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March 11, 2009
Revised: April 6, 2009

Written comments regarding the tentative Order must be received at the Regional Board office by 5:00 p.m. on April 15, 2009, in order to be evaluated by staff and included in the Board's agenda folder.

B. Public Hearing

The proposed WDRs will be considered by the Regional Board at a public hearing. The hearing is scheduled to be held during the Regional Board meeting, which is scheduled as follows:

Date: May 7 and 8, 2009
Time: 10:00 A.M.
Loc

E. Register of Interested Persons

Persons wishing to comment on, or object to, the tentative waste discharge requirements (WDRs) and the tentative Cease and Desist Order (CDO), or submit evidence for the Board to consider, are invited to submit them in writing to Cassandra Owens at the above address, or send them electronically to:

ultimately petitioned the subsequent amendment, Order R4-2006-0036. The discharger also requested that the permit be stayed pending a decision on the permit on the basis of merit.

After considering the evidence, the State Board adopted Order WQ 2006-0007 on June 21, 2006, which vacated a previous stay order issued by one of its members, and denie 3

and the National Aeronautics and Space Administration (NASA). The United States Department of Energy (DOE) also owns several buildings located in Area IV, with the land being under the ownership of Boeing.

Boeing and its predecessors' operations at SSFL since 1950 include research, development, assembly, disassembly, and testing of nuclear reactors, rocket engines, and chemical lasers. DOE conducted past operations in research and development of energy related programs, and seismic testing experiments. Current DOE activities onsite are solely related to facility closure, environmental remediation, and restoration.

SSFL was permitted to discharge excess water from its groundwater treatment system, industrial activities, onsite wastewater reclamation system, and rainfall runoff that has the potential to contain pollutants from the facilities. Approximately 60% of the discharge exited the property via two southerly discharge points (Discharge Outfalls 001 and 002) to Bell Creek, a tributary to the Los Angeles River, a water of the United States, with its confluence located near the intersection of Bassett Street and Owensmouth Avenue in Canoga Park, see Figure 1).

Past operations at the SSFL that may potentially contribute contaminants to discharges from the site include:

- Nuclear Operations, decontamination and decommissioning
- Monomethyl Hydrazine Usage,
- CTL-3 Chemical Laser Testing, and
- Energy Technology Engineering Center (ETEC) Cogeneration Operations.
- Rocket Engine and Component Testing

<u>Nuclear Operations, decontamination and decommissioning:</u> Nuclear research and development for the U.S. Department of Energy (DOE) and its predecessors was conducted at the SSFL from 1954 – 1989. The activities included developing and operating reactors, and fabricating and disassembling nuclear fuel. The government began to phase out the program in the 1960s. The last reactor was shut dowacre

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ozonation unit under a variance, granted by the Department of Toxic Substances Control (DTSC). MMH is no longer used at SSFL.

CTL-3 Chemical Laser Testing: CTL-3 Chemical Laser Testing was not operational in 2004. In 2005, limited operations resumed at the facility. There is no discharge to surface waters from this area.

Energy Technology Engineering Center (ETEC) Cogeneration Operations

adsorption, and the physical treatment consisted of air stripping towers. These treatment systems were regulated under Resource Conservation and Recovery Act (RCRA) part A and part B hazardous waste permits by DTSC, and various air quality control permits issued by Ventura County. Boeing plans to treat effluent from the SSFL groundwater remediation operation in either a mobile or fixed hazardous waste treatment unit operating under DTSC Permit-By-Rule requirements. The waste stream to be treated would be classified under these regulations as non-RCRA or RCRA exempt hazardous waste. In addition, there will also be intermittent pilot projects where test wells will be drilled and groundwater treated to determine optimum locations for future wells. Effluent from the groundwater remediation operations will be discharged to a separate outfall (Outfall 019).

<u>Sewage Treatment Plants:</u> Historically, two package-type activated sludge sewage treatment plants (STP1 and STP3) provide secondary and tertiary treatment for the sewage. Disinfected sewage effluent from the activated sludge facilities was directed to the ponds. A third activated sludge sewage treatment plant (STP2) was available, but was used only as a pump station to STP-3 and as temporary storage of excess sewage. There were no discharges to receiving waters from STP-2.

Operations terminated at STP3 in October 2001 and at STP1 in December 2001. Recently, domestic sewage that had previously been treated at STP1 and STP3 has been diverted offsite. The STP1 and STP3 basins are used as collection points. Every few days, vacuum trucks transport the accumulated waste offsite for treatment. In July 2004, the Discharger requested that the permit continue to cover potential discharges from these plants, as it may be necessary to bring them back on line in the future.

The ROWD submitted in February 2007 indi [illegible]

The Coca Pond was previously used as a retention basin to collect water from the space shuttle main engine testing area. When Coca Pond was filled to capacity, it discharged to the R-2 Pond. The pond was used to collect water that leaked from the fire suppression system located in the former test area. If sufficient leaks occurred, the pond discharged to R-2.

Area I utilized the R-1 Pond as a reservoir. Water retained in the R-1 Pond was primarily comprised of storm water. Other sources included effluent from Sewage Treatment Plant 1 and treated groundwater. While this was a water reclamation system in the past, it is currently used as a retention system to minimize discharges.

Storm water collected at the facility is primarily stored at Silvernale Pond and R-2A Pond. As in Area I, the primary source of water stored in the ponds comes from storm water. Other sources included effluent from Sewage Treatment Plant 3, cooling water runoff from test operations and treated groundwater. While this was a water reclamation system in the past, it is currently used as a retention system to minimize discharges. Historically, if the supply of reclaimed water exceeded requirements, the water was discharged to the south through R-2A Pond, and then to Bell Creek through Outfall 002.

The SSFL is underlain

United States and are thus subject to the Clean Water Act. These onsite natural drainage channels are tributaries to Bell Creek, hence limitations for discharges to them must protect the beneficial uses for discharges to Bell Creek and the downstream reaches of the Los Angeles River. Similarly, because certain natural drainage channels are unlined and groundwater recharge is a designated beneficial use in Bell Creek and its tributaries, limitations for discharges to the channels must protect the underlying beneficial uses of the groundwater Td (e)Tj 6.0115 0 Td ( )5 0 Td (d)Tj 6.0115 0 Td (w)Tj 7.69472 0 T

	Operation	NPDES Outfall No.	Agency
7.	Storm water Building 100	007	RWQCB
8.	Storm water Happy Valley	008	RWQCB
9.	Storm water WS-13 Drainage	009	RWQCB
10.	Storm water Building 203	010	RWQCB
11.	R-1 Pond	-----	DTSC
12.	Perimeter Pond	011	RWQCB
13.	R-2 Ponds (R-2A and R-2B)	-----	DTSC
14.	R-2 Spillway	018	RWQCB
15.	Silvernale Pond	-----	DTSC
16.	Alfa Test Stand	012	RWQCB
17.	Bravo Test Stand	013	RWQCB
18.	WS-5 Groundwater Treatment System (GWTS)	-----	DTSC
19.	RD-9 GWTS	-----	DTSC
20.	Alfa GWTS	-----	DTSC
21.	Delta GWTS	-----	DTSC
22.	STLV-IV GWTS	-----	DTSC
23.	Area 1 Road GWTS/AST	-----	DTSC
24.	Bravo GWTS/AST	-----	DTSC
25.	Canyon GWTS/AST	-----	DTSC
26.	Interim GWTS near FSDF*	-----	DTSC
27.	Interim GWTS near Bldg 59*	-----	DTSC
28.	Interim GWTS near RMHF*	-----	DTSC
29.	APTF	014	RWQCB
30.	STP-1 – effluent	015	RWQCB
31.	STP-2 – effluent	016	RWQCB
32.	STP-3 – effluent	017	RWQCB
33.	Groundwater Treatment System	019	RWQCB

* Implemented in Interim Measures at the site. If the systems continue they will be included in the revised Post Closure Permit.

Operations enumerated in items 1 through 32 were included in Order R4-2004-0111 and subsequent revisions (Orders R4-2006-0008 and R4-2006-0036). Item 33 identifies a new outfall that is added in this Order (R4-2007-0055). The updated ROWD submitted on February 20, 2007, included a request to discharge treated groundwater from a new groundwater treatment system, operating under Permit-By-Rule requirements, to the streambed downstream of Outfall 011 and upstream of Outfall 001. The treated groundwater is a wastewater discharged from a point

requirements are permitted in Order R4-2007-0055. The new compliance point is included in the previous table.

Operations at the test stands (Outfalls 012 -014) and the sewage treatment plants (Outfalls 015 – 017) have ceased. No further process waste discharges are expected from these areas.

Storm Water Discharges

In 1989, EPA conducted an investigation and submitted a report on SSFL environmental issues. The report specified under the recommended and planned actions that the Regional Board was to use the Clean Water Act to ensure run-off from the northwest side of Area IV was not contaminated. In response to the request, Boeing developed a surface water monitoring program for the northwest slope area that was subsequently approved by EPA and implemented.

The topography of the SSFL is such that approximately 70% of rainfall runoff is routed to one of the two southerly-located retention ponds and is discharged from the site via Discharge Outfalls 001 or 002. Storm water runoff from the northwest slope of the facility is monitored at Discharge Outfalls 003, 004, 005, 006, 007, 009, AND 010 which discharge towards the Arroyo Simi. The outfall locations near the Northwest slope are located such that they capture runoff from past and existing radiological facilities.

There is one more storm water monitoring location Discharge Outfall 008 (formerly referred to as Happy Valley and Happy Valley 1). This outfall captures runoff from an area that has previously been used for operations that involved perchlorate and monitoring events have yielded ea efn svevhis a out antfall hisfall f e SOu

In 2004, site inspections resulted in the identification of two other storm water monitoring locations:

- WS-13 Drainage Area Discharge Outfall 009
- Building 203 Discharge Outfall 010

Storm water runoff from the area that drains to discharge points 001, and 002 is estimated at 34 and 51 million gallons per day (MGD) (based on a 24-hour duration, 10-year return storm). Historically, this runoff was mixed with industrial waste collected in the ponds prior to discharge. Discharges from Outfall 008 are composed solely of storm water runoff.

The estimated flow from the area that drains storm water only from the northwest slope and discharges it via discharge points 003, 004, 005, 006, 007, 009 and 010 and via various drainage channels into Meier, Runkle and Woolsey Canyons is 35 MGD. (Figure 2).

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the permit will be reopened and effluent limitations will be implemented. In July 2004

IV. Applicable Statutes, Plans, Policies, and Regulations

A. *Cle n er Ac* (CWA). The federal CWA requires that any point source discharge of pollutants to a water of the United States must be done in conformance with an NPDES permit. NPDES permits establish effluent limitations that incorporate various requirements of the CWA designed to protect water quality.

B. *rpro ec*

Los Angeles River Estuary – Hydrologic Unit 405.12

Existing: industrial service supply; navigation; contact and non-contact water recreation; commercial and sport fishing; estuarine habitat; marine habitat; wildlife habitat; rare, threatened, or endangered species; migration of aquatic organisms; spawning, reproduction, and/or early development; and wetland habitat.
Potential: shellfish harvesting.

Dayton Canyon Creek, Bell Creek and all of the reaches of the Los Angeles River listed except for the estuary also have municipal and domestic supply (MUN) listed as a potential beneficial use with an asterisk in the Basin Plan. This is consistent with Regional Board Resolution 89-03; however the Regional Board has only conditionally designated the MUN beneficial uses and at this time cannot establish effluent limitations designed to protect the conditional designation.

The storm water runoff from Outfalls 003 through 007, 009 and 010 discharges from the SSFL exit the site to the northwest and flows down the Meier and Runkle Canyons toward the Arroyo Simi. The Arroyo Simi is tributary to the Calleguas Creek. The beneficial uses for the receiving water are listed below.

Arroyo Simi – Hydrologic Unit

Calleguas Creek Estuary – Hydrologic Unit 403.11

Existing: noncontact water recreation, commercial and sport fishing, estuarine habitat, wildlife habitat, rare, threatened or endangered species, migration of aquatic organisms, spawning, reproduction, and/or early development, and wetland habitat;
Potential: navigation and water contact recreation.

Mugu Lagoon – Hydrologic Unit 403.11

Existing: navigation, non-contact water recreation, commercial and sport fishing, estuarine habitat, marine habitat, preservation of biological habitats, wildlife habitat, rare, threatened or endangered species, migration of aquatic organisms, spawning, reproduction, and/or early development, shellfish harvesting, and wetland habitat,
Potential: water contact recreation.

All of the reaches of Calleguas Creek except the estuary also include conditional municipal and domestic supply designations as an intermittent or potential beneficial use in the Basin Plan.

C. **Ammonia Basin Plan Amendment**. The 1994 Basin Plan provided water quality objectives for ammonia to protect aquatic life, in Tables 3-1 through Tables 3-4. However, those ammonia objectives were revised on April 25, 2002, by the Regional Board with the adoption of Resolution No. 2002-011, *A end en o e/ er Q y Con ro P n for e Lo Ange e eg on p pd e e A on O Dec e for m nd rf ce er nc d ng enc o ed D y e r e nd e nd Benef c e de gn on for pro ec on of Aq c L fe*. The ammonia Basin Plan amendment was approved by the State Board, the Office of Administrative Law, and USEPA on April 30, 2003, June 5, 2003, mmon q5e 5st en Ap Ap Boardoeammo

Watershed. The headwaters of the Los Angeles River originate in the Santa
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An AL is calculated using standard risk assessment methods for non-cancer and cancer endpoints, and typical exposure assumptions, including a 2-liter per day ingestion rate, a 70-kilogram adult body weight, and a 70-year lifetime. For chemicals that are considered carcinogens, the AL is considered to pose "de minimus" risk, i.e., a theoretical lifetime risk of up to one excess case of cancer in a population of 1,000,000 people – the 10^{-6} risk level. (In that population, approximately 250,000 – 300,000 cases of cancer would be anticipated to occur naturally.) ALs may be revised from time to time to reflect new risk assessment information. Chemicals for which ALs are established may eventually be regulated by MCLs, depending on the extent of contamination, the levels observed, and the risk to human health. A number of the contaminants for which action levels were originally established now have MCLs.

In 1997, DHS established an 18 g/L AL for perchlorate. DHS used the upper value of the 4 to 18 g/L range that resulted from the "provisional" reference dose that USEPA prepared in support of its Superfund activities. A revised external review draft perchlorate reference dose corresponding to a drinking water concentration of 1 g/L was released in 2002. DHS concluded that the AL needed to be revised downward. On January 18, 2002, DHS reduced the perchlorate AL to 4 g/L. The revised AL coincided with the analytical detection limit for purposes of reporting and was at the lower end of the 4 to 18 g/L range from the USEPA 1992-1995 assessment. The Public Health Goal o

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determined u

The storm water discharge exits the site and travels down Meier and Runkle Canyons towards the Arroyo Simi. Most of the land use around the facility is open area. Overall the Calleguas Creek Watershed is considered an impaired watershed. It appears that the sources of many of these pollutants are agricultural activities. Approximately fifty percent of the watershed is still open space although there is a severe lack of benthic and riparian habitat present. The discharge, when it is sufficient to reach the Arroyo Simi, enters it in Reach 1 – Hydrological Unit 403.62.

K. *d◭ L, ,ng of ⊢ p ,red er y* Bell Creek, which is the receiving water for the wastewater discharge from Outfalls 001, and 002 is on the 2002 303(d) list with high coliform count as the stressor.

The storm water runoff discharge from Outfalls 003 through 007, 009 and 010, when it is sufficient to reach the Arroyo Simi, enters it in Reach 1 – Hydrological Unit cal

hearing (Resolution No. R4-2007-014). State Board approved the TMDL on June 17, 2008. OAL approved the TMDL on October 14, 2008, and EPA approved it on October 29, 2008. The TMDL for metals in storm water is in effect for discharges to the specified reaches of the Los Angeles River.

The metals TMDL implements numeric water quality targets that are based on objectives established by USEPA in the CTR. Targets for copper, lead, zinc and/or selenium (total recoverable) are established in designated reaches of the Los Angeles River. Separate water quality targets are established for dry and wet weather discharges.

The TMDL for metals in the Los Angeles River includes an implementation schedule for non-storm water NPDES permits (including POTWs, other major, minod

via the authority vested in the Executive Officer by section 13267 of the Porter-Cologne Water Quality Control Act. It requires phased reductions in the amount of trash over a nine year period. No WLAs were established for individual permittees.

P. Calleguas Creek Chloride (Salts) TMDL. On March 22, 2002, the consent decree deadline for the establishment of a chloride TMDL, USEPA Region 9 established the Calleguas Creek Total Maximum Daily Load for chloride. The TMDL adopted by USEPA was based largely on the technical efforts produced by the Regional Board staff.

The Calleguas Creek Watershed Group in collaboration with USEPA Region 9 and the Regional Board is developing the *C ıeg Cree er ed ı MDL on P ı n*. The work plan addresses chloride, TDS, sulfate and boron in the watershed. The Regional Board and USEPA may use the work product from the Calleguas Creek Watershed Group to establish a subsequent TDL for chloride in the Calleguas Creek Watershed.

Discharges from SSFL enter the Calleguas Creek Watershed in Arroyo Simi Reach 7, which is included on the 303 (d) list as a chloride water quality limited segment in the Calleguas Creek Watershed. There are no waste load allocations (WLAs) for point source discharges or load allocations (LAs) for nonpoint sources in effect under storm conditions in the TMDL. Since all discharges from the SSFL to the Arroyo Simi occur as a result of storm water runoff, no chloride WLAs will be included in this Order for discharges from Outfalls 003 through 007, 009 and 010 to Arroyo Simi. Based on existing data, SSFL does not appear to contribute chloride loading to the watershed at levels that would alter the assumptions of the TMDL or contribute to further impairment.

Q. Calleguas Creek Nitrogen Compounds and Related Effects TMDL. On October 24, 2002, the Regional Board adopted Resolution No. 2002-017, Amendment to the *B ın P ı n for e Lo Ange e eg on* to Include a TMDL for Nitrogen Compounds and Related Effects in Calleguas Creek (*N rogen Co po nd nd e ı ed Effec* TMDL). The State Board approved the Nitrogen Compounds and Related Effects TMDL on March 19, 2003. The Office of Administrative Law approved the TMDL on June 5, 2003 and USEPA approved it on June 20, 2003.

The *N rogen Co po nd nd e ı ed Effec* TMDL includes waste load allocations for ammonia (NH_3), nitrite as nitrogen (NO_2–N), nitrate as nitrogen (NO_3–N), and nitrate plus nitrite as nitrogen (NO_2–N + NO_3–N). The TMDL authorizes interim limitations (expressed as interim waste allocations) for total nitrogen (NO_3-N + NO_2-N). The WLA applied to the publicly owned treatment works (POTW) in the watershed and the LAs are specified for agricultural discharges. Hence, this Order does not include the TMDL limitations for ammonia, nitrate as nitrogen, nitrite as nitrogen, or nitrate plus nitrite as nitrogen for discharges of storm water only from the SSFL to Arroyo Simi and Calleguas Creek. However, based on existing data, SSFL does not appear to contribute nitrogen loading to the watershed at levels that would alter the assumptions of the TMDL or contribute to further impairment.

R. Calleguas Creek Toxicity, Chlorpyrifos, Diazinon TMDL. The Regional Board approved the Basin Plan amendment to incorporate the TMDL for toxicity,

chlorpyrifos, and diazinon in the Calleguas Creek, its tributaries and Mugu Lagoon (Resolution No. R4-2005-009) on July 7, 2005. The TMDL addresses impairment to water quality due to elevated levels of chlorpyrifos, diazinon, other pesticides and/or other toxicants. The amendment includes numeric targets, WLAs, and load allocations for Toxicity Unit Chronic, chlorpyrifos, and diazinon. It also includes a compliance schedule of two years from the effective date of the TMDL to meet the final WLAs and ten years to meet the LAs applied to nonpoint sources.

State Board approved the TMDL on September 22, 2005 (Resolution No. 2005-0067). OAL and EPA approvals were effective on November 27, 2005, and March 14, 2006, respectively. The TMDL became effective on March 24, 2006. A wasteload of 1.0 TUc is allocated to the major point sources (POTWs) and minor port sources discharging to the Calleguas Creek Waters

V. Regulatory Basis for Effluent Limitations

A. General Basis for Effluent Limitations

B. Effluent limitations established pursuant to Sections 301 (Effluent Limitations), 302 (Water Quality-Related Effluent Limitations), 303 (Water Quality Standards and Implementation Plans), 304 (Information and Guidelines), and 402 (NPDES) of the Federal Clean Water Act and amendments thereto, are applicable to the discharges covered by the tentative order.Water Quality Based Effluent Limitations (WQBELs)

The WQBELs are based on the Basin Plan, other State plans and policies, or USEPA water quality criteria. These requirements, as they are met will protect and maintain existing beneficial uses of the receiving water. Where numeric water quality

The first two triggers were evaluated using the California Permit Writers Training Tool (CAPWTT). While on contract with the State Board, Scientific Applications International Corporation (SAIC) developed this software to determine RPAs and, when reasonable potential exists, calculate the WQBELs, following procedures in SIP. The third trigger is evaluated by the permit writer utilizing all other information available to determine if a water quality-based effluent limitation is required to protect beneficial uses.

The results of the RPA for each analyte evaluated is presented in Attachment 1 for discharges from Outfall 001 and 002 and in Attachment 2 for the storm water only discharges (Outfalls 003 – 007) of Order No. R4-2004-0111. Most of the targeted analytes evaluated have a response of (Best Professional Judgement) BPJ or No Criteria required. The BPJ response requires the permit writer use all other available information to determine if a limit should be stipulated and if necessary to determine the applicable limit. The No Criteria result indicated that CTR does not include criteria to evaluate this analyte.

A numeric limit has not been prescribed for a toxic constituent if it has been determined that it has no reasonable potential to cause or contribute to excursions of water quality standards. Howev

4) WQBELs Calculation Example

Using Copper as an example, the following demonstrates how WQBELs were established for this Order.

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A set of AMEL and MDEL values are calculated separately, one set for the protection of aquatic life and the other for the protection of human health. The AMEL and MDEL limitations for aquatic life and human health are compared, and the most restrictive AMEL and the most restrictive MDEL are selected as the WQBEL.

LTA_{ac}

For copper, the following data were used to develop the AMEL and MDEL for aquatic life using equations provided in Section 1.4, Step 5 of the SIP (Table 2 of the SIP also provides this data up to two decimals):

No. of Samples Per Month	CV	$Multiplier_{MDEL\ 99}$	$Multiplier_{AMEL\ 95}$
4	0.6	3.11	1.55

$AMEL_{aquatic\ life}$ = 4.48 x 1.55 = 6.94 µg/L

$MDEL_{aquatic\ life}$ = 4.48 x 3.11 = 13.9 µg/L

C ,c , on of n e , AMEL nd MDEL

Step 5: For the ECA based on human health, set the AMEL equal to the ECA

as appropriate.

The USEPA has approved the State's 303(d) list of impaired water bodies. Certain receiving waters in the Los Angeles and Ventura County watersheds do not fully support beneficial uses and therefore have been classified as impaired on the 2002 303(d) list and have been scheduled for TMDL development.

The Los Angeles River flows for 55 miles from the Santa Monica Mountains at the western end of the San Fernando Valley to the Pacific Ocean. The Los Angeles River drains an area of about 825 square miles. Approximately 324 square miles of the watershed are covered by forest or open space land. The rest of the watershed is highly developed. The river flows through industrial, residential, and commercial areas, including major refineries and petroleum products storage facilities, major freeways, rail lines, and rail yards serving the Ports of Los Angeles and Long Beach.

The majority of the Los Angeles River watershed is considered impaired due to a variety of point and nonpoint sources. The 2002 303(d) list includes total aluminum, dissolved cadmium, dissolved copper, dissolved zinc, high coliform count, pH, ammonia, nutrients (algae), odors, lead, coliform, trash, scum, oil, dichloroethylene, tetrachloroethylene, and trichloroethylene. High coliform count is a pollutant stressor for Bell Creek. The pollutant stressors listed for the Los Angeles River estuary include chlordane, DDT, lead, PCBs and zinc in sediment. 0.115 0 Td (copper,) Tj 3.63-5 0 Td (

F. Whole Effluent Toxicity

Whole Effluent Toxicity (WET) protects the receiving water quality from the aggregate toxic effect of a mixture of pollutants in the effluent. WET tests measure the degree of response of exposed aquatic test organisms to an effluent. The WET approach allows for protection of the narrative “no toxics in toxic amounts” criterion while implementing numeric criteria for toxicity. There are two types of WET tests: acute and chronic. An acute toxicity test is conducted over a short time period and measures mortality. A chronic toxicity test is conducted over a longer period of time and measures mortality, reproduction, and growth.

The Basin Plan specifies a narrative objective for

In compliance with 40 CFR 122.45(f), mass-based limitations have also bee

impaired immune system function, and in large volumes unconsciousness, impaired heart function, or death. Considering the toxic nature of TCE and that past practices at the site released extraordinary volumes of TCE into the environment that can continue to leach into surface water through the scouring from storm events, and further considering that the existing monitoring data may not be representative of direct discharges to waters of the United States since the data were collected downstream of the initial discharge, the Regional Board has determined that a water quality-based effluent limitation for TCE is necessary to protect beneficial uses.

Outfalls 003 through 007. Discharges from Outfall 003 through 007 are storm water runoff only. Daily maximum and monthly average limitations for storm water were included in Order No. 98-051. This Order does not include monthly average limitations for priority pollutants in storm water only discharges since storm events are infrequent and often
occur less than once per month during the rainy season. This change in the limitations is consistent with permits adopted by the Regional Board for storm water discharges only.

The storm water only discharges from Discharge Outfalls 003 through 007 were also evaluated using CAPWTT (Attachment 2 of Order No. R4-2004-0111). The analytes with statistical reasonable potential are cadmium, copper, cyanide, mercury, and TCDD (Attachment 2 page 1). Cyanide was detected only once during the period evaluated at a concentration of 5.8 micrograms/liter. That detection triggered the reasonable potential since it exceeds that calculated average monthly effluent limit (AMEL). However, the discharges evaluated are storm water only discharges, which do not have monthly average limitations. When the maximum effluent concentration (m

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(a)Tj 6.0115 0 Td (s)Tj9012 0 Td (e)Tj 6.0115 0 Td (r)Tj 3.6069 0 Td (a)Td (D)Tj 7.81495 0(a)Tj 6.0115 0 Td (Td (f)Tj 3.12598 0

as dissolved criteria. The daily maximum limitations for all metals included in this order were calculated based on criteria that appears in CTR when they were the most protective criteria available. The dissolved criteria were adjusted using conversion factors to total recoverable. Since the effluent limit for cadmium in the Order R4-2004-0111 is total cadmium it is slightly higher than the limit included in the Order 98-051.

The criteria stipulated for TDS, sulfate, chloride, and nitrogen also changed for storm water discharges to the Arroyo Simi, a tributary of Calleguas Creek. The criteria listed previously were the stipulated criteria

removed, hauled offsite and disposed of at a permitted disposal facility.

Outfall 011. The Perimeter Pond collects wastewater generated from Area 1. The discharges from groundwater treatment systems located in Area 1, discharges from Sewage Treatment Plant 1 and storm water runoff from the vi

Data collected from August 20, 2004 (the effective date of Order R4-2004-0111) through May 5, 2005 was used to evaluate reasonable potential at the compliance points enumerated in that Order. This analysis has been completed to supplement the initial results presented in Order R4-2004-0111.

R4-2006-0008

Outfalls 001 002, 011, and 018 discharge wastewater and storm water runoff from SSFL to Bell Creek at the south. Outfalls 011, the Perimeter Pond, and 018, the R-2 Pond Spillway, are located directly upstream of Outfalls 001 and 002 respectively. Discharges from Outfalls 011 and 018 receive no additional treatment prior to exiting Outfalls 001 and 002. However, storm water runoff traversing other RCRA areas of concern may pick up other contaminants and subsequently enter the streambed between the upstream outfalls (Outfalls 011 and 018) and the corresponding downstream outfalls (Outfalls 001 and 002). Since there was no additional treatment, the discharges from these outfalls were evaluated together.

The statistical analysis yielded reasonable potential for copper, lead, mercury, and TCDD. The data, site history, and other information available were incorporated into the BPJ analysis. This analysis supported the retention of effluent limitations established at Outfalls 001 and 002 in Order No. R4-2004-0111 and it supported the inclusion of those effluent limitations for discharges from Outfalls 011 and 018.

Outfalls 008, 009 and 010 are storm water only outfalls. Data collected at these locations since the adoption of Order No. [illegible] adoptio[illegible]

these contaminants are documented as present in these locations the discharger will be required to monitor during storm events for chemicals of concern. The effluent limitations included in Orders R4-2006-0008 and R4-2006-0036 for the rocket engine test stands will be included as “benchmarks”.

A “benchmark” is a water quality based effluent limit or a performance based limit that is used to evaluate the performance of BMPs with regard to the removal of contaminants present in the discharge. In this permit, the benchmarks are established based on water quality based effluent limitations. Exceedance of a benchmark two times conse

The report also includes a section titled *C p rr ˛ eco ery f er Fire* The section includes summaries of other studies completed on chaparral. Several studies (Guo 2001, Grace & Keeley 2006, Keeley & Keeley 1981, Horton & Kraebel 1955, Robi chaud et al 2000) concluded that the total vegetative cover is generally high in the first two years following a fire: reported values are from 11 to 85 percent. The report estimates that between March 26 and April 12, 2007, the mean total vegetative cover within the burned areas on the SSFL site is 46.6 percent.

Soil infiltration capacity is sometimes reduced after a fire. This reduction in soil infiltration capacity is due to an increase in soil water repellency (hydrophobicity) which is caused by waxy residues that are deposited on the soils during the burning of vegetation. On July 17, 2007, Boeing submitted the "Post Fire Soil Hydrophobicity and Recovery of Infiltration Capacity Report". The report documented an investigation of the pre-fire and post fire hydrophobicity conditions in four onsite target soil groups. The analysis was completed in April 2007. The conclusion suggests no statistical difference in the hydrophobicity of the soils between the burned and unburned tested areas onsite other than a portion of watershed 002 (west of Outfall 018). (Based on a confidence level of =0.05.) The report included the statement that case studies indicate that the recovery time ranged from one to three years. The study at SSFL was completed nineteen months after the fire which began on September 28, 2005.

Regional Board's Wet Weather TasQ aab

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along with an evaluation of acceptable assumptions and generalizations, the storm size developed by the Discharger may be considered by the Regional Board.

Reasonable Potential Analysis: A reasonable potential analysis was completed for data collected through May 22, 2006. The analysis did not result in the inclusion of any new constituents with effluent limitations in this Order.

Outfalls 015 through 017 will be deleted. The discharger currently trucks the wastewater offsite for disposal at one of the County Sanitation Districts of Los Angeles facilities and there are no plans to initiate discharges from the treatment plants in the future. Therefore, the updated ROWD included a request that Outfalls 015 through 017 be removed from the permit.

To prevent further degradation of the water quality of the Los Angeles River and Calleguas Creek and to protect their beneficial uses, mixing zones and dilution credits are not allowed in this Order. This determination is based on:

Many of the beneficial uses stipulated are intermittent for Dayton Canyon Creek, Bell Creek and the Arroyo Simi. The discharges from SSFL in many cases provide a significant portion of the headwaters for these waterbodies. Since there is little assimilative capacity of the receiving water, a dilution factor is not appropriate and the final WQBEL should be a numeric objective applied end-of-pipe.

The discharge may contain the 303(d) listed pollutants that are bioaccumulative such as metals. These pollutants, when exceeding water quality criteria within the mixing zone, can potentially result in tissue contamination of an organism directly or indirectly through contamination of bed sediments with subsequent incorporation into the food chain.

as either 2.5 inches during a 24-hour period, or 0.6 inches in an hour, as measured at the Area IV rain gauge located at the SSFL.

The Regional Board has funded the preliminary work for the development of a regional design storm and the associated policy. This work is documented in the Fact Sheet in the section titled Regional Board's Wet-Weather Task Force. Regional Board staff anticipates that further work will be needed before proposing a regional design storm policy or any site-specific design storm, in order to further explore these assumptions and generalizations; evaluate the efficacy of the design storm for different pollutants and land uses; refine the data used in modeling the water quality outcomes of potential design storms and consider policy implications with regard to incorporating design storms into permits. It is therefore premature to establish a regional design storm or site-specific design storm prior to this additional technical work and prior to a full consideration of the policy considerations of adopting a regional design storm policy.

Regional Board staff also believe

		Discharge Limitations		
Constituents	**Units**	**Monthly Average**	**Daily Maximum**	**Rationale[1]**
pH	pH Units	---	6.5-8.5	Basin Plan
Temperature	^{o}F	---	86	BPJ/Thermal Plan
Total suspended solids	mg/L	15	45	BPJ–Previous Order
$BOD_5$20°C	mg/L	20	30	BPJ – Previous Order
Oil and grease	mg/L	10	15	BPJ – Previous Order
Settleable solids	ml/L	0.1	0.3	BPJ – Previous Order
Total residual chlorine	mg/L	----	0.1	Basin Plan
Total dissolved solids	mg/L	----	950	Basin Plan
Chloride	mg/L	----	150	Basin Plan
Sulfate	mg/L	----	300	Basin Plan
Barium	mg/L	----	1.0	BPJ-Previous Order
Iron	mg/L	----	0.3	BPJ-Previous Order
Fluoride	mg/L	----	1.6	Basin Plan
Detergents (as MBAS)	mg/L	----	0.5	Basin Plan
Nitrate + Nitrate-N	mg/L	----	8.0	Basin Plan
Ammonia-N	mg/L	1.96©	10.1®	LA River Nutrients TMDL
Nitrate-N	mg/L	----	8.0	LA River Nutrients TMDL
Nitrite-N	mg/L	----	1.0	LA River Nutrients TMDL
Manganese	g/L	----	50	BPJ-Previous Order
Cyanide	g/L	4.3	8.5	CTR
Antimony	g/L	----	6.0	Basin Plan-Title 22
Arsenic	g/L	----	10	USEPA MCL
Beryllium	g/L	----	4.0	Basin Plan-Title 22
Cadmium	g/L	2.0	4.0/3.1	CTR/TLA River Metals TMDL
Chromium (VI)	g/L	8.1	16.3	CTR
Copper	g/L	7.1	14.0	CTR
Lead	g/L	2.6	5.2	CTR

Constituents	Units	Discharge Limitations		Rationale
		Monthly Average	Daily Maximum	
pH	pH Units	----	6.5-8.5	Basin Plan
Oil and grease	mg/L	----	15	BPJ
Chloride	mg/L	----	150	Basin Plan
Sulfate	mg/L	----	250[2a]	Basin Plan
Sulfate	mg/L	----	300[2b]	Basin Plan
Boron[1]	mg/L	----	1.0	Basin Plan
Fluoride	mg/L	----	1.6	Basin Plan
Nitrate + Nitrate-N	mg/L	----	10.0[2a]	Basin Plan
Nitrate + Nitrate-N	mg/L	----	8[2b]	Basin Plan
Total dissolved solids	mg/L	----	850[2a]	Basin Plan
Total dissolved solids	mg/L	----	950[2b]	Basin Plan
Ammonia-N(Outfall 008 only)	mg/L	----	10.1®	LA River Nutrients TMDL
Nitrate-N(Outfall 008 only)	mg/L	----	8.0	LA River Nutrients TMDL
Nitrite-N(Outfall 008 only)	g/L	----	0.[a]	

72.00505 0 Td ( )Tj 46.529 0 Td (-)505 0.0251 0 Td (L)Tj 6.011

C. Following are the benchmarks and the specific rationales for pollutants discharged in storm water runoff from Outfalls 012 through 014.

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B. Interim Ambient WLAs for Pollutants in Sediment for Storm Water Dischargers

The following sediment interim WLAs for Arroyo Simi are effective November 23, 2012 (five years from the effective date of this permit).

Constituents	Units	Discharge Limitations Monthly Average	Discharge Limitations Daily Maximum	Rationale
Chlordane	µg/g	--	0.0033	OC Pest & PCBs TMDL
4,4-DDD	µg/g	--	0.014	OC Pest & PCBs TMDL
4,4-DDE	µg/g	--	0.17	OC Pest & PCBs TMDL
4,4-DDT	µg/g	--	0.025	OC Pest & PCBs TMDL
Dieldrin	µg/g	--	0.0011	OC Pest & PCBs TMDL
PCBs	µg/g	--	25.7	OC Pest & PCBs TMDL
Toxaphene	µg/g	--	0.23	OC Pest & PCBs TMDL

XII. Monitoring Requirements

A. Effluent Monitoring

To access the impact of the discharge to the beneficial uses of the receiving waters, the Discharger is required to monitor the conventional and priority pollutants and other identified parameters.

B. Storm Water Monitoring and Reporting

Storm water runoff discharges from the SSFL are subject to requirements stipulated in h

D. Sediment Monitoring and Reporting

The Calleguas Creek OC Pesticides & PCBs TMDL includes waste load allocations and a requirement for monitoring of the sediment. The TMDL stipulates that compliance with the sediment based WLAs is measured as an in-stream annual average at the base of each subwatershed where the discharges are located.

E. Bioassessment Monitoring

The goals of the bioassessment monitoring for the Arroyo Simi and Los Angeles River are to:

Determine compliance with receiving water limitations;
Monitor trends in surface water quality;
Ensure protection of beneficial uses;
Provide data for modeling contaminants of concern;
Characterize water quality including seasonal variation of surface waters within the watershed;
Assess the health of the biological community; and
Determine mixing dynamics of effluent and receiving waters in the estuary.