for Class I violations are not to exceed $10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed $27,500. Penalties for Class II violations are not to exceed $10,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed $137,500.

(b) *Duty to reapply (40 CFR Part 122.41(b)).* If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit.

(c) *Need to halt or reduce activity not a defense (40 CFR Part 122.41(c)).* It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

(d) *Duty to mitigate (40 CFR Part 122.41(d)).* The Permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

(e) *Proper operation and maintenance (40 CFR Part 122.41(e)).* The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

(f) *Permit actions (40 CFR Part 122.41(f)).* This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a modification of planned change or anticipated noncompliance does not stay any permit condition.

(g) *Property rights (40 CFR Part 122.41(g)).* This permit does not convey any property rights of any sort, or any exclusive privilege.

(h) *Duty to provide information (40 CFR Part 122.41(h)).* The permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The permittee shall also furnish to the director upon request, copies of records required to be kept by this permit.

(i) *Inspection and entry(40 CFR Part 122.41(i)).* The permittee shall allow the Director, or an authorized representative (including an authorized contractor acting as a representative of the

Administrator), upon presentation of credentials and other documents as may be required by law, to:

(1) Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

(2) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

(3) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

(4) Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act, any substances or parameters at any location.

(j) *Monitoring and records (40 CFR Part 122.41(j)).* (See Section III above)

The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment of not more than 4 years, or both. (40 CFR Part 122.41(j)(5))

(k) *Signatory requirement (40 CFR Part 122.41(k)).*

(1) All applications, reports, or information submitted to the Director shall be signed and certified. (See 40 CFR Part 122.22)

(2) The CWA provides that any person who knowingly makes any false statement, representation, or certification in any record or other documents submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both.

(l) Reporting requirements (40 CFR Part 122.41(l)).

(1) *Planned changes.* The permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:

(i) The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR Part 122.29(b); or

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(ii) The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under 40 CFR Part 122.42(a)(1).

(iii) The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan;

(2) *Anticipated noncompliance.* The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

(3) *Transfers.* This permit is not transferable to any person except after notice to the Director. The Director may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the Clean Water Act. (See 40 CFR Part 122.61; in some cases, modification or revocation and reissuance is mandatory.)

(4) *Monitoring reports.* (See Section III above) Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified by the Director in the permit. (40 CFR Part 122.41(l)(4)(iii))

(5) *Compliance schedules.* Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date. (40 CFR Part 122.41(l)(5))

(6) *Twenty-four hour reporting.* (40 CFR Part 122.41(l)(6))

(i) The Permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee became aware of the circumstances. Twenty-four hour reporting may be made at 415-744-2000. A written submission shall be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its causes; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

(ii) The following shall be included as information which must be reported within 24 hours under this paragraph.

(A) Any unanticipated bypass which exceeds any effluent limitation in the permit (See §122.41(g)).

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(B) Any upset which exceeds any effluent limitation in the permit.

(C) Violation of a maximum daily discharge limitation for any of the pollutants listed by the Director in the permit to be reported within 24-hours. (See 40 CFR Part 122.44(g)).

(iii) The Director may waive the written report on a case-by-case basis for reports under 40 CFR Part 122.41(l)(6)(ii) if the oral report has been received within 24 hours.

(7) *Other noncompliance.* The permittee shall report all instances of noncompliance, not reported under 40 CFR Part 122.41(l)(4), (5), and (6), at the time monitoring reports are submitted. The report shall contain the information in 40 CFR Part 122.41(l)(6).

(8) *Other information.* Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Director, it shall promptly submit such facts or information.

(m) *Bypass (40 CFR Part 122.41(m)).*

(1) Definitions.

(i) *Bypass* means the intentional diversion of waste streams from any portion of a treatment facility.

(ii) *Severe property damage* means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

(2) *Bypass not exceeding limitations.* The Permittee may allow any bypass to occur that does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of 40 CFR Part 122.41(m)(3) and (m)(4).

(3) *Notice.*

(i) *Anticipated bypass.* If the Permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least 10 days before the date of the bypass.

(ii) *Unanticipated bypass.* The permittee shall submit notice of an unanticipated bypass as required in 40 CFR Part 122.41(l)(6) (24-hour notice).

(4) *Prohibition of bypass.*

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(i) Bypass is prohibited, and the Director may take enforcement action against the permittee for a bypass, unless:

(A) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

(B) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and

(C) The Permittee submitted notices as required under 40 CFR Part 122.41(m)(3).

(ii) The Director may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed above in 40 CFR Part 122.41(m)(4)(i).

(n) *Upset (40 CFR Part 122.41(n)).*

(1) *Definition.* *Upset* means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

(2) *Effect of an upset.* An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of paragraph (n)(3) of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

(3) *Conditions necessary for demonstration of an upset.* A permittee who wishes to establish the affirmative defense of upset shall demonstrate through properly signed, contemporaneous operating logs, or other relevant evidence that:

(i) An upset occurred and that the Permittee can identify the cause(s) of the upset;

(ii) The permitted facility was at the time being properly operated; and

(iii) The permittee submitted notice of the upset as required in 40 CFR Part 122.41 (l)(6)(ii)(B) (24-hour notice).

(iv) The permittee complied with any remedial measures required under 40 CFR Part 122.41(d).

(4) *Burden of proof.* In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.

V. DEFINITIONS

"Acute-to-chronic ratio" (ACR) is the ratio of the acute toxicity of an effluent or a toxicant to its chronic toxicity. It is used as a factor for estimating chronic toxicity on the basis of acute toxicity data, or for estimating acute toxicity on the basis of chronic toxicity data.

"Acute toxic unit (TU_a)" is a measure of acute toxicity. The number of acute toxic units in the effluent is calculated as 100/LC50, where the LC50 is measured in percent effluent.

"Average of daily values for 30 consecutive days" shall be the average of the daily values obtained during any 30 consecutive day period. (40 CFR Part 435.11)

"Average monthly discharge limitation" means the highest allowable average of "daily discharges" over a calendar month, calculated as the sum of all "daily discharges" measured during a calendar month divided by the number of "daily discharges" measured during that month.

"Average quarterly flow" means the average of the "monthly average" wastewater flows as reported on the previous quarter's DMR, based only on those months in which discharges occurred.

"Bbl/d" means barrels per day. One barrel equals 42 United States gallons at 60 degrees Fahrenheit.

"Chronic toxic unit" (TU_c) is the reciprocal of the effluent concentration that causes no observable effect on the test organisms by the end of the chronic exposure period (e.g., 100/NOEC).

"Chronic toxicity" is defined as a long-term test in which sublethal effects (e.g., reduced growth or reproduction) are usually measured in addition to lethality. Chronic toxicity is defined as TUc = 100/NOEC or TUc = 100/EC or IC. The IC and EC value should be the approximate equivalent of the NOEC calculated by hypothesis testing for each test method.

"Coefficient of variation" (CV) is a standard statistical measure of the relative variation of a distribution of set of data, defined as the standard deviation divided by the mean.

"Composite sample" means a collection of individual samples obtained at regular intervals, usually based upon time or flow volume. (Permit Writers Guide) The compositing period should be appropriate to ensure representative sampling of the discharge.

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"Cooling water intake structure" means the total physical structure and any associated constructed waterways used to withdraw cooling water from waters of the United States. The cooling water intake structure extends from the point at which water is withdrawn from the surface water source up to, and including, but not limited to, the intake pumps.

"Daily discharge" means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

"Daily values" as applied to produced water effluent limitations shall refer to the daily measurements used to assess compliance with the maximum for any one day. (40 CFR Part 435.11)

"Deck drainage" shall refer to any waste resulting from deck washings, spillage, rainwater, and runoff from gutters and drains including drip pans and work areas within facilities subject to this subpart. Within the definition of deck drainage for the purpose of this subpart, the term rainwater for those facilities located on land is limited to that precipitation runoff that reasonably has the potential to come into contact with process wastewater. Runoff not included in the deck drainage definition would be subject to control as storm water under 40 CFR Part 122.26. For structures located over water, all runoff is included in the deck drainage definition. (40 CFR Part 435.11)

"Development facility" shall mean any fixed or mobile structure subject to this subpart that is engaged in the drilling of productive wells. (40 CFR Part 435.11)

"Diesel oil" shall refer to the grade of distillate fuel, as specified in the American Society for Testing and Materials Standard Specifications D975-81, that is typically used as the continuous phase in conventional oil-based drilling fluids. (40 CFR Part 435.11)

"Dilution ratio, D_m" is the value calculated in accordance with Appendix A - dilution expressed in parts seawater per part wastewater.

"Director" means the Director, Water Division of EPA, Region 9.

"Domestic wastes" shall refer to materials discharged from, sinks, showers, laundries, safety showers, eye-wash stations, hand-wash stations, fish-cleaning stations, and galleys located within facilities subject to this subpart. (40 CFR Part 435.11)

"Drill cuttings" shall refer to the particles generated by drilling into subsurface geologic formations and carried to the surface with the drilling fluid. (40 CFR 435.11)

"Drilling fluid" means the circulating fluid (mud) used in the rotary drilling of wells to clean and condition the hole and to counterbalance formation pressure. A water-based drilling fluid is the conventional drilling mud in which water is the continuous phase and the suspended medium for solids, whether or not oil is present. An oil based drilling fluid has diesel oil, mineral oil, or some other oil as its continuous phase with water as the dispersed phase.

"Effect concentration" (EC) is a point estimate of the toxicant concentration that would cause an observable adverse effect (such as death, immobilization, or serious incapacitation) in a given percentage of the test organisms.

"Entrainment" means the incorporation of all life stages of fish and shellfish with intake water flow entering and passing through a cooling water intake structure and into a cooling water system.

"Excess Cement Slurry" means excess mixed cement, including additives and wastes from equipment washdown after a cementing operation.

"Exploratory facility" shall mean any fixed or mobile structure subject to this subpart that is engaged in the drilling of wells to determine the nature of potential hydrocarbon reservoirs. (40 CFR Part 435.11)

"Garbage" means all kinds of food wastes, wastes generated in living areas on the facility, and operational waste, excluding fresh fish and parts thereof, generated during the normal operation of the facility and liable to be disposed of continuously or periodically, except dishwater, graywater, and those substances that are defined or listed in other Annexes to MARPOL 73/78.

"Grab" sample is a single sample collected at a particular time and place that represents the composition of the wastestream only at that time and place.

"Graywater" means drainage from dishwater, shower, laundry, bath, and washbasin drains and does not include drainage from toilets, urinals, hospitals, and cargo spaces.

"Impingement" means the entrapment of all life stages of fish and shellfish on the outer part of an intake structure or against a screening device during periods of intake water withdrawal.

"Inhibition concentration" (IC) is a point estimate of the toxicant concentration that would cause a given percent reduction in a non-quantal biological measurement (e.g., reproduction or growth) calculated from a continuous model (e.g., USEPA Interpolation Method).

"LC_{50}" means the concentration of effluent that is acutely toxic to 50 percent of the test organisms exposed.

"Lowest observed effect concentration" (LOEC) is the lowest concentration of toxicant to which organisms are exposed in a test, which causes adverse effects on the test organisms (i.e., where the values for the observed endpoints are statistically significant different from the control).

"Maintenance waste" means materials collected while maintaining and operating the facility, including, but not limited to, soot, machinery deposits, scraped painted, deck sweepings, wiping wastes, and rags.

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"Maximum" as applied to BAT effluent limitations for drilling fluids and drill cuttings means the maximum concentration allowed as measured in any single sample of the barite for determination of cadmium and mercury content (40 CFR 435.11).

"Maximum daily discharge limitation" means the highest allowable "daily discharge."

"Method detection limit (MDL)" means the minimum concentration of an analyte that can be detected with 99% confidence that the analyte concentration is greater than zero as determined by a specific laboratory method listed in 40 CFR Part 136. The procedure for determination of a laboratory MDL is in 40 CFR Part 136, Appendix B.

"Minimum" as applied to BAT effluent limitations for drilling fluids and drill cuttings shall mean the minimum 96-hour LC50 value allowed as measured in any single sample of the discharged waste stream. The term minimum as applied to BPT and BCT effluent limitations and NSPS for sanitary wastes shall mean the minimum concentration value allowed as measured in any single sample of the discharged waste stream. (40 CFR 435.11)

"Minimum dilution limit" means the lowest dilution ratio for the wastestream to avoid reasonable potential to exceed water quality criteria set forth in Appendix D of this permit.

"Minimum level" (ML) is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all of the method-specified sample weights, volumes, and processing steps have been followed (as defined in EPA's draft National Guidance for the Permitting, Monitoring, and Enforcement of Water Quality-Based Effluent Limitations Set Below Analytical Detection/Quantitative Levels, March 22, 1994). Promulgated method-specified MLs are contained in 40 CFR Part 136, Appendix A and must be utilized if available. If a promulgated method-specific ML is not available, then an interim ML shall be calculated. The interim ML is equal to 3.18 times the promulgated method-specific MDL rounded to the nearest multiple of 1, 2, 5, 10, 50 etc.

"Minimum significant difference" (MSD) is the magnitude of difference from control where the null hypothesis is rejected in a statistical test comparing a treatment with a control. MSD is based on the number of replicates, control performance and power of the test.

"Mixing zone" means the zone extending from the sea's surface to seabed and extending laterally to a distance of 100 meters in all directions from the discharge point or to the boundary of the zone of initial dilution as calculated by a plume model or other method approved by the Regional Administrator, whichever is larger (40 CFR 125.121(c)).

"mg/kg" means milligrams per kilogram.

"mg/l" means milligrams per liter.

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"Monthly average" means the average of "daily discharges" over a monitoring month calculated as the sum of all "daily discharges" measured divided by the number of "daily discharges" measured during that month.

"M9IM" shall mean those offshore facilities continuously manned by nine (9) or fewer persons or only intermittently manned by any number of persons. (40 CFR 435.11)

"M10" shall mean those offshore facilities continuously manned by ten (10) or more persons. (40 CFR 435.11)

"New source" means any facility or activity of this subcategory that meets the definition of "new source" under 40 CFR Part 122.2 and meets the criteria for determination of new sources under 40 CFR 122.29(b) applied consistently with all of the following definitions:

(1) The term *water area* as used in the term "site" in 40 CFR 122.29 and 122.2 shall mean the water area and ocean floor beneath any exploratory, development, or production facility where such facility is conducting its exploratory, development or production activities.
(2) The term *significant site preparation work* as used in 40 CFR 122.29 shall mean the process of surveying, clearing or preparing an area of the ocean floor for the purpose of constructing or placing a development or production facility on or over the site. "New Source" does *not* include facilities covered by an existing NPDES permit immediately prior to the effective date of these guidelines pending EPA issuance of a new source NPDES permit. (40 CFR Part 435.11)

"No discharge of free oil" shall mean that waste streams may not be discharged when they would cause a film or sheen upon or a discoloration of the surface of the receiving water or fail the static sheen test defined in Appendix 1 to 40 CFR 435, Subpart A. (40 CFR 435.11)

"Non-aqueous based drilling fluid" is one in which the continuous phase is a water immiscible fluid such as an oleaginous material (e.g., mineral oil, enhanced mineral oil, paraffinic oil, or synthetic material such as olefins and vegetable esters).

"No observed effect concentration" (NOEC) is the highest concentration of toxicant to which organisms are exposed in a full life-cycle or partial life-cycle (short-term) tests, that causes no observable adverse effect on the test organisms (i.e., the highest concentration of toxicant at which the values for the observed responses are <u>not</u> statistically significant different from the controls). NOECs calculated by hypothesis testing are dependent upon the concentrations selected.

"Operational waste" means all cargo associated waste, maintenance waste, cargo residues, and ashes and clinkers from incinerators and coal burning boilers.

"Produced sands" shall refer to slurried particles used in hydraulic fracturing, the accumulated formation sands and scales particles generated during production. Produced sand also includes desander discharge from the produced water waste stream, and blowdown of the water phase from the production water treating system. (40 CFR Part 435.11)

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"Produced water" shall refer to the water (brine) brought up from the hydrocarbon-bearing strata during the extraction of oil and gas, and can include formation water, injection water, and any chemicals added downhole or during the oil/water separation process. (40 CFR 435.11)

"Production facility" shall means any fixed or mobile structure subject to this subpart that is either engaged in well completion or used for active recovery of hydrocarbons from producing formations. (40 CFR 435.11)

"Quarterly dilution value" means the dilution ratio using the "average quarterly flow."

"Reference toxicant test" indicates the sensitivity of the organisms being used and the suitability of the test methodology. Reference toxicant data are part of routine QA/QC program to evaluate the performance of laboratory personnel and test organisms.

"Sanitary wastes" shall refer to human body waste discharged from toilets and urinals located within the facilities subject to this subpart. (40 CFR 435.11)

"Significant difference" is defined as statistically significant difference (e.g., 95% confidence level) in the means of two distributions of sampling results.

"Static sheen test" shall refer to the standard test procedures that has been developed for this industrial subcategory for the purpose of demonstrating compliance with the requirement of no discharge of free oil The methodology for performing the static sheen test is presented in Appendix 1 to 40 CFR 435, subpart A. (40 CFR 435.11)

"Test acceptability criteria" (TAC) For toxicity tests results to be acceptable for compliance, the effluent and the concurrent reference toxicant must meet specific criteria as defined in the test method (e.g., *Ceriodaphnia dubia* survival and reproduction test, the criteria are: the test must achieve at least 80% survival and average 15 young/female in the controls, and achieve a MSD of 20%).

"Toxicity" as applied to BAT effluent limitations for drilling fluids and drill cuttings shall refer to the bioassay test procedure presented in Appendix 2 of 40 CFR Part 435, subpart A. (40 CFR Part 435.11)

"Toxicity identification evaluation" (TIE) is a set of procedures to identify the specific chemical(s) responsible for effluent toxicity. TIEs are a subset of the TRE.

"Toxicity reduction evaluation" (TRE) is a site-specific study conducted in a stepwise process designed to identify the causative agents of effluent toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in effluent toxicity.

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"Toxicity tests" are laboratory experiments which employ the use of standardized test organisms to measure the adverse effect (e.g., growth, survival or reproduction) of effluent or ambient waters.

"Well completion fluids" shall refer to salt solutions, weighted brines, polymers, and various additives used to prevent damage to the well bore during operations which prepare the drilled well for hydrocarbon production. (40 CFR Part 435.11)

"Well treatment fluids" shall refer to any fluid used to restore or improve productivity by chemically or physically altering hydrocarbon-bearing strata after a well has been drilled. (40 CFR Part 435.11)

"Whole effluent toxicity" (WET) is the total toxic effect of an effluent or receiving water measured directly with a toxicity test.

"Workover fluids" shall refer to salt solutions, weighted brines, polymers, or other specialty additives used in a producing well to allow for maintenance, repair or abandonment procedures. (40 CFR Part 435.11)

"96-hour LC50" shall refer to the concentration (parts per million) or percent of the suspended particulate phase (SPP) from a sample that is lethal to 50 percent of the test organism exposed to that concentration of the SPP after 96 hours of constant exposure. (40 CFR Part 435.11)

"µg/l" means micrograms per liter.

Appendix A-Dilution

A. Calculation of Effluent Concentration at the Point of Compliance

Effluent limitations for parameters identified in Appendices B and C shall be determined through the use of the following equation: $C_o = (C_e + D_m C_s)/(D_m + 1)$

where C_o = Concentration at the edge of the mixing zone,
C_e = the end-of-pipe effluent concentration,
C_s = the background seawater concentration (see Table 1), and
D_m = the dilution ratio expressed in parts seawater per part wastewater.

On the DMR required in Part III.C, the Permittee shall report post-dilution results (C_o) so as to be directly comparable to the limits specified in Appendices B and C. The end-of-pipe sampling results (C_e) and dilution ratio (D_m) shall be submitted as a supplement to the DMR.

Table 1. Seawater Background Concentrations (Cs)

Constituent	Cs (ug/l)
Arsenic	3

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Copper	2
Mercury	0.0005
Silver	0.16
Zinc	8

For waste constituents not listed in Table 1, the seawater background concentration (C_s) is assumed to be 0 mg/l.

B. Calculation of Dilution

The dilution ratio at the point of compliance shall be determined by permittees using the model PLUMES (3rd Edition or later editions when available) with specific input conditions. Specific instructions follow below.

Permittees wishing to increase mixing may do so by using a diffuser or diffusers, adding sea water to the effluent, or installing multiple discharge ports.

Hydraulic considerations may indicate that flow rates from equal sized ports connected to a common vertical down-pipe will vary with depth. Permittees may adjust flows from individual ports by varying the port diameters. In this case, a "discharge volume" weighted average port diameter may be used in Parts 4 through 6, below, when determining the dilution ratio as long as the maximum and minimum port diameters are within 50 percent of each other. On the other hand, if ports of equal size are used, the average flow rate through a port may be used when determining the dilution ratio as long as the maximum and minimum port flow rates are within 20 percent of each other. Port sizes or port flow rates outside the range of these conditions shall have the dilution ratio calculated separately for each port and the lowest dilution ratio that is obtained shall be used to demonstrate compliance with the effluent limitations identified in Part II.B and II.F.

1. Determination of the Dilution Ratio Using PLUMES. The permittee shall use site specific values for the following discharge and ambient conditions:

a. Discharge Conditions. Effluent temperature at the port and salinity (which determine effluent density), discharge rate, decay coefficient, port diameter (for single port discharges or multiple port discharges that do not merge), diffuser configuration (port diameter and spacing, number of ports), and port orientation (dip angle and azimuth).

b. Ambient Conditions. Current speed (median value is acceptable), ambient density at the port, ambient density gradient

c. Typical Conditions. In lieu of using site specific ambient conditions, a permittee may utilize the following typical Southern California OCS ambient conditions in the model:

current speed = 0.115 m/s, ambient density at discharge port = 1025.6 kg/m3, ambient density gradient = 0.01 kg/m3/m.

d. When sea water is added to produced water prior to discharge, the total produced water flow, including the added sea water, shall be used in determining the dilution ratio.

e. The permittee shall retain calculation sheets showing how the dilution ratio was determined.

2. Use of the PLUMES Model. The permittee shall use the "UM" module of the PLUMES model. Printed output listings (direct output to "prn") from PLUMES which are used to determine the critical dilution ratio shall be retained as part of the permittee's NPDES records. The dilution ratio is the value in the second column at the end of the output listing when the "far dis" field (see below) is set to the point of compliance. This is the dilution ratio determined according to the 4/3 power law. Settings of individual fields of the PLUMES input screen are discussed in the following paragraphs.

a. Configuration String. The permittee shall ensure that the configuration string shown near the bottom of the PLUMES input screen is set appropriately for the conditions being modeled. For example, if conditions are such that the plume direction will reverse near the discharge port, it is appropriate to set the configuration screen to read "ATNM2". If there is no such reversal, it is appropriate to retain the default configuration string "ATNO0".

b. "Linear" vs. "non-linear" mode. PLUMES may be run in linear mode (i.e., specifying ambient densities and effluent densities only) according to the results of the following test using Figure 1 of this Appendix. In Figure 1, compute (A) the absolute value of the difference (in practical salinity units) between the effluent salinity and the salinity at the effluent temperature for which the density is the same as the ambient density; compute (B) the absolute value of the effluent temperature minus the ambient temperature in degrees C. Linear mode can only be used when the ratio of A over B is greater than 0.5.

c. Far-field distance ("far dis" field). This should be set to 100 meters (i.e., the outer edge of the mixing zone).

d. Far-field increment ("far inc" field). This should be set so that an integer multiple equals 100. The value 20 is suggested.

e. Print frequency ("print frq" field). Normally the default value should be used here. In certain instances, the initial dilution ratio calculation may extend beyond 100 meters (this will be necessary to calculate dilution at the seaward boundary of the territorial seas of the State of California). In such cases the initial dilution ratio calculation will have to be interpolated to determine the critical dilution ratio at 100 meters. Setting "print frq" to a smaller value (say 10) will provide the necessary resolution.

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f. Vertical angle ("ver angle" field). A port pointing straight down will have a vertical angle of -90. A port pointing straight up will have a vertical angle of 90. A horizontal port will have a vertical angle of zero.

g. Contraction Coefficient ("cont coef" field). For discharges from a straight pipe, the contraction coefficient shall be set to 1.0. For discharges from a port that is a sharp edged orifice for which the exit velocity based on the area of the orifice is greater than 0.5 m/s, the contraction coefficient shall be set to 0.61.

h. Far-field dissipation parameter ("far dif" field). This input variable should be set to 0.000462 [m^(2/3)]/s, a value appropriate for the California OCS.

i. Far-field velocity ("far vel" field). This variable shall be set to the same value as used in the current profile ("current" fields in the lower left quadrant of the input screen).

j. Ambient density ("density" in the lower left quadrant of the input screen). In linear mode, these values should be set to provide the required linear density gradient and the required ambient density at the discharge port. In non-linear mode, these values will be calculated by PLUMES.

k. Ambient salinity and temperature ("salinity" and "temp" fields). In non-linear mode, these values are specified such that the required linear density gradient and the required ambient density at the discharge point are obtained.

For the analysis of horizontal diffusers with multiple ports or multiple discharge points spaced horizontally, the "#_ports" and "spacing" fields must be set appropriately. In case of parallel currents, where the velocity vector lies less than 20 degrees off the diffuser axis, a minimum value of 20 degrees should be specified. For example, a cross-current is specified by a horizontal angle of 90 degrees. A current flowing obliquely across the diffuser at 45 degrees would have a horizontal angle value of 45 degrees. This angle should be between 45 and 135 degrees.

Figure 1. Density (sigma-t) Contours

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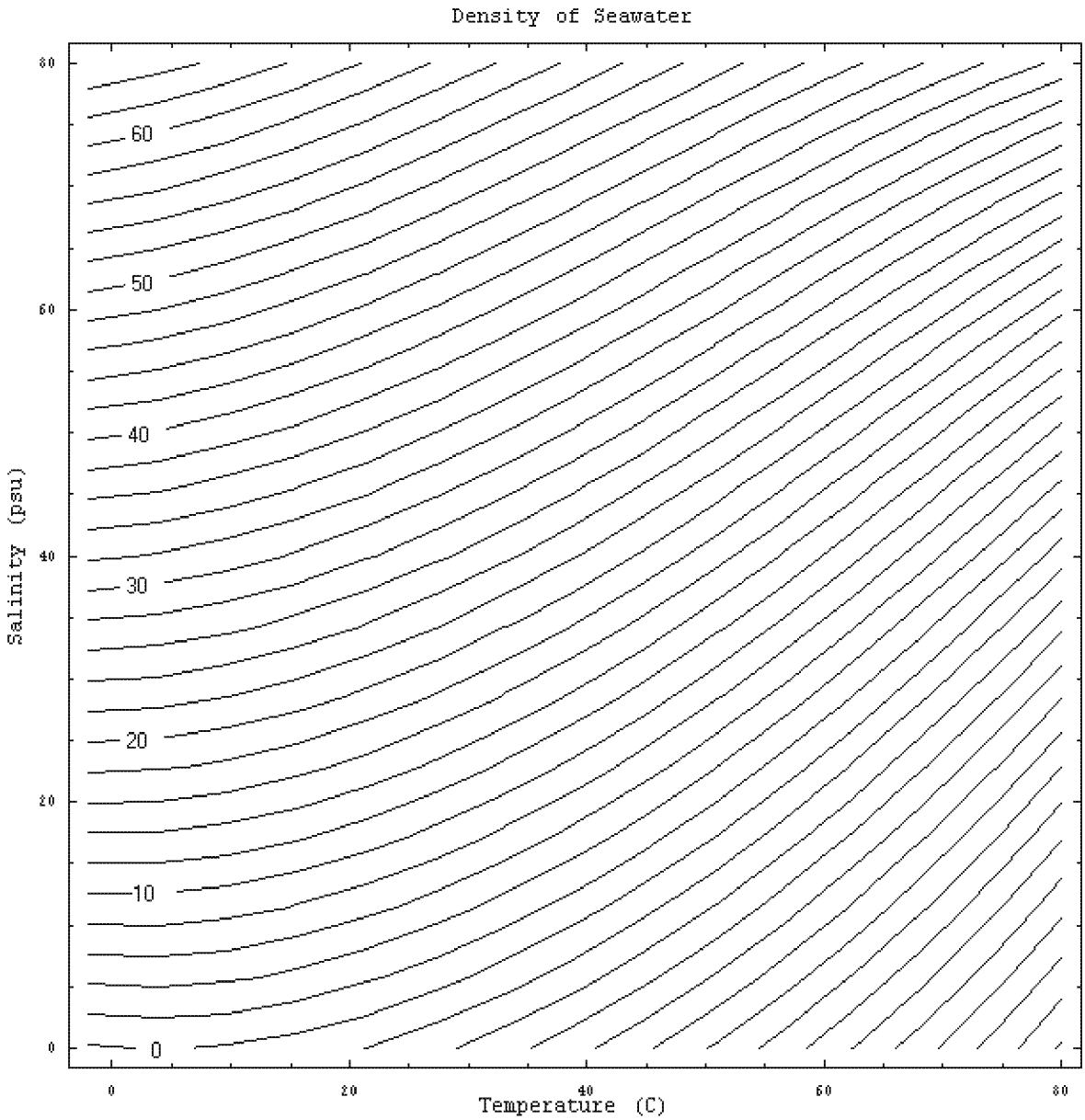
Density of Seawater
Salinity (psu)
Temperature (C)
0
20
40
60
80
0
20
40
60
80
0
10
20
30
40
50
60

Appendix B - Platform Specific Requirements for Produced Water

The effluent limitations (where applicable) in the following tables are applicable following initial dilution in the mixing zone defined in Part V of the general permit. Compliance with the limits shall be calculated in accordance with Appendix A of the general permit.

Table B-1 - Requirements for Platform A

Constituent	Maximum Daily Limit	Average Monthly Limit	Measurement Frequency	Sample Type	Reported Values
Copper			Once/year	Grab	Daily Max
Benzo (a) Pyrene			Once/year	Grab	Daily Max
Benzo (b) Fluoranthene			Once/year	Grab	Daily Max
Benzo (k) Fluoranthene			Once/year	Grab	Daily Max

Table B-2 - Requirements for Platform B

Constituent	Maximum Daily Limit	Average Monthly Limit	Measurement Frequency	Sample Type	Reported Values
Benzo (a) Pyrene			Once/year	Grab	Daily Max
Benzo (k) Fluoranthene			Once/year	Grab	Daily Max
Benzo (b) Fluoranthene			Once/year	Grab	Daily Max

Table B-3 - Requirements for Platform Edith

Constituent	Maximum Daily Limit	Average Monthly Limit	Measurement Frequency	Sample Type	Reported Values
Zinc			Once/year	Grab	Daily Max

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Table B-4 - Requirements for Platform Elly

Constituent	Maximum Daily Limit	Average Monthly Limit	Measurement Frequency	Sample Type	Reported Values
Zinc			Once/year	Grab	Daily Max

Table B-5 - Requirements for Platform Gail

Constituent	Maximum Daily Limit	Average Monthly Limit	Measurement Frequency	Sample Type	Reported Values
Benzene			Once/year	Grab	Daily Max
Benzo (a) Pyrene			Once/year	Grab	Daily Max
Undissociated Sulfide	0.00579 mg/l	0.00167 mg/l	Once/quarter	Grab	Daily Max and Monthly Ave

Table B-6 - Requirements for Platform Gilda

Constituent	Maximum Daily Limit	Average Monthly Limit	Measurement Frequency	Sample Type	Reported Values
Copper			Once/year	Grab	Daily Max
Benzo (a) Anthracene			Once/year	Grab	Daily Max
Benzo (a) Pyrene			Once/year	Grab	Daily Max
Benzo (k) Fluoranthene			Once/year	Grab	Daily Max
Benzo (b) Fluoranthene			Once/year	Grab	Daily Max
Chrysene			Once/year	Grab	Daily Max
Dibenzo (a,h) Anthracene			Once/year	Grab	Daily Max

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Undissociated Sulfide	0.00579 mg/l	0.00139 mg/l	Once/quarter	Grab	Daily Max and Monthly Ave

Table B-7 - Requirements for Platform Gina

Constituent	Maximum Daily Limit	Average Monthly Limit	Measurement Frequency	Sample Type	Reported Values
Ammonia			Once/year	Grab	Daily Max
Copper			Once/year	Grab	Daily Max
Benzo (a) Pyrene			Once/year	Grab	Daily Max
Benzo (k) Fluoranthene			Once/year	Grab	Daily Max
Benzo (b) Fluoranthene			Once/year	Grab	Daily Max

Table B-8 - Requirements for Platform Habitat

Constituent	Maximum Daily Limit	Average Monthly Limit	Measurement Frequency	Sample Type	Reported Values
Copper			Once/year	Grab	Daily Max
Benzene			Once/year	Grab	Daily Max
Benzo (a) Pyrene			Once/year	Grab	Daily Max
Benzo (k) Fluoranthene			Once/year	Grab	Daily Max
Benzo (b) Fluoranthene			Once/year	Grab	Daily Max
Dibenzo (a,h) Anthracene			Once/year	Grab	Daily Max
Undissociated Sulfide			Once/year	Grab	Daily Max

Table B-9 - Requirements for Platform Harmony

No requirements

Table B-10 - Requirements for Platform Harvest

Constituent	Maximum Daily Limit	Average Monthly Limit	Measurement Frequency	Sample Type	Reported Values
Ammonia			Once/year	Grab	Daily Max
Copper			Once/year	Grab	Daily Max
Benzene	0.022 mg/l	0.0059 mg/l	Once/quarter	Grab	Daily Max and Monthly Ave
Benzo (a) Anthracene			Once/year	Grab	Daily Max
Benzo (a) Pyrene			Once/year	Grab	Daily Max
Benzo (k) Fluoranthene			Once/year	Grab	Daily Max
Benzo (b) Fluoranthene			Once/year	Grab	Daily Max
Chrysene			Once/year	Grab	Daily Max
Dibenzo (a,h) Anthracene			Once/year	Grab	Daily Max
Undissociated Sulfide	0.00579 mg/l	0.00399 mg/l	Once/quarter	Grab	Daily Max and Monthly Ave

Table B-11 - Requirements for Platform Hermosa

Constituent	Maximum Daily Limit	Average Monthly Limit	Measurement Frequency	Sample Type	Reported Values
Copper			Once/year	Grab	Daily Max

Benzene			Once/year	Grab	Daily Max
Benzo (a) Anthracene			Once/year	Grab	Daily Max
Benzo (a) Pyrene			Once/year	Grab	Daily Max
Benzo (k) Fluoranthene			Once/year	Grab	Daily Max
Benzo (b) Fluoranthene			Once/year	Grab	Daily Max
Chrysene			Once/year	Grab	Daily Max
Dibenzo (a,h) Anthracene			Once/year	Grab	Daily Max
Undissociated Sulfide	0.00577 mg/l	0.0049 mg/l	Once/quarter	Grab	Daily Max and Monthly Ave

Table B-12 - Requirements for Platform Hidalgo

Constituent	Maximum Daily Limit	Average Monthly Limit	Measurement Frequency	Sample Type	Reported Values
Benzene			Once/year	Grab	Daily Max
Benzo (k) Fluoranthene			Once/year	Grab	Daily Max
Benzo (b) Fluoranthene			Once/year	Grab	Daily Max
Chrysene			Once/year	Grab	Daily Max
Undissociated Sulfide			Once/year	Grab	Daily Max

Table B-13 - Requirements for Platform Hillhouse

Constituent	Maximum Daily Limit	Average Monthly Limit	Measurement Frequency	Sample Type	Reported Values

Benzo (a) Anthracene			Once/year	Grab	Daily Max
Benzo (a) Pyrene			Once/year	Grab	Daily Max
Benzo (k) Fluoranthene			Once/year	Grab	Daily Max
Benzo (b) Fluoranthene			Once/year	Grab	Daily Max
Chrysene			Once/year	Grab	Daily Max
Dibenzo (a,h) Anthracene			Once/year	Grab	Daily Max

Table B-14 - Requirements for Platform Hogan

Constituent	Maximum Daily Limit	Average Monthly Limit	Measurement Frequency	Sample Type	Reported Values
Copper			Once/year	Grab	Daily Max
Hexavalent Chromium			Once/year	Grab	Daily Max
Benzene	0.0176 mg/l	0.0059 mg/l	Once/quarter	Grab	Daily Max and Monthly Ave
Benzo (a) Pyrene			Once/year	Grab	Daily Max
Benzo (k) Fluoranthene			Once/year	Grab	Daily Max
Benzo (b) Fluoranthene			Once/year	Grab	Daily Max
Dibenzo (a,h) Anthracene			Once/year	Grab	Daily Max

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Appendix C - Platform Specific Requirements for Chlorine in Cooling Water and Fire Control System Test Water Discharges

The effluent limitations for chlorine in the following tables are applicable following initial dilution in the mixing zone defined in Part V of the general permit. Compliance with the limits shall be determined through the use of the following equation:

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

Where C_o = the concentration at the edge of the mixing zone,
C_e = the end-of-pipe concentration prior to dilution, and
D_m = the dilution ratio expressed in parts seawater per part wastewater.

On the Discharge Monitoring Report (DMR) required by Part III.C of the general permit, the permittee shall report post-dilution results (C_o) so as to be directly comparable to the effluent limits in the tables. The end-of-pipe sampling result (C_e) and D_m shall be submitted as a supplement to the DMR.

Table C-1 – Effluent Limitations and Monitoring Requirements for Cooling Water

Platform	Maximum Daily Limit	Average Monthly Limit	Measurement Frequency	Sample Type	Reported Values
Ellen*	0.0104 mg/l	0.00583 mg/l	Once/quarter	Grab	Daily Max and Monthly Ave
Elly	0.0102 mg/l	0.00585 mg/l	Once/quarter	Grab	Daily Max and Monthly Ave
Eureka*	0.0102 mg/l	0.00585 mg/l	Once/quarter	Grab	Daily Max and Monthly Ave
Gail			Once/year	Grab	Daily Max and Monthly Ave
Grace			Once/year	Grab	Daily Max and Monthly Ave
Harvest	0.0104 mg/l	0.00583 mg/l	Once/quarter	Grab	Daily Max and Monthly Ave
Hermosa			Once/year	Grab	Daily Max and Monthly Ave
Hidalgo			Once/year	Grab	Daily Max and Monthly Ave
Irene	0.013 mg/l	0.00526 mg/l	Once/quarter	Grab	Daily Max and Monthly Ave

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*For Platforms Ellen and Eureka, the permittee shall separately demonstrate compliance with these effluent limits for discharges of cooling water only and for cooling water mixed with excess chlorinated seawater. The permittee may sample cooling water or cooling water mixed with excess chlorinated seawater for the demonstration.

Table C-2 – Effluent Limitations and Monitoring Requirements for Fire Control System Test Water

Platform	Maximum Daily Limit	Average Monthly Limit	Measurement Frequency	Sample Type	Reported Values
Harvest	0.0123 mg/l	0.00560 mg/l	Once/quarter	Grab	Daily Max and Monthly Ave
Hermosa	0.000953 mg/l	0.00595 mg/l	Once/quarter	Grab	Daily Max and Monthly Ave
Hidalgo	0.0114 mg/l	0.00570 mg/l	Once/quarter	Grab	Daily Max and Monthly Ave

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Appendix D – Reasonable Potential Procedures for Platforms Not Included in Appendix B or C

The following procedures are applicable to platforms (other than those platforms listed in Appendix B) which discharge produced water, and to platforms (other than those listed in Appendix C) which add chlorine to any discharges (e.g., cooling water or fire control system test water). For produced water discharges, the Permittee shall sample (as described below) for the constituents listed in Table D-1 to determine whether the discharge causes or has the reasonable potential to cause, or contribute to an excursion above the applicable marine water quality criteria. When chlorine is added to a discharge, the Permittee shall sample chlorine in the discharge (as described below) and conduct the same reasonable potential analysis as in the case of produced water; for chlorine, the marine water quality criteria to be met (post-dilution at the edge of the mixing zone) are 7.5 ug/l (criteria continuous concentration) and 13 ug/l (criteria maximum concentration).

Table D-1 - Water Quality Criteria (in ug/l) for Produced Water Reasonable Potential Determination

Constituent	Water Quality Criteria (ug/l)[1,2]
Ammonia	1300[3]/600
Arsenic	36/8
Cadmium	8.8/1
Copper	3.1/3
Cyanide	1/1
Lead	8.1/2
Manganese	100
Mercury	0.051/0.04
Nickel	8.2/5
Selenium	71/15
Silver	1.9/0.7
Zinc	81/20
Benzene	5.9
Benzo (a) Anthracene	0.018
Benzo (a) Pyrene	0.018
Chrysene	0.018
Benzo (k) Fluoranthene	0.018
Benzo (b) Fluoranthene	0.018

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Dibenzo (a,h) Anthracene	0.018
Hexavalent Chromium[4]	50/2
Phenol	1,700,000
Toluene	15,000
Ethylbenzene	2,100
Naphthalene	not available
2,4-Dimethylphenol	850
Undissociated Sulfides[5]	5.79

[1] Where two numbers are given, the first number is the Federal criterion (EPA-822-R-02-047, November, 2002, or 68 Fed. Reg. 75507 (December 31, 2003)) and the second is the objective from the California Ocean Plan. For each such parameter, the applicable criterion is the one which proves to be more stringent based on the analysis required by Part II.B.1.c.1 of this permit. Where one number is given, it is the applicable criterion.

[2] Applicable after dilution at the edge of the 100 meter mixing zone (See Appendix A). A permittee may submit a request for a recalculated criterion based on site-specific studies and analyses that consider ambient factors and the nature of the discharge.

[3] Assumes an ambient ocean temperature of 15 ^{o}C, salinity of 30 g/kg and pH of 8.1. Effluent limitations developed for a specific platform may be based on an alternate criterion which considers platform-specific ocean conditions.

[4] Total chromium may be sampled as an alternative to hexavalent chromium in the reasonable potential analysis.

[5] Use EPA Method 376.1 (or equivalent method published in Standard Methods) to analyze for total (or dissolved) sulfide. Use procedure in method to calculate undissociated sulfide fraction. Report undissociated sulfide fraction based on the pH, temperature and salinity of both the end-of-pipe sample and ambient ocean conditions at the platform. Ambient ocean pH of 8.1 and salinity of 30 g/kg may be used. A permittee may request that this permit be modified to include a decay factor in making compliance determinations for undissociated sulfide at the edge of the mixing zone. Such a request shall be accompanied by the results of a study of the decay of undissociated sulfide in produced water discharged in southern California Federal waters. Upon receipt of the study by Region 9, this permit may be reopened and modified to include a decay factor in making compliance determinations for undissociated sulfide at the edge of the mixing zone.

a. The Permittee shall sample while discharge is occurring until 12 samples are taken. For continuous discharges in place on the effective date of the permit, the sampling frequency shall be once per month during the first year of the term of the permit. For intermittent dischargers, sampling shall be once/discharge until 12 samples are collected. For discharges initiated during the term of the permit, monthly sampling shall commence in the first quarter that the discharges begin. The samples will be taken as grab samples.

b. The reasonable potential analytical laboratory results and the quarterly dilution value shall be submitted with the DMR along with the information required in Part III.A.2 of this permit.

c. Reasonable Potential Analysis Submittal

1) The results of the produced water reasonable potential sampling for chemical constituents shall be analyzed using the procedures in the document entitled "Procedures for Reasonable Potential Evaluation in NPDES Permit No. CAG280000" and submitted to EPA in electronic spreadsheet format. The completed spread sheet for each discharge will be sent to EPA no later than one year and three months after the permit becomes effective; for platforms with intermittent discharges the spread sheet shall be submitted as soon as the necessary data have been collected. The submittal shall include a determination of the minimum dilution limit required for each discharge location to maintain no reasonable potential to exceed the Water Quality Criteria for any constituent listed in Table D-1 and for chlorine. For parameters with two criteria specified in Table D-1, the submittal shall be based on the more stringent of either: a) the Federal criterion, or b) the California Ocean Plan objective. In conducting the analysis for the metals in Table D-1 (As, Cd, Cu, Pb, Hg, Ni, Se, Ag, Zn and Cr^6), and for ammonia and cyanide, the California Ocean Plan 6-month medians shall be converted to 4-day averages using the procedure in the document entitled "Procedure for Comparing California Ocean Plan 6-Month Median and a 4-Day Average for NPDES Permit No. CAG280000", dated August 16, 2001.

2) Dilution ratios will be determined using the methods in Appendix A of the permit. The dilution calculation will be based on the produced water average quarterly flow.

d. Previously Collected Data. If results for the above listed constituents were previously collected and meet appropriate methods and detection limits, the previously collected data may be used to satisfy the reasonable potential sampling requirements (including metals sampled as composites).

e. Establishing Reasonable Potential

1) Evaluation. After EPA receives the reasonable potential sampling results (spreadsheets) from an operator, the information will be evaluated for the potential for the exceedance of a water quality criterion. Data for all criteria listed in Table D-1 shall be submitted at one time for the discharging platform.

2) Limitations After the Establishment of Reasonable Potential. The Permittee will be notified of the results of EPA's review of the reasonable potential spreadsheets submitted by the permittees. Platform specific limitations become effective the first quarter subsequent to permit modification to include such limitations. Any permit modifications will be conducted in accordance with procedures set forth at 40 CFR Part 124. Monitoring will continue on a quarterly basis for the remainder of the permit for those constituents with limits.

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3) Dilution Ratio Changes Subsequent to the Data Gathering Phase. The permittee shall calculate the quarterly dilution value each quarter subsequent to the data gathering phase. If the quarterly dilution value is less than the minimum dilution limit, this permit may be reopened and modified to include additional effluent limitations and monitoring requirements based on the reasonable potential for the exceedance of a water quality criterion.

f. Interim Produced Water Limits for Platform Irene. During the reasonable potential data gathering and evaluation phase of this permit, the numeric water quality limitations and monitoring requirements in Table D-2 below from the previous individual NPDES permit for Platform Irene (CA0110648) will be in effect for compliance and enforcement purposes. These effluent limitations are applicable following initial dilution in the mixing zone defined in Part V of the general permit. Compliance with the limits shall be calculated in accordance with Appendix A of the general permit.

Table D-2 - Produced Water Enforceable Limits During Reasonable Potential Sampling for Platform Irene

Constituent	Daily Max (mg/l)	Monitoring Frequency	Sample Type
Arsenic	0.032	Once/3 months	Composite
Cadmium	0.004	"	"
Total Chromium	0.008	"	"
Copper	0.012	"	"
Lead	0.008	"	"
Mercury	0.00016	"	"
Nickel	0.020	"	"
Selenium	0.060	"	"
Silver	0.0028	"	"
Zinc	0.080	"	"
Ammonia (expressed as N)	2.4	"	Discrete
Cyanides	0.004	"	"
Phenol	0.12	"	"
Naphthalene	0.0235	"	"
2,4 Demethylphenol	-	"	"
Benzene	0.0059	"	"
Toluene	0.05	"	"
Ethylbenzene	0.0043	"	"
Benzo(a) pyrene	0.003	"	"
Bis (2-ethylhexyl) phthalate	0.0035	"	"