State of California
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION

ORDER NO. R4-2006-0036 AMENDING
ORDER NO. R4-2006-0008 AMENDING
ORDER NO. R4-2004-0111

WASTE DISCHARGE REQUIREMENTS
FOR
THE BOEING COMPANY
(Santa Susana Field Laboratory)
(NPDES NO. CA0001309)

The California Regional Water Quality Control Board, Los Angeles Region (Regional Board), finds:

Background

1. The Boeing Company (hereinafter Boeing or Discharger) discharges waste from its Santa Susana Field Laboratory (SSFL) facility under waste discharge requirements, which serve as a National Pollutant Discharge Elimination System (NPDES) permit, contained in Order No. 98-051 adopted by this Regional Board on June 29, 1998 (NPDES Permit No. CA0001309).

2. Boeing has filed a report of waste discharge and has applied for renewal of its waste discharge requirements and NPDES permit for discharge of wastes to surface waters.

3. This amendment (R4-2006-0008) to Order No R4-2004-0111 (adopted July 1, 2004) is the result of new information incorporated into the Order after one year of compliance and routine monitoring based on Monitoring and Reporting Program (MRP) No. 6027.

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Description of Facility

4. SSFL is located at the top of Woolsey Canyon Road in the Simi Hills, Ventura County, California (Figure 1). The developed portion of the site comprises approximately 1,500 acres. There is 1,200-acres of undeveloped land located to the south. Recently, an additional 150-acre undeveloped land has been purchased to the north of the site. SSFL is owned by both Boeing 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.

5. Boeing operations at SSFL since 1950 include research, development, assembly, disassembly, and testing of rocket engines, missile components, 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 decontamination, decommissioning, and environmental remediation and restoration.

6. Current Boeing activities at SSFL that contribute to discharges from the site include rocket engine testing where water is used to cool flame deflectors, fire suppression equipment, and pressure testing of equipment used to support rocket engine testing. Other facility support activities such as cooling, heating, domestic waste treatment, and ground water treatment contribute to discharges from the site as well.

7. Surface Impoundments: There are nine closed surface impoundments at the SSFL that are regulated under the Resource Conservation and Recovery Act (RCRA). The nine impoundments are closed and regulated by Department of Toxic Substances Control (DTSC) under two postclosure permits issued in 1995. These impoundments include: Engineering Chemistry Laboratory(ECL), Advanced Propulsion Test Facility (APTF) 1 & 2, Storable Propellant Area (SPA) 1 & 2, Systems Test Lab (STL) IV 1 & 2, Delta skim pond and the Alfa Bravo skim pond. A tenth surface impoundment, the Propellant Load Facility (PLF), was clean closed and did not require a postclosure permit.

8. Nuclear Operations Decontamination and Decommissioning: There are currently no programs at the SSFL that employ special nuclear materials. Current decommissioning activities have reduced the inventory of radioactive waste to approximately 5 curies. Essentially all this material is stored in shielded vaults located at the Radioactive Materials Handling Facility (RMHF). SSFL continues to utilize radioisotopes in the form of calibration sources that are necessary to calibrate radiation detectors and counting equipment. Periodic radiological monitoring of surface waters is conducted under the existing NPDES permit. Three radiological facilities located in Area IV of the SSFL remain to be decomissioned and storm water run-off from the area is monitored for radioactivity. The DOE is responsible for the cost of decontamination and decommissioning, the California Department of Health Services (Radiological Health Branch) has radiological oversight responsibilities at SSFL.

9. Monomethyl Hydrazine Usage: Monomethyl hydrazine (MMH), a propellant, has been used for research, development and testing of rocket engines at SSFL since 1955. MMH that is released as a result of testing operations is captured and treated by an ozonation unit under a variance granted by DTSC. As a result, MMH is not released to the ponds from this area. MMH may be used at the Systems Test Lab 4 (STL-4) and may be stored at the SPA. MMH will not be used at APTF.

10. Energy Technology Engineering Center (ETEC) Cogeneration Operations: The Sodium Component Testing Installation (SCTI) (cogeneration) unit of ETEC utilized two cooling tower operations, Power Pac and E-5. Both systems have been shut down and will not be reactivated. The facility has been decommissioned and was demolished in July, 2003.

11. CTL-3 Chemical Laser Testing: CTL-3 is shut down and the facility is not expected to be reactivated. There is no discharge currently from this area.

12. Future Operations: Since SSFL is a test facility, it is difficult to anticipate future test projects and possible wastewater generation. Following are discussions of potential future operations:

    Treatment Under Tiered Permitting Rules: Boeing may explore the feasibility of treating certain waste streams by either a mobile or fixed hazardous waste treatment unit operating under DTSC Permit-By-Rule requirements. The waste streams to be treated would be classified under these regulations as non-RCRA, RCRA, or RCRA exempt hazardous waste. Treated effluent would then be released into the ponds.

    Other Wastestreams: Waste streams that may contain trace quantities of certain toxic materials used in cleaning, assembly, testing and support operations may be generated that will be discharged to the receiving ponds.

Description of Waste Discharge

13. SSFL has the potential (based on the 24-hour duration, 10 year return storm event) to discharge a total of approximately 272 million gallons per day (MGD) of storm water runoff that has the potential to contain pollutants from the facilities. Approximately 60% of the discharge exits 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, above the estuary (see Figure 1).

    The remaining storm water is discharged via Outfalls 003 through 007, 009 and 010 to the northwest toward the Arroyo Simi, Outfall 008 in Happy Valley towards Dayton Canyon Creek and via various drainages toward Arroyo Simi, Runkel, Dayton, and Woolsey Canyon. The storm water runoff from Happy Valley flows via Dayton Canyon Creek to Chatsworth Creek. Chatsworth Creek flows south to Bell Creek southwest of the intersection of Shoup Avenue and Sherman Way. Bell Creek subsequently flows southeast to the Los Angeles River.

14. Groundwater Remediation: During the early 1950s to the mid-1970s, volatile organic compounds were utilized for the cleaning of hardware and rocket engine thrust chambers, and for the cleaning of other equipment. These solvents migrated into the subsurface, contaminating groundwater primarily with trichloroethylene (TCE) and 1,2-dichloroethylene (1,2-DCE).

    As a result, there is now an extensive groundwater remediation/investigation program in progress at the SSFL, which includes pumping, treating and storing groundwater at the facility. Currently, this system is composed of eight treatment systems, five active and three inactive, which have the capability of producing up to 578 million gallons per year of groundwater treated to remove the volatile and in some cases semi-volatile organic compounds. The treatment system is not designed to treat other pollutants such as perchlorate or metals. Treated groundwater is discharged directly into one of five ponds included in the water reclamation system via naturally occurring streambeds and in some cases man made watercourses present onsite. The chemical treatment used for the groundwater treatment systems consists of ultraviolet light and hydrogen peroxide oxidation, and carbon adsorption. The physical treatment consists of air stripping towers. These treatment systems are regulated under RCRA hazardous waste permits or administrative order issued by DTSC, and various air quality control permits issued by Ventura County. Future plans to add new wells may increase the volume into the system by 25%. Pumping rates in the future may increase or decrease, depending upon the outcome of the groundwater remediation-testing program. 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.

15. Water used at SSFL for personnel and for industrial purposes (such as quenching during engine test operations) is supplied by both the Calleguas Water District and a bottled water supplier. The water used for industrial purposes may after use be discharged to the onsite streambeds and watercourses and ponds.

16. Two package-type activated sludge sewage treatment plants (STP1 and STP3) previously provided secondary and tertiary treatment for most of the domestic sewage generated onsite. Disinfected sewage effluents from the activated sludge facilities were directed to the reclaimed water system reservoirs (unlined ponds). Water from the reservoirs was routinely reused for industrial purposes. A third activated sludge sewage treatment plant (STP2) is available, but has not been used recently.

    Operations terminated at STP3 in October 2001 and at STP1 in December 2001. Domestic sewage, which was previously treated at the sewage treatment plants, has been diverted offsite. The STP1 and STP3 basins are currently used as collection points. Every few days, vacuum trucks transport the accumulated waste off site for treatment. The Discharger has requested that the permit include effluent limits for potential future discharges from the plants.

17. The SSFL utilizes a system of natural, unlined and man-made ponds and channels to collect and reuse water as a cooling media and for fire suppression during rocket engine and component hot fire testing and to provide for storm water settling as a BMP. Water supplied to the system comes from any one, or a combination of the following, sources:

storm water, treated groundwater, tertiary treated sanitary sewage, recycled test cooling water, or domestic water purchased from an established purveyor. The water is stored in a series of steel tanks located in Area 2 called Skyline. The water is transferred by gravity to either the Alfa or Bravo test facilities for use as cooling and fire protection water during test operations. Excess water from these operations is returned to the ponds through open, unlined channels. The water is then pumped back to the storage tanks at Skyline for reuse. If the demand for water exceeds the reclaimed water supply, domestic water is used to make up the difference. The reclaimed water system is separated from the domestic water supply by air gaps and backflow prevention devices.

Area I utilizes the R-1 Pond as a reservoir for the reclaimed water system. Water retained in the R-1 Pond is comprised of primarily effluent from groundwater treatment systems. Other sources include effluent from Sewage Treatment Plant 1 and seasonal rain events. If the supply of reclaimed water exceeds requirements, the R-1 Pond will overflow into Perimeter Pond; excess water from Perimeter Pond will then flow south to Bell Creek through Outfall 001. Discharges through Outfall 001 are rare, and will usually only occur after extensive rainfall over an extended period.

Areas II, III, and IV share a common system for reclaimed water collection and distribution, which will be referred to as Area IV. Area IV uses Silvernale Pond and R-2A Pond as reservoirs for the reclaimed water system. As in Area I, the primary source of water stored in the ponds comes from groundwater treatment operations. Other sources include effluent from Sewage Treatment Plant 3, cooling water runoff from test operations and seasonal rain events. If the supply of reclaimed water exceeds requirements, the water will be discharged to the south through R-2A Pond, and then to Bell Creek through Outfall 002. Reclaimed water may be pumped from either Silvernale or R-2A Pond to the reclaimed water storage tanks located at Skyline, as needed.

Industrial operations onsite discharge untreated wastewater directly to either constructed or natural drainage areas and streambeds. The wastewater flows to ponds located onsite and may subsequently be used in other industrial activities such as quenching operations during engine tests. These natural drainage areas and streambeds are waters of the United States.

18. The water reclamation system located onsite consists of five active ponds (Figure 2) used for collection and storage of reclaimed water. They are:

R-1 Pond	capacity 3.7 million gallons
Perimeter Pond	capacity 1.3 million gallons
Silvernale Pond	capacity 6.0 million gallons
R2-B Pond	capacity 200,000 gallons
R2-A Pond	capacity 2.5 million gallons

Also shown on Figure 2 is the Coca Pond. This pond was previously used as a retention basin to collect water from the space shuttle main engine testing area. When Coca Pond is filled to capacity, it discharges to the R-2 Pond. The pond is currently used to collect water that may leak from the fire suppression system located in the former test area. If sufficient leaks occur, the pond discharges to R-2.

19. SSFL has the capability to redirect the flow in each of the five ponds via unlined channels, water lines, or pumping into water storage tanks as follows:

R-1 Pond	Flow may be discharged to Perimeter Pond or pumped to the Reclaimed Water Storage Tanks.
Perimeter Pond (PP)	Flow may be released to Bell Canyon or pumped to R-1 Pond.
Silvernale Pond	Effluent flows by gravity to R2-A Pond.
R2-B Pond	This pond is a silt inlet to R-2A Pond. Flow goes directly to R-2A Pond.
R2-A Pond	Flow may be released to Bell Canyon, pumped to Silvernale Pond.

Air agitation is used at these ponds to control algae blooms. Chemical addition, such as copper sulfate, bromine or chlorine, are not used, but may become necessary in the future if agitation alone proves to be inadequate to control algae blooms.

20. The SSFL is underlain by alluvium, weathered bedrock and unweathered bedrock. The alluvium occurs in narrow drainages and alluvial valleys. The alluvium is underlain by the Chatsworth Formation. The Chatsworth Formation consists of fractured sandstone with interbeds of siltstone and claystone, which can transmit water as well as contaminants.

The groundwater system at the SSFL is divided into two aquifers; the shallow and the deep. The alluvium and weathered bedrock comprise the shallow aquifer, and the unweathered and fractured Chatsworth Formation comprise the deep aquifer.

The groundwater surface in the shallow aquifer generally reflects surface topography. In April 2002, groundwater depths in the shallow aquifer ranged from approximately 6 feet to 40 feet below grade. Wells in the deeper aquifer contained groundwater between approximately 23 feet to approximately 520 feet below grade.

21. Excess water from the onsite wastewater reclamation system is intermittently discharged to the southern Discharge Outfalls 001 and 002 (See Figure 3 Process Diagram)

The intermittent wastewater flows are listed below.

Domestic Wastewater

LOCATION		FLOWS (MGD)		
From	To	Max	Average	Design
Area I	R-1 (PP)	0.012	0.012	0.04
Area II	Area III	0.0	0.0	0.05
Area III	R-2	0.022	0.008	0.0236
Totals		0.034	0.000	0.1136

Industrial Wastewater

LOCATION		FLOWS (MGD)		
From	To	Max	Average	Design
APTF	R-1	0.013	0.0003	0.013
Alfa Test Area 1	R-2	0.002	0.002	0.002
Alfa Test Area 3	R-2	0.002	0.002	0.002
Bravo Test Area	R-2	0.00003	0.0000	0.00003
Groundwater	R-2	0.835	0.050	0.835
Groundwater	PP	0.648	0.000	0.648
STL-IV (Alt. Test)	R-2B	0.0016	0.0000	0.0016
STL-IV (AM. Test)	R-2B	0.0005	0.0000	0.0005
STL-IV (Firex)	R-2B	0.00004	0.00000	0.00004
RNTF Bldg. 222	R-2	0.0004	0.0004	0.0004
CTL-3	R-1	0.0100	0.0000	0.0100
Totals		1.5123	0.0547	1.5123

22. The current Order included estimates of discharges from the Seismic Test Area of 0.0002 mgd. The operations at that area have ceased, the building is inactive and scheduled for demolition. Hence, there are no projected discharges from that location.

    The current Order also includes a total design flow from industrial discharges of 1.6338 mgd. The design flow in this Order is 1.5123 mgd. The decrease in the design flow is due to operations that have ceased, facilities that have been demolished, and a decrease in the pump rate for the groundwater treatment systems.

23. Previously, in dry weather, ongoing activities were normally sufficient to use the water generated from onsite groundwater treatment systems. However, in recent years this water balance has changed. Water now being added into the system from the Calleguas Water District, plus the reduction of testing activities, has caused releases from R-2A Pond (located upstream from Outfall 002) to become intermittent. During hot weather, the water released will either evaporate or percolate into the ground without reaching Discharge Outfall 002. Thus, no offsite discharge of water occurs during dry weather.

24. The wastewater, which is a combination of storm water runoff, treated sewage effluent, treated groundwater, and water from industrial processes, is discharged offsite through Outfall 001, located at Latitude 34º 12' 49.7" North and Longitude 118º 41' 43.7" West, or through Outfall 002, located at Latitude 34º 13' 2.4" North and Longitude 118º 42' 15.4" West. These two discharge outfalls are located approximately 6,000 feet south of the final retention ponds located at the edge of the developed portion of the site.

25. Many of the areas discharging wastewater to the drainage areas and streambeds are associated with activities that are being regulated by DTSC under RCRA. DTSC is exercising its RCRA authority through Post Closure Permits and corrective action oversight of contaminated areas. The corrective action oversight includes delineation of areas of contamination, as well as subsequent cleanup operations at solid waste management units (SWMUs) and areas of concern onsite. The Post Closure Permits cover the operation of the groundwater treatment systems used during the cleanup.

26. The 1995 Final SB 1082 Framework which was issued on December 14, 1995 documents the framework for implementing Health and Safety Code Section 25204.6(b) dealing with jurisdictional overlap between the DTSC and the Regional Water Quality Control Boards (RWQCBs). SB 1082 requires that "sole jurisdiction over the supervision of that action [meaning oversight of those corrective action activities] is vested in either the department or the State Water Resources Control Board and the California Regional Water Quality Control Boards." Since many of the identified wastewater sources are currently involved in the RCRA corrective action or the Post Closure Permits with DTSC as the oversight agency and consistent with RCRA, DTSC will ensure that the discharges from these operations meet the substantive Clean Water Act requirements. Regional Board staff will provide appropriate comments during the revision of the RCRA permits, which is scheduled for renewal in May 2005, to ensure the Clean Water Act, Porter-Cologne Act, and the Basin Plan requirements are met. This Order requires the final, downstream outfalls (Serial Nos. 001 and 002) to comply with water quality standards, and these outfalls are regulated under this Order.

    There are several other operations that are ongoing which are not included in the RCRA corrective action that discharge wastewater to the onsite drainageways and streambeds. These activities will be covered by this NPDES permit.

27. The operation evaluated at SSFL and the agency (RWQCB or DTSC) with primary oversight authority and the NPDES outfall number associated with the operation if the Regional Board has oversight are listed below (Figure 4).

Operation	Current NPDES Outfall No.	Agency
1. Wastewater and Storm water runoff	001	RWQCB
2. Wastewater and storm water runoff	002	RWQCB
3. Storm water Radioactive Material Handling Facility	003	RWQCB
4. Storm water Sodium Reactor Exp.	004	RWQCB
5. Storm water Sodium Burn Pit 1	005	RWQCB
6. Storm water Sodium Burn Pit 2	006	RWQCB
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

Operation	Current NPDES Outfall No.	Agency
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)/ Ultraviolet light/perioxidation (UV/P)	-----	DTSC
19. RD-9 GWTS UV/P	-----	DTSC
20. Alfa GWTS/Air Stripping Towers (AST)	-----	DTSC
21. Delta GWTS/AST	-----	DTSC
22. STLV-IV GWTS/AST	-----	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

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

Description of Storm Water Sampling

28. One objective of this Order is to protect the beneficial uses of receiving waters. To meet this objective, storm water runoff discharges from the SSFL are subject to requirements stipulated in this NPDES permit and the Discharger will be required to comply with all applicable provisions of the Storm Water Pollution Prevention Plan (Attachment A). This plan includes requirements to develop, implement, and when appropriate update a Storm Water Pollution Prevention Plan (SWPPP) along with Best Management Practices (BMPs) with the intent of preventing all pollutants from contacting storm water and with the intent of keeping all contaminants of concern from moving into receiving waters.

29. Past operations at SSFL have resulted not only in contamination of the groundwater with violatiles but also with various types of surface and near surface soil contamination. Previous investigations and sampling has confirmed the presence of elevated concentrations of mercury and perchlorate in soil, which has been present in storm water runoff in elevated concentrations. The presistent transport of these contaminants offsite in storm water requires that these contaminants have effluent limits in this Order.

30. Storm water from APTF flows toward Bell Creek and the Los Angeles River. Current operations at the facility include small engine testing using kerosene (RP-1), hydrogen, potentially alcohol, methanol, peroxide, and liquid oxygen (LOX). Nitrogen is also used for purge gas. After testing the staging areas are not routinely washed down to remove residual contaminants from the test operations. During normal operations testing may occur during storm events.

    It is likely that contaminants associated with the engine test material would be present in the storm water runoff from the area. Hence, this permit requires that the storm water runoff from the area be monitored. If the monitoring data indicates reasonable potential, the permit will be reopened and effluent limitations will be implemented. The Discharger has indicated that the standard operating procedures for the area in the future will include washdowns of the staging areas after engine tests. The water associated with the washdown will be collected and disposed of offsite. If testing operations are required during storm events, the Discharger will collect the storm water runoff from the staging area for offsite disposal. If washdowns do not occur after test operations or if testing occurs during storm events and the water is not collected for offsite disposal, the Discharger will be required to sample it as stipulated for other storm water monitoring locations.

31. Storm water runoff from the area that drains to discharge points 001 and 002 is estimated at 160 MGD (based on a 24-hour duration, 10-year return storm). This runoff is mixed with industrial waste collected in the ponds prior to discharge.

32. 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, and 007 are 0.004, 0.039, 0.006, 0.096, and 0.032 MGD respectively. The flow from these locations exits the site leading to Meier Canyon towards the Arroyo Simi (Figure 2). The Arroyo Simi is a tributary to Calleguas Creek, a water of the United States. The locations and the associated drainage areas are listed below for each of the seven storm water only discharge locations:

Discharge Outfall	Latitude (North)	Longitude (West)	Vicinity
003 (RMHF)	34º 14’ 4.0"	118º 42’ 38.4”	Radioactive Materials Handling Facility
004 (SRE)	34º 14’ 9.1”	118º 42’ 23.9”	Former Sodium Reactor Experiment
005 (SBP-1)	34º 13’ 48.1”	118º 43’ 3.9”	Former Sodium Burn Pit 1
006 (SBP 2)	34º 13’ 50.7”	118º 42’ 59.9”	Former Sodium Burn Pit 2
007 (B100)	34º 13’ 50.2”	118º 42’ 52.5”	Building 100
009(WS-13)	Not Available	Not Available	WS-13 Drainage Area
010(Bldg. 203)	Not Available	Not Available	Building 203

There is no flow from these locations except during heavy rainfall. For purposes of access and safety, these sampling stations have been established inside the SSFL northwest property boundary. The stations are located in close proximity to past and/or existing radiological facilities or other operations, as is noted in the vicinity column above.

Additional storm water flow exits the site via various drainage channels into Meir, Runkle and Woolsey Canyons. The maximum estimated storm water flow from the site excluding the flow via Outfalls 001 and 002 is 136 MGD.

33. Storm water runoff from the northwest slope of the facility is monitored at Discharge Outfalls 003, 004, 005, 006, and 007, 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.

34. The WS-13 Drainage area begins near the entrance to the property and traverses several potential areas of concern. The WS-13 drainage area collects storm water runoff from the Area 1 and Area 2 Landfill, and the former LOX plant located on NASA owned property. In addition, WS-13 picks up storm water run on from Sage Ranch where agricultural operations took place and a gun shooting range was located. This location has only been sampled once in the past. Additional data would provide information regarding the potential transport of contaminants in these areas offsite by storm water runoff. The WS-13 Drainage area will become Discharge Outfall 009; this outfall drains to Arroyo Simi.

35. Building 203 was formerly used as an instrumentation laboratory where various types of instrumentation were repaired and calibrated. The instrumentation included but was not limited to, thermometers and manometers that contained mercury. Also historically, a photographic processing lab was present in Building 202. Currently Building 203 is used for laser research and Building 202 is inactive. Operations in Building 203 include polishing, cleaning (using solvents and other chemicals), assembly and testing of various components in both open warehouse and clean room environments. All wastes are currently containerized and transported off site for disposal.

    Building 203 has been added as Solid Waste Management Unit (SWMU) 5.2 under the RCRA corrective action program due to mercury contamination. Mercury has also been detected downgradient of the building in the surface soils of the adjacent drainage. An interim measure has been planned to remove the surface soil and the associated contamination. Storm water sampling of the runoff will provide information regarding the contaminant concentration in the storm water runoff. The storm water runoff from Building 203 will be sampled at Discharge 010. Discharges from Building 203 drains to the Arroyo Simi and subsequently to Calleguas Creek.

36. The area commonly referred to as Happy Valley receives storm water runoff from the former solid propellant testing area. A major component of the propellant was perchlorate. The propellant testing area is inactive and buildings have been demolished. Since the propellant has been used in the area and reasonable potential exists for the constituent to cause or contribute to an exceedance, an effluent limit for perchlorate and a requirement to sample the runoff for all other constituents tested for at Discharge Outfalls 003 through 007, has been included in this Order. The Discharger with DTSC oversight implemented an interim measure (soil removal activity) for soils contaminated with elevated levels of perchlorate during Fall 2003. The project should be completed in early 2004. The new storm water monitoring location is Discharge Outfall 008. Storm water from Happy Valley flows to Dayton Canyon Creek which merges with Chatsworth Creek. Chatsworth Creek

which flows south to Bell Creek southwest of the intersection of Shoup Avenue and Sherman Way. Bell Creek subsequently flows east and merges with Calabasas Creek at the Los Angeles River near the intersection of Vanowen Street and Owensmouth Avenue.

Description of Groundwater Treatment, Sewage Treatment Plant and Water Reclamation System Sampling

37. The groundwater treatment systems are designed to treat VOC contaminated groundwater. The groundwater is treated and subsequently discharged to channels that transport it around the site for reuse. Perchlorate has been detected in some of the wells. Since the five active RCRA permitted treatment systems are not designed to treat perchlorate, the Discharger has in some instances terminated the treatment of the pumped groundwater from that locations where perchlorate has been detected.

    The groundwater treatment systems monitoring and discharge requirements are included in the Hazardous Waste Facility Post-Closure Permit for SSFL which is managed by DTSC. Consequently, all activities associated with the groundwater treatment systems and discharges associated therewith will continue to be managed by DTSC. DTSC is required by RCRA to ensure that the requirements implemented in its permits comply with all applicable and appropriate Regional Board requirements.

38. The various test stands are used to test fire rocket engines built onsite. The fire suppression and cooling water used during testing may contain residual fuels and solvents. This wastewater is directed via lined and unlined channels to the reclamation ponds, which are used to store wastewater collected from the various onsite operations along with any storm water runoff for reuse onsite.

    The Regional Board will have oversight of the discharges from the active engine test stands. This permit will include requirements for monitoring of the discharges. The data collected will be used to evaluate reasonable potential of the discharge to exceed applicable requirements and if warranted; effluent limits will be implemented for the discharges.

39. The sewage treatment plants will continue to be managed by the Regional Board. The sewage treatment plants collect only domestic waste generated onsite. There is no pretreatment program in place since the facility does not handle any industrial waste. To implement Clean Water Act section 405(d), on February 19, 1993, USEPA promulgated 40 CFR Part 503 to regulate the use and disposal of municipal sewage sludge. This Order implements the regulations and it is the responsibility of the Discharger to comply with said regulations, which are enforceable by USEPA.

    The two operational plants (STP-1 and STP-3) are activated sludge sewage treatment plants that provide secondary and tertiary treatment for the domestic sewage from the facility. The disinfected sewage effluents are subsequently directed to the reclaim water system reservoir. The two plants are currently being used as collection reservoirs only,

previously had effluent limits for $BOD_5$20ºC, coliform, and turbidity on discharges from the facilities. Sewage sludge generated was hauled offsite to the one of the facilities operated by Los Angeles County Sanitation Districts. The monitoring program for the sewage treatment plants included requirements for the previously mentioned constituents as well as pH, oil and grease and suspended solids. This permit will include requirements to monitor for priority pollutants, perchlorate, N-nitrosodimethylamine, 1,4-dioxane, and 1,2,3-trichloropropane to provide the data required to evaluate reasonable potential. If reasonable potential exists, effluent limits will be implemented.

40. The water reclamation system consists of five ponds located throughout the developed portion of the site. The treated groundwater, engine test stand wastewater and collected storm water may travel around the site, for months prior to being discharged offsite. The natural water courses located onsite are waters of the United States and are subject to regulation under the National Pollutant Discharge Elimination System provisions of the Clean Water Act. Since many of these ponds and water courses that connect these ponds are unlined, contaminants in the water may be deposited on surface soils or they may percolate down to shallow groundwater. Subsequent discharges offsite via these waterways may also transport these contaminants offsite.

    The ponds, which are used to store the wastewater for future use, are in all cases included in solid waste management unites (SWMUs) currently being investigated by DTSC. These areas are included in the ongoing RCRA characterization and cleanup at the site and are managed by DTSC. There are two special cases, Perimeter Pond and the R-2 Pond Spillway which includes runoff from both R-2A and R-2B Ponds. The ponds are SWMUs and cleanup and characterization will proceed with DTSC oversight. The effluent from Perimeter Pond and the R-2 Pond Spillway will have Regional Board oversight for the required monitoring since the discharges routinely occur as a result of storm events and the discharge is to waters of the United States. The ponds also collect wastewater from a number of areas involved in cleanup operations that may contribute constituent concentrations to the discharge.

41. On December 17, 2003, the Regional Board received the December *2003 Technical Memorandum Analysis of Groundwater Recharge, Santa Susana Field Laboratory, Ventura County, California*, prepared by Montgomery Watson Harza on behalf of the Boeing Company. This document was submitted to DTSC in order to present a qualitative and quantitative analysis of groundwater recharge at the Santa Susana Field Laboratory. Regional Board staff have also reviewed this document and find that a reasonable conclusion for the amount of rainfall that infiltrates soil using a water balance method is between 23% to 26%. Using a chloride mass balance method resulted in a range of 1% to 12% rainfall infiltration. As these calculations by different methodologies differ significantly and are inconclusive, Regional Board staff find that there is insufficient data to suggest that rainfall will not significantly recharge groundwater in the underlying surficial soils, weathered and fractured bedrock. In addition, there has been no site-specific soil attenuation factor/model submitted for Regional Board staff review. Inasmuch, those limits placed in this Order to protect groundwater recharge beneficial uses and beneficial uses of underlying groundwater apply at end-of-pipe.

Applicable Plans, Policies, and Regulations

42. On June 13, 1994, the Regional Board adopted a revised *Water Quality Control Plan for the Coastal Watersheds of Los Angeles and Ventura Counties* (Basin Plan) as amended on January 27, 1997, by Regional Board Resolution No. 97-02. The Basin Plan (i) designates beneficial uses for surface and groundwaters, (ii) sets narrative and numerical objectives that must be attained or maintained to protect the designated beneficial uses and conform to the state antidegradation policy (*Statement of Policy with Respect to Maintaining High Quality Waters in California*, State Board Resolution No. 68-16, October 28, 1968), and (iii) describes implementation programs to protect all waters in the Region. In addition, the Basin Plan incorporates all applicable State and Regional Board plans and policies and other pertinent water quality policies and regulations. The Regional Board prepared the 1994 update of the Basin Plan to be consistent with all previously adopted State and Regional Board plans and policies. This Order implements the plans, policies and provisions of the Regional Board's Basin Plan.

43. The receiving water for Discharges from Outfall 008 enters Dayton Canyon Creek, flows via Chatsworth Creek to Bell Creek, southwest of the intersection of Sherman Way and Shoup Avenue, and subsequently to the Los Angeles River. The receiving water for Outfalls 001, and 002 is Bell Creek and subsequently to the Los Angeles River. The Basin Plan contains water quality objectives for, and lists the following beneficial uses for Dayton Canyon Creek, Bell Creek, and the Los Angeles River.

Dayton Canyon Creek – Hydrologic Unit 405.21

Existing: wildlife habitat
Intermittent: groundwater recharge, contact and non-contact water recreation; warm freshwater habitat.

Bell Creek – Hydrologic Unit 405.21

Existing: wildlife habitat
Intermittent: groundwater recharge, contact and non-contact water recreation; warm freshwater habitat.

The Los Angeles River upstream of Figueroa Street – Hydrologic Unit 405.21:

Existing: groundwater recharge; contact and non-contact water recreation, warm freshwater habitat; wildlife habitat; and wetland habitat.
Potential: industrial service supply.

Los Angeles River downstream of Figueroa Street – Hydrologic Unit 405.15

Existing: groundwater recharge, contact and non-contact water recreation, and warm freshwater habitat.
Potential: industrial service supply and wildlife habitat.

Los Angeles River downstream of Figueroa Street – Hydrologic Unit 405.12

Existing: groundwater recharge; contact and noncontact water recreation; warm freshwater habitat; marine habitat; wildlife habitat; and rare, threatened, or endangered species.
Potential: industrial service supply; industrial process supply; migration of aquatic organisms; spawning, reproduction, and/or early development; and shellfish harvesting.

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.

44. The storm water runoff discharges from to the northwest side of SSFL (Outfalls 003 through 007) exit the site and flows down the Meier and Runkle Canyons toward the Arroyo Simi. The Arroyo Simi is tributary to the Calleguas Creek. The beneficial uses of the Arroyo Simi and other tributaries of the Calleguas Creek are:

Arroyo Simi – Hydrologic Unit 403.62

Existing: wildlife habitat, rare, threatened, or endangered species habitat,
Intermittent: industrial process supply, groundwater recharge, freshwater replenishment, contact and non-contact water recreation, warm freshwater habitat;

Arroyo Las Posas – Hydrologic Unit 403.62

Existing: groundwater recharge, freshwater replenishment, contact and non-contact water recreation, warm freshwater habitat, wildlife habitat,
Potential: industrial process supply, industrial service supply, agricultural supply, and cold freshwater habitat.

Calleguas Creek – Hydrologic Unit 403.12

Existing: industrial service supply, industrial process supply, agricultural supply, groundwater recharge, contact and non-contact water recreation, warm freshwater habitat, and wildlife habitat,

Calleguas Creek – Hydrologic Unit 403.11

Existing: agricultural supply, groundwater recharge, freshwater replenishment; contact and non-contact water recreation, warm freshwater habitat, cold freshwater habitat, wildlife habitat, rare, threatened or endangered species, and wetland habitat,

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.

45. **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, *Amendment to the Water Quality Control Plan for the Los Angeles Region to Update the Ammonia Objectives for Inland Surface Waters (including enclosed bays, estuaries and wetlands) with Beneficial Use designations for protection of Aquatic Life*. 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, and June 19, 2003, respectively. Although the revised ammonia water quality objectives may be less stringent than those contained in the 1994 Basin Plan, they are still protective of aquatic life and are consistent with USEPA's 1999 ammonia criteria update.

46. ***Title 22 of the California Code of Regulations***. The California Department of Health Services (DHS) established primary and secondary maximum contaminant levels (MCLs) for a number of chemical and radioactive contaminants. These MCLs can be found in Title 22, California Code of Regulations (Title 22). Chapter 3 of the Basin Plan incorporates portions of Title 22 by reference. In addition, narrative objectives require that ground waters shall not contain taste or odor-producing substances in concentrations that affect beneficial uses. The secondary MCLs in Title 22 are designed to ensure that water's taste and odor does not affect its suitability to drink. Title 22 MCLs have been incorporated into NPDES permits and Non-Chapter 15 WDRs to protect the municipal and domestic supply (MUN) and groundwater recharge (GWR), where the underlying groundwater is designated MUN, beneficial uses.

Groundwater Recharge. Sections of Bell Creek and Arroyo Simi, near the SSFL discharge points, are designated as GWR indicating that groundwater recharge is a beneficial use. Surface water from the Bell Creek enter the Los Angeles River Watershed. The headwaters of the Los Angeles River originate in the Santa Monica, Santa Susana, and San Gabriel Mountains. Four basins in the San Fernando Valley area contain substantial deep groundwater reserves and are recharged mainly through runoff and infiltration.

Surface water discharges from the north west edge of the SSFL are directed to Arroyo Simi a tributary located in the Calleguas Creek Watershed. Supplies of groundwater are critical to agricultural operations and industry (sand and gravel mining) in this watershed. Moreover, much of the population in the watershed relies upon groundwater for drinking. Since groundwater from these basins is used to provide drinking water to a large portion of the population, Title 22-based limits are needed to protect that drinking water supply. By limiting the contaminants in the SSFL discharges, the amount of pollutants entering the surface waters and groundwater basins are correspondingly reduced. Once groundwater basins are contaminated, it may take years to clean up, depending on the pollutant. Compared to surface water pollution, investigations and remediation of groundwater are often more difficult, costly, and extremely slow. For these reasons Title 22-based limits will remain in the NPDES permit where there is reasonable potential.

Action Level for Perchlorate. DHS also establishes Action Levels (ALs), or health-based advisory levels for chemicals in drinking water that lack MCLs. An AL is the concentration of a chemical in drinking water that is considered not to pose a significant health risk to people ingesting that water on a daily basis. ALs may be established by DHS for non-regulated chemical contaminants when one of the following occurs:

1. A chemical is found in an actual or proposed drinking water source, or
2. A chemical is in proximity to a drinking water source, and guidance is needed, should it reach the source.

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 μg/L AL for perchlorate. DHS used the upper value of the 4 to 18 μg/L range that resulted from the "provisional reference does 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 μg/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 μg/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 μg/L range from the USEPA 1992-1995 assessment. The Public Health Goal (PHG) for perchlorate was developed by Office of Environmental Health Hazard Assessment based on a contemporary health risk assessment. This new information was provided to DHS and on March 11, 2004 the AL for perchlorate was revised to 6 μg/L, a value identical to the PHG that will be used by DHS to develop the MCL for perchlorate. The effluent limit for perchlorate (6 μg/L) included in this WDR has been updated to reflect the change implemented by DHS.

Perchlorate and its salts are used in, but not limited to, solid propellant for rockets, missiles, and fireworks. The defense and aerospace industries purchase more than 90 percent of all the perchlorate manufactured. Perchlorate has historically been used at SSFL and thus is considered a chemical of concern at the site. Monitoring data collected during the tenure of the current permit indicates that perchlorate is present in the storm water runoff in Happy Valley and it has been detected in some of the groundwater wells utilized in the cleanup operations ongoing with DTSC oversight.

Perchlorate can interfere with iodide uptake by the thyroid gland; this can result in a decrease in the production of thyroid hormones, which are needed for prenatal and postnatal growth and development, as well as for normal body metabolism. Neither, the CTR, NTR or the Basin Plan has requirements stipulated for perchlorate. Since there is no drinking waters standard, or maximum contaminant level (MCL), the DHS uses the AL as an advisory level. The Regional Board, exercising its best professional judgement, in the review of the "best available science" has in the past considered and used ALs when deemed appropriate to establish final effluent limitations in WDRs and NPDES permits adopted by this Board, to implement the Basin Plan narrative WQO, *"all waters shall be maintained free of toxic substance that produce detrimental physiological responses in human, plant, animal, or aquatic life,"* and to prevent degradation of valuable groundwater sources of drinking water.

47. Under title 40 Code of Federal Regulations (40 CFR) section 122.44(d), *Water Quality Standards and State Requirements*, "Limitations must control all pollutants or pollutant parameters (either conventional, non-conventional, or toxic pollutants), which the Director determines are or may be discharged at a level which will cause, have the

reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality." Where numeric effluent limitations for a pollutant or pollutant parameter have not been established in the applicable state water quality control plan, 40 CFR section 122.44(d)(1)(vi) specifies that water quality-based effluent limitations (WQBELs) may be set based on United States Environmental Protection Agency (USEPA) criteria, and may be supplemented where necessary by other relevant information to attain and maintain narrative water quality criteria, and to fully protect designated beneficial uses.

48. Section 402(p) of the federal Clean Water Act (CWA), as amended by the Water Quality Act of 1987, requires NPDES permits for storm water discharges. The Discharger in addition to meeting the effluent limits included in this permit for storm water discharges only will be required to develop and implement a SWPPP as stipulated in Finding 27. These requirements as they are met will protect and maintain existing beneficial uses of the receiving water.

49. Effluent limitation guidelines requiring the application of best practicable control technology currently available (BPT), best conventional pollutant control technology (BCT), and best available technology economically achievable (BAT), were promulgated by the USEPA for some pollutants in this discharge. Effluent limitations for pollutants not subject to the USEPA effluent limitation guidelines are based on one of the following: best professional judgment (BPJ) of BPT, BCT or BAT; current plant performance; or water quality based effluent limits (WQBELs). The WQBELs are based on the Basin Plan, other State plans and policies, or USEPA water quality criteria which are taken from the California Toxics Rule (CTR). These requirements, as they are met, will protect and maintain existing beneficial uses of the receiving water. The attached Fact Sheet for this Order, which has been reviewed and considered by the Regional Board, is considered part of this Order. The Fact Sheet includes specific bases for the effluent limitations, including the basis for determining reasonable potential for a pollutant to cause or contribute to an exceedance of water quality standards.

50. 40 CFR section 122.45(f)(1) requires that except under certain conditions, all permit limits, standards, or prohibitions be expressed in terms of mass units. 40 CFR section 122.45(f)(2) allows the permit writer, at its discretion, to express limits in additional units (e.g., concentration units). The regulations mandate that, where limits are expressed in more than one unit, the permittee must comply with both. Generally, mass-based effluent limits would ensure that proper treatment, and not dilution, is employed to comply with the final effluent concentration limits. Concentration-based effluent limits, on the other hand, would discourage the reduction in treatment efficiency during low flow periods and would require proper operation of treatment units at all times. In the absence of concentration-based effluent limits, a permittee would be able to increase its effluent concentration (i.e., reduce its level of treatment) during low flow periods and still meet its mass-based effluent limits.

51. 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 CWA and amendments thereto, are applicable to the discharges herein.

52. The influent to the package type sewage treatment plants located at SSFL meet the requirements for the special consideration for less concentrated influent wastewaters. Section 133.103 of 40 CFR provides guidance on special considerations for secondary treated effluent. Paragraph (d) address less concentrated influent wastewater for separate sewers. The regulation states that:

> "The Regional Administrator or, if appropriate, State Director is authorized to substitute either a lower percent removal requirement or a mass loading limit for the percent removal requirements set forth in sections 133.102 (a) (3), 133.102 (a) (4) (iii), 133.102 (b) (3), 102.105 (a) (3), 133.105(b) (3) and 133.105(e) (1) (iii) provided that the permittee satisfactorily demonstrates that: (1) The treatment works is consistently meeting, or will consistently meet, its permit effluent concentration limits but its percent removal requirements cannot be due to less concentrated influent wastewater (2) to meet the percent removal requirements, the treatment works would have to achieve significantly more stringent limitations than would otherwise be required by the concentration-based standard, and (3) the less concentrated influent wastewater is not the result of excessive infiltration/inflow."

Consequently, this permit has substituted the mass loading limit for the percent removal requirement.

53. On May 18, 2000, the USEPA promulgated numeric criteria for priority pollutants for the State of California [known as the *California Toxics Rule* (CTR*)* and codified as 40 CFR section 131.38]. On March 2, 2000, State Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Policy or* SIP*).* The SIP was effective on April 28, 2000 with respect to the priority pollutant criteria promulgated for California by the USEPA through National Toxics Rule (NTR) and to the priority pollutant objectives established by the Regional Boards in their Basin Plans, with the exception of the provision on alternate test procedures for individual discharges that have been approved by the USEPA Regional Administrator. The alternate test procedures provision was effective on May 22, 2000. The SIP was effective on May 18, 2000, with respect to the priority pollutant criteria promulgated by the USEPA through the CTR.

54. The CTR and SIP require dischargers' submittal of data to the Regional Board to: (1) determine if WQBELs for priority pollutants are required; and (2) to calculate effluent limitations, if required. The policy further provides that the time schedule for providing the data shall be as short as practicable but not to exceed three years from the date of the SIP, which was May 22, 2000.

55. The CTR criteria for freshwater or human health for consumption of organisms, whichever is more stringent, were used to prescribe the effluent limitations in this Order to protect the beneficial uses of the Los Angeles River and the Calleguas Creek.

56. Under 40 CFR section 131.38(e)(6), the CTR authorizes the Regional Board to grant a compliance schedule for WQBELs based on CTR criteria for a period up to five years from the date of permit issuance, reissuance, or modification. The SIP provides a

compliance schedule for WQBELs (up to five years) and for WQBELs based upon Total Maximum Daily Loads (TMDL) and Waste Load Allocations development (up to 15 years). However, the USEPA has not yet approved the longer of the two compliance schedules nor depromulgated the five-year maximum in the CTR to allow for the 15 years in the SIP. Therefore, the more stringent provision, allowing a compliance schedule of five years, is the maximum duration authorized.

57. Technology-based effluent limits required a minimum level of treatment for industrial/municipal point sources based on currently available treatment technologies while allowing the discharger to use any available control techniques to meet the effluent limits. The 1972 CWA required treatment works treating domestic sewage (TWTDS) to meet performance requirements based on available wastewater treatment technology. The technology based-requirements for secondary treatment are specified in 40 CFR Part 133. These technology-based regulations apply to all (TWTDS) and identify the minimum level of effluent quality to be attained by secondary treatment in terms of five-day biochemical oxygen demand, total suspended solids, and pH.

58. State and Federal antibacksliding and antidegradation policies require Regional Board actions ensure that the waterbody will not be further degraded. Antibacksliding provisions are contained in Section 303(d)(4) and 402(o) of the CWA, and in 40 CFR section 122.44(l). Those provisions require a reissued permit to be as stringent as the previous permit with some exceptions where effluent limitations may be relaxed. For those limits carried forward, the Regional Board has determined that there is reasonable potential for the pollutant to cause or contribute to an exceedance of water quality standards in accordance with State Board Order No. WQ 2003-0009. Reasonable potential is determined using the procedures established in the SIP, informed by best professional judgment.

59. On October 28, 1968, the State Board adopted Resolution No. 68-16, Maintaining High Quality Water, which established an antidegradation policy for State and Regional Boards. Similarly, the CWA (section 304(d)(4)(B)) and USEPA regulations (40 CFR section 131.12) requires that all NPDES permitting actions be consistent with the federal antidegradation policy. Specifically, waters that are of a higher quality than needed to maintain designated beneficial shall be maintained at the higher water quality unless specific findings are made.

Watershed Management Approach and Total Maximum Daily Loads (TMDLs)

60. The Regional Board has implemented the Watershed Management Approach to address water quality issues in the region. Watershed management may include diverse issues as defined by stakeholders to identify comprehensive solutions to protect maintain, enhance, and restore water quality and beneficial uses. To achieve this goal, the Watershed Management Approach integrates the Regional Board's many diverse programs, particularly TMDLs, to better assess cumulative impacts of pollutants from all point and nonpoint sources. A TMDL, is a tool for implementing water quality standards and is based on the relationship between pollution sources and in-stream water quality conditions. The TMDL establishes the allowable loadings or other quantifiable parameters for a waterbody and thereby provides the basis to establish water quality-

based controls. These controls should provide the pollution reduction necessary for a waterbody to meet water quality standards. This process facilitates the development of watershed-specific solutions that balance the environmental and economic impacts within the watershed. The TMDLs will establish waste load allocations (WLAs) and load allocations (LAs) for point and non-point sources, and will result in achieving water quality standards for the waterbody.

61. The Los Angeles River watershed is one of the largest in the Region. The headwaters of the Los Angeles River originate in the Santa Monica, Santa Susana, and San Gabriel Mountains. The river flows through industrial and commercial areas and is bordered by rail yards, freeways, and major commercial and government buildings. The Los Angeles River tidal prism/estuary begins in Long Beach at Willow Street and runs approximately three miles before joining with Queensway Bay located between the Port of Long Beach and the City of Long Beach.

    The surface water discharges from Outfalls 001 and 002. Storm water only from Happy Valley, Discharge Serial 008 exits the site toward Dayton Canyon Creek, which flows into Chatsworth Creek. Chatsworth Creek flows southward to Bell Creek, near the intersection of Sherman Way and Shoup Avenue, and subsequently the Los Angeles River. The area where the facility is located is largely undeveloped. The majority of the Los Angeles River Watershed is considered impaired due to a variety of point and nonpoint sources. Bell Creek, which is the receiving water for the wastewater discharge from the SSFL, is on the 2002 303(d) list. High coliform count is the stressor listed Bell Creek. Downstream receiving waters are listed for high coliform count, volatiles (1,1-Dichloroethylene, tetrachloroethylene, and trichloroethylene), nutrients, oil, ammonia and others.

62. The TMDL for Nitrogen (nutrients) in the Los Angeles River received Regional Board approval on July 10, 2003 (Resolution No. 03-009) and State Board approval with adoption of Order 2003-0074 on November 19, 2003. Office of Administrative Law (OAL) and USEPA approval dates were February 27, 2003 and March 18, 2003, respectively. The Regional Board filed a Notice of Decision with the California Resources Agency on March 23, 2004 and the TMDL was effective as of that date. The Los Angeles River Nutrient TMDL revision with Interim WLAs was approved by the Regional Board on December 4, 2003 (Resolution No. 2003-016). The State Board approved the TMDL with Resolution 2004-0014 on March 24, 2004. OAL approved it on September 27, 2004, and the effective date for the Order was September 27, 2004.

    The TMDL includes numeric targets for ammonia as nitrogen (NH3-N), Nitrate-nitrogen and nitrite-Nitrogen within Reach 5 (within Sepulveda Basin), Reach 3 (Riverside Drive to Figueroa Street, and the Burbank Western Channel. Waste loads are allocated to minor point sources in these reaches that are enrolled in industrial and construction storm water permits.

63. The TMDL for metals in the Los Angeles River was approved by the Regional Board during the June 2, 2005 hearing (Resolution No. 2005-006). State Board approved the TMDL on October 20, 2005; OAL and EPA approvals were received on December 9, 2005 and December 22, 2005 respectively.

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, minor, and general permits). SSFL is included in this group of permittees. The implementation schedule states that NPDES permits shall include waste load allocations, which shall be expressed as NPDES water quality-based effluent limitations upon permit issuance, renewal, or reopener after the effective date of the TMDL. Compliance schedules may allow up to five years in individual NPDES permits to meet permit requirements.

Discharges from SSFL exiting the site enter Bell Creek or Dayton Canyon Creek. These steams are tributaries to the Los Angeles River and discharges from the site are the headwaters for these tributaries. Dry weather numeric water quality targets for copper, lead, and selenium are established for Bell Creek in the TMDL. WLAs are assigned to all point source discharges to Bell Creek and tributaries to Bell Creek. Wet-weather numeric targets for cadmium, copper lead and zinc are established for Los Angeles (LA) River Reach 1 in the TMDL. WLAs are assigned to all point source discharges to LA River Reach 1 and all upstream reaches and tributaries to Reach 1 (including Bell Creek and tributaries to Bell Creek). Hence, effluent limits for cadmium, copper, lead, zinc, and selenium in discharges to Bell Creek, Dayton Canyon Creek, or any tributaries of the LA River will be based on WLAs established by the TMDL or existing permit limits, whichever are more protective.

64. Storm water runoff from Outfalls 003 through 007, 009 and 010 exiting the SSFL site does so near the northwest site boundary. The receiving water for the storm water runoff is the Arroyo Simi, a tributary of the Calleguas Creek. The Calleguas Creek Watershed extends from the Santa Monica Mountains and the Simi Hills in the south, to the Santa Susana Mountains, South Mountain, and Oak Ridge in the north. Land uses vary throughout the watershed. Urban developments are generally restricted to the city limits of Simi Valley, Moorpark, Thousand Oaks, and Camarillo. Agricultural activities are spread out along valleys and on the Oxnard Plain.

Storm water runoff 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 runoff, when it is sufficient to reach the Arroyo Simi, enters it in Reach 1 – Hydrological Unit 403.62. The stressors listed in the 1998 State Board's California 303(d) list for this reach are ammonia, boron, chloride, sulfates and total dissolved solids. Elevated levels of chromium, nickel, selenium, silver and zinc were also reported in tissue samples.

65. Chloride TMDL and Chloride Limits. 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 *Calleguas Creek Watershed Salts TMDL Work Plan*. 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 TMDL for chloride in the Calleguas Creek Watershed.

Discharges from SSFL enters the Calleguas Creek Watershed in Arroyo Simi Reach 7, which is included on the 303 (d) list as a chloride water quality limited sequent 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. However, 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.

Nitrogen Compounds and Related Effects TMDL. On October 24, 2002, the Regional Board adopted Resolution No. 2002-017, Amendment to the *Basin Plan for the Los Angeles Region* to Include a TMDL for Nitrogen Compounds and Related Effects in Calleguas Creek (*Nitrogen Compounds and Related Effects* 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 *Nitrogen Compounds and Related Effects* 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 limits (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 limits 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.

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 are pending. Once the TMDL is approved the specified WLA will be applicable to discharges from SSFL.

Resolution No. R4-2005-0010, a TMDL for organochlorine (OC) pesticides, polychlorinated biphenyl (PCBs) and siltation in Calleguas Creek, its tributaries, and Mugu Lagoon, was also approved by the Regional Board on July 7, 2005. The TMDL addresses impairment to water quality due to elevated concentrations of OC pesticides and PCBs, which can bioaccumulate in fish tissue and cause toxicity to aquatic life in estuarine and inland waters. Siltation may transport these contaminants to surface waters and impair aquatic life and wildlife habitats. The TMDL establishes water column targets, fish tissue targets, and sediment targets to ensure the protection of beneficial uses. The TMDL establishes a twenty-year plan for reducing OC pesticides, PCBs and siltation loads from point sources and nonpoint sources.

State Board approved the TMDL on September 22, 2005 (Resolution No. 2005-0068). OAL and EPA approvals are pending. Once the TMDL is approved the appropriate targets will apply to discharges from Outfalls 003 through 007, 009, and 010 which enter Arroyo Simi, a tributary of Calleguas Creek.

66. To prevent further degradation of the water quality of Los Angeles River and the Calleguas Creek (Arroyo Simi), and to protect its beneficial uses, mixing zones and dilution credits are not considered in derivation of the effluent limitations 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, specifically for Dayton Canyon Creek and Bell Creek. Since there is little assimilative capacity for Dayton Canyon Creek and Bell Creek, a dilution factor is not appropriate and the final WQBEL should be a numeric objective applied end-of-pipe. The assimilative capacity for Arroyo Simi, which is the receiving water for storm water discharges from the northern boundary of SSFL, has not been evaluated and consequently no dilution has been given for discharges to that receiving water.

- 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. The SIP, section 1.4.2.2.B. states that the “Regional Board shall deny or significantly limit a mixing zone and dilution credit as necessary to protect beneficial uses…” It continues that “such situations may exist based upon the quality of the discharge… or the overall discharge environment (including … potential for bioaccumulation).”

67. The Discharger may provide the information needed by the Regional Board to make a site-specific determination on allowing a mixing zone, including the calculations for deriving the appropriate receiving water and effluent flows, and/or the results of a mixing zone study. Upon receiving such data, the Regional Board will re-evaluate its determination for the need to incorporate dilution credits and will revise the effluent limitations as necessary.

Reasonable Potential Analysis

68. Discharges from the engine test stands, which routinely generate wastewater, had not previously been regulated independently. These discharges did not have specific monitoring requirements or effluent limits. This permit, in an effort to collect the data required to complete a reasonable potential analysis, includes monitoring requirements for discharges from the engine test stands and from the sewage treatment plants for priority pollutants.

69. 40 CFR section 122.44(d)(1)(i) and (ii) require that each toxic pollutant be analyzed with respect to its reasonable potential when determining whether a discharge (1) causes, (2) has the reasonable potential to cause, or (3) contributes to the exceedance of a receiving water quality objective. This is done by conducting a reasonable potential analysis (RPA) for each pollutant. In performing the RPA, the permitting authority uses procedures that account for existing controls on point and nonpoint sources of pollution, the variability of the pollutant or pollutant parameter in the effluent, and the sensitivity of the test species to toxicity testing (when evaluating whole effluent toxicity). Because of effluent variability, there is always some degree of uncertainty in determining an effluent's impact on the receiving water. The SIP addresses this issue by suggesting the use of a statistical approach.

70. Section 1.3 of the SIP requires that a limit be imposed for a toxic pollutant if (1) the maximum effluent concentration (MEC) is greater than the most stringent CTR criteria, (2) the background concentration is greater than the CTR criteria, or (3) other available information. These three criteria are routinely referred to as triggers. For the pollutants on the 303(d) list, which have been present in the effluent during past monitoring events, effluent limits derived using the CTR criteria will be imposed in the permit.

    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.

71. RPAs were performed for each of 126 priority pollutants for which effluent data were available. The basis for each RPA determination is identified in the attached Fact Sheet, which is part of this Order. The input data for the RPAs were provided in the Self-Monitoring Reports submitted by the Discharger. One RPA was performed for

discharges from Outfalls 001 and 002, which are composed of treated wastewater, water from the groundwater treatment systems, excess reclaimed water, water from the engine test stands, and storm water. Four analytes had reasonable potential to exceed WQBELs: copper, lead, mercury, and TCDD. Three of these analytes (copper, lead, and mercury) had effluent limitations in the previous order (Order No. 98-051).

The Discharger also submitted data for the receiving water associated with discharges from Outfalls 001 and 002. This data was collected using elevated detection limits and hence several other constituents had reasonable potential. The constituents are 2,4,6-trichlorophenol, 2,4-dinitrotoluene, alpha-BHC, bis (2-ethylhexyl) phthalate, N-nitrosodimethlyamine and pentachlorophenol. Effluent limits for these constituents have also been included in this Order.

Since perchlorate has been detected above the Department of Health Services action level in storm water runoff from the facility and it has been detected in the influent to some of the groundwater treatment systems, SIP RPA Trigger 3 and BPJ have been used to establish reasonable potential for it to present in discharges from the site via Outfalls 001 and 002. Consequently and effluent limit for perchlorate has been include in this Order for these discharges. Further, since perchlorate is not a naturally occurring pollutant and its presence in the receiving waters is the result of operations at the facility, the effluent limitation was developed based on anti-degradation grounds (State Board Res. No. 68-16 and 40 CFR § 131.12). The effluent limitation was therefore set at 6 µg/L, which would prevent the degradation of receiving waters and maintain and protect receiving water quality. Effluent limits for a number of volatiles, which were included in the current Order and are believed to be present in the groundwater contaminant plume, have also been included in this Order.

Discharges from Outfalls 003 through 007 are storm water runoff only. Daily maximum and monthly average limits for storm water were included in Order No. 98-051. This Order does not include monthly average limits 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 is consistent with permits adopted by the Regional Board for storm water discharges only.

A second statistical analysis using CAPWTT was completed for discharges of storm water only from locations 003, 004, 005, 006, and 007. This analysis yielded a positive RPA for five analytes: cadmium, copper, cyanide, mercury, and TCDD. Cyanide was detected only once during the period evaluated at a concentration of 5.8 micrograms/liter (µg/L). 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 limits. When the maximum effluent concentration (MEC) of 5.8 µg/L is compared to the maximum daily effluent limit (MDEL) the MEC is less than the MDEL. Consequently, this permit does not include an effluent limit for cyanide in the storm water only discharges. CTR-WQBELs for cadmium copper, mercury and TCDD have been included in this Order. The previous order included effluent limits for all of these analytes except TCDD. The statistical analysis did not indicate that antimony or thallium had reasonable potential. However, the previous permit included limits for these analytes from Title 22, which are more stringent than the

CTR limits. The compliance history reveals that the effluent limit for antimony (6 µg/L) was exceeded at Outfalls 005 and 007 in 1999 and the limit for thallium (2 µg/L) was exceeded at Outfall 005 on March 8, 2000. Hence, limits for these constituents have also been included, since reasonable potential does exist for the applicable limit to be exceeded.

The effluent limits for the analytes with a positive statistical or best professional judgment RPA are the most stringent of the limit included in Order 98-051, and the applicable CTR criteria which include the freshwater aquatic life criteria, and the human health criteria for consumption of organisms only.

72. As set forth above, Section 1.3 of the State Board's State Implementation Plan (SIP) establishes a stepwise procedure for determining which toxic pollutants require water quality-based effluent limitations in conformance with 40 C.F.R. § 122.44(d). This stepwise procedure for toxic pollutants is called a reasonable potential analysis. The SIP's reasonable potential analysis applies to water quality standards for priority pollutants, whether promulgated by USEPA or established as water quality objectives by the Regional Board. Steps 1 through 6 establish an analytical procedure for requiring water quality-based limitations based solely on discharge and ambient receiving water data. Except as noted in Finding 73, reasonable potential for toxic pollutants regulated by this Order was determined using the analytical procedure in Steps 1 through 6 of SIP section 1.3 as explained in Finding 71 and the Fact Sheet.

73. Step 7 of SIP Section 1.3 recognizes that in certain instances a rote, mathematical analysis of the data will not be sufficient to protect beneficial uses. Step 7 therefore reserves for the Regional Board the obligation to "review other available information to determine if a water quality-based effluent limitation is required, notwithstanding the above analysis in *Steps 1* through *6*, to protect beneficial uses." Among the factors the State Board identifies as relevant to the Step 7 analysis are: the facility type, discharge type, and potential toxic impact of the discharge. With respect to the Facility, the Regional Board finds sufficient, unusual circumstances to require a water quality-based effluent limitation for trichloroethylene (TCE). Data and testimony indicate that approximately 530,000 gallons of TCE were released to the soil and groundwater at the Facility. The tremendous volume of TCE released at the site warrants significant scrutiny. While recent monitoring data do not show TCE in surface water discharges, scouring from large storm events may release soils with adsorbed TCE. The large volumes of TCE in scoured soils may become chemically available in the surface water runoff and cause or contribute to an exceedance of the water quality standard. In addition, the existing monitoring data has been collected far downstream from on-site sources. The data may not reliably indicate the presence of TCE in waters of the United States because the turbid conditions may have volatilized the TCE before it reached existing monitoring points. Further, contamination is spotty and not completely characterized; pathways are not always predictable and are not fully characterized; and the site is in a hilly environment with uncertain pathways and seeps which could possibly lead to surfacing of water with contamination that cannot be predicted. Finally, TCE is a probable carcinogen that can cause skin rashes on contact, and when ingested has been associated with liver and kidney damage, 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 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.

74. This order includes eleven new compliance points. These compliance points mark the location of engine test operations, onsite sewage treatment plants, and three new storm water monitoring locations where the associated discharges enter waters of the United States and two discharges from ponds located near the boundary of the developed portion of the site. The associated operations and outfalls for the new compliance points are listed in Finding 26.

75. For pollutants or discharges that lacked effluent data, interim requirements, as described below, were assigned. For these pollutants, the Discharger must submit to this Regional Board effluent concentration data, so that complete reasonable potential analyses can be performed and the need for effluent limitations can be determined.

Pollutants that lacked sufficient data to do RPAs are subject to interim monitoring requirements.

76. Interim requirements were developed according to the following:

- Interim requirements in the form of monitoring were prescribed for constituents with no monitoring data or with "non-detectable" (ND) data, where all of the reported detection limits were greater than or equal to the CTR criterion. Monitoring is required for priority pollutants and emergent chemicals in discharges from the sewage treatment plants and the engine test stands.

- No interim monitoring requirements or limits were prescribed for constituents whose highest monitoring data points or lowest detection limits (in case of ND) were below their respective CTR criterion.

77. For some pollutants, including aldrin, alpha-BHC, chlordane, DDT, dieldrin, heptachlor, heptachlor epoxide, several PAHs, PCBs, TCDD equivalents, and toxaphene the applicable water quality objectives are below the levels that current analytical techniques can measure. Reasonable potential analyses have been completed on each of these constituents and two of them had reasonable potential: alpha-BHC and TCDD equivalents. The MEC detected for TCDD exceeded the CTR criterion and the detection limits for alpha-BHC in the receiving water and the effluent exceeded the criterion.

78. For 303(d) listed pollutants, the Regional Board plans to develop and adopt TMDLs, which will specify WLAs for point sources and LAs for non-point sources, as appropriate. Following the adoption of TMDLs by the Regional Board, NPDES permits will be issued with effluent limits for water quality based on applicable WLAs. In the absence of a

TMDL, effluent limits for 303(d) listed pollutants for which RPA indicates a reasonable potential, will be established for (1) concentration based on the most stringent applicable CTR criterion and/or Basin Plan objective, and (2) mass emission based on the maximum discharge flow rate and concentration limitation.

79. As such, water quality objectives/criteria specified in the Basin Plan, the CTR, or the effluent limits from the existing permit were used to set the limits for pollutants that are believed to be present in the effluent and have reasonable potential of exceeding the water quality criteria. Other pollutants may only be monitored to gather data to be used in RPAs for future permit renewals and updates.

80. Since the adoption of Order R4-2004-0111, the Discharger has collected data at most of the new compliance locations specified in the Order. This Order amends Order R4-2004-0111 and includes effluent limits for the constituents that have, as a result of the monitoring and compliance sampling, demonstrated reasonable potential (RP).

81. Discharges from Outfalls 011 and 018 were evaluated with discharges from Outfalls 001 and 002. Outfalls 011 and 018 are the Perimeter Pond and the R-2 Pond Spillway, respectively. Discharges from these outfalls receive no additional treatment prior to exiting the site at Outfalls 001 and 002. RP at these locations using only the data collected from August 20, 2005 through May 5, 2005 was evaluated using an excel spreadsheet. This analysis yielded statistical reasonable potential for the following priority pollutants: copper, lead, mercury, and TCDD. BPJ was used to establish effluent limits for all other priority pollutants that have reasonable potential at Outfalls 001 and 002.

The Technical Support Document (TSD) for Water Quality-based Toxics Control (EPA/505/2-90-001) methodology for evaluating RP was used for all other constituents of concern (Page 53, Box 3-2). This evaluation resulted in statistical RP for iron, manganese, settleable solids, MBAS, TSS, perchlorate, nitrate +nitrite as Nitrogen, oil and grease, sulfate, BOD, and total dissolved solids. Effluent limits for barium, fluoride, residual chlorine and chloride were retained after the completion of the BPJ analysis.

Discharges from Outfalls 001, 002, 011 and 018 flow to Bell Creek a tributary of the LA River. The TMDL for metals in the Los Angeles River assigned WLAs to all point source discharges to LA River and all upstream reaches and tributaries (including Bell Creek and tributaries to Bell Creek). Effluent limits for cadmium, copper, lead, zinc, and selenium at the aforementioned outfalls will be based on WLAs established by the TMDL or existing effluent limits, whichever are more protective. The LA River Nutrient TMDL requires WLAs for ammonia-N, nitrate-N, and nitrite-N, which are included for these outfalls.

82. Outfalls 003 through 007 had a robust data set to evaluate prior to the adoption of Order R4-2004-0111. Outfall 008 was a monitoring location for perchlorate and had no data for other priority pollutants. Outfalls 009 and 010 are new storm water compliance points and they had no data available prior to August 2004. The data collected at Outfalls 008 through 010 indicates that the discharges are very similar to those observed at the other storm water locations (Outfalls 003 through 007). Therefore, the analyses were combined and one evaluation is included for all storm water only discharges (Outfalls 003 through

010).

The data yielded statistical RP for the following priority pollutants: copper, lead, mercury, and TCDD. Historical monitoring data, effluent violations, and site history were incorporated during the BPJ analysis, which resulted in establishing effluent limits at Outfalls 008 through 010 consistent with those at Outfalls 003 through 007.

RP for constituents of concern in addition to the priority pollutants was also evaluated. Statistical RP exists for total suspended solids, perchlorate, boron, sulfate, total dissolved solids, oil and grease, and nitrate + nitrite as nitrogen. No new data was available for fluoride. Effluent limits for chloride and fluoride were included based on BPJ.

The storm water discharges do not have reasonable potential for zinc. However, discharges from Outfall 008 flow to the LA River, which has a TMDL that provides a WLA for zinc. That WLA has been incorporated as an effluent limitation at Outfall 008 only. The LA River Nutrient TMDL requires WLAs for ammonia-N, nitrate-N, and nitrite-N, which are also included for this outfall.

83. Data collected at the engine test stands Outfalls 012 through 014 from August 20, 2004 through March 30, 2005 were evaluated for reasonable potential. During this time discharges only occurred at Outfall 012. The RPA completed using the SIP methodology revealed reasonable potential for priority pollutants including copper, lead, mercury and TCDD. The analysis for other chemicals of concern was completed as per the TSD. The constituents with statistical RP are oil and grease, settleable solids, suspended solids, 1,4-dioxane, total petroleum hydrocarbons, naphthalene, tertiary butyl alcohol and ethylene dibromide. Effluent limits for these constituents have been included in the amended permit. Effluent limits to total dissolved solids and for perchlorate were retained based on BPJ.

Discharges from Outfalls 012 through 014 exit the site via tributaries to Bell Creek. The metals that have TMDL WLAs that do not have reasonable potential at these outfalls are cadmium, selenium and zinc. Effluent limits for these constituents are included based on the TMDL. The Los Angeles River Nutrient TMDL developed WLAs for ammonia-N, nitrate-N, and nitrite-N. Daily maximum effluent limitations for these constituents are also applicable and included for discharges from these locations. The LA River Nutrient TMDL requires WLAs for ammonia-N, nitrate-N, and nitrite-N, which are included for these outfalls.

84. The sewage treatment plants, Outfalls 015 through 017, were evaluated and yielded statistical RP for cadmium, chromium III, copper, mercury, nickel, TCDD, MBAS, total suspended solids, perchlorate, BOD, oil and grease, total residual chlorine, total coliform, and nitrite as nitrogen.

Discharges from Outfalls 015 through 017 also exit the site via tributaries to Bell Creek. The Metals TMDL resulted in new WLAs for lead and selenium and a wet weather discharge WLA for cadmium. The LA River Nutrient TMDL requires WLAs for ammonia-N, nitrate-N, and nitrite-N, which are included for these outfalls.

Compliance Schedules and Interim Limitations

85. The Boeing Company may not be able to immediately comply with the wet weather effluent limit of 3.1 µg/L for cadmium at Outfalls 015 through 017. The wet weather effluent limit was implemented based on the WLA that was developed in the Los Angeles River Metals TMDL. That TMDL includes provisions for a compliance schedule in the permit.

86. A compliance schedule, which terminates one year after adoption of the permit, with an interim effluent concentration of 4 µg/L is included for discharges from Outfalls 015 through 017. The 4 µg/L interim effluent concentration is based on the daily maximum effluent limit for cadmium that is included in Order R4-2006-0008.

CEQA and Notifications

87. The Regional Board has notified the Discharger and interested agencies and persons of its intent to issue waste discharge requirements for this discharge and has provided them with an opportunity to submit their written views and recommendations.

88. The Regional Board, in a public hearing, heard and considered all comments pertaining to the discharge and to the tentative requirements.

89. This Order shall serve as a NPDES permit pursuant to Section 402 of the Federal Clean Water Act or amendments thereto, and shall take effect in accordance with federal law, provided the Regional Administrator, USEPA, has no objections.

90. Pursuant to California Water Code Section 13320, any aggrieved party may seek review of this Order by filing a petition to the State Board. A petition must be sent to the State Water Resources Control Board, Office of Chief Counsel, Attn: Elizabeth Miller Jennings, Senior Staff Counsel, 1001 I Street, 22nd Floor, Sacramento, CA 95814, within 30 days of adoption of this Order.

91. The issuance of waste discharge requirements for this discharge is exempt from the provisions of Chapter 3 (commencing with Section 21100) of Division 13 of the Public Resources Code (CEQA) in accordance with the California Water Code, Section 13389.

IT IS HEREBY ORDERED that The Boeing Company (Santa Susana Field Laboratory), in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, and the provisions of the Federal Clean Water Act and regulations and guidelines adopted thereunder, shall comply with the following:

I. Discharge Requirements

A. Discharge Prohibition

1. Wastes discharged shall be limited to treatment plant effluent, treated groundwater, excess reclaimed water, rocket engine test cooling water, fire

suppression, quench water, cooling tower water, as described in Item 16 of this Order, and storm water runoff, as proposed.

2. Discharges of water, materials, radiologic wastes, thermal wastes, elevated temperature wastes, toxic wastes, deleterious substances, or wastes other than those authorized by this Order, to the Arroyo Simi and tributaries to Calleguas Creek, to Dayton Canyon Creek, Bell Creek, and tributaries to the Los Angeles River, or waters of the United States, are prohibited.

B. Effluent Limitations

1. The pH of wastes discharged shall at all times be within the range 6.5 to 8.5.

2. The temperature of wastes discharged shall not exceed 86°F.

3. The discharge of an effluent from Outfalls 001, 002, 011 and 018 with constituents in excess of the following limits is prohibited:

Constituents	Units	Discharge Limitations Monthly Average	Daily Maximum
Total suspended solids[1]	mg/L	15	45
	lbs/day[2]	20,016	60,048
$BOD_5$20°C	mg/L	20	30
	lbs/day[2]	26,700	40,032
Oil and grease	mg/L	10	15
	lbs/day[2]	13,344	20,016
Settleable solids[1]	ml/L	0.1	0.3
Total residual chlorine	mg/L	----	0.1
	lbs/day[2]	----	133
Total dissolved solids	mg/L	----	950
	lbs/day[2]	----	1,270,000

[1] The effluent limitations for total suspended solids and settleable solids are not applicable for discharges during storm events.
[2] The mass is calculated using the maximum permitted flow of 160 mgd for Outfalls 001 and 002. The flow used to calculate the mass for Outfalls 003 through 010 is 17.8 mgd. The flow used for Outfalls 012 through 014 was 0.004 MGD and the flow used for Outfalls 015 through 017 is 0.06 MGD. If the recorded flow is different the mass should be recalculated using the equation: Mass (lbs/day) = Flow (mgd) * 8.34 * concentration (mg/L).
© Thirty day average at pH = 7.9 and 20°C, when hourly samples are collected and composited or only one grab sample is collected. Analysis for the temperature and pH of the receiving water at the same time as the discharge would provide data for a site specific determination of the ammonia limit using Attachment H to the WDR. Shall there be no receiving water present, the pH and temperature of the effluent at the end of pipe shall be determined and reported.
® One hour average WLA at 7.9 pH and 20°C, applies if hourly samples are taken throughout the storm and each is analyzed. No single sample may exceed the 10.1 mg/L limit. Analysis for the temperature and pH of the receiving water at the same time as the discharge would provide data for a site specific determination of the ammonia limit using Attachment H to the WDR. Shall there be no receiving water present, the pH and temperature of the effluent at the end of pipe shall be determined and reported.

Constituents	Units	Discharge Limitations Monthly Average	Daily Maximum
Chloride	mg/L	----	150
	lbs/day[2]	----	200,160
Sulfate	mg/L	----	300
	lbs/day[2]	----	400,320
Barium[3]	mg/L	----	1.0
	lbs/day[2]	----	1,330
Fluoride[3]	mg/L	----	1.6
	lbs/day[1]	----	2135
Iron[3]	mg/L	----	0.3
	lbs/day[2]	----	400
Detergents (as MBAS)	mg/L	----	0.5
	lbs/day[2]	----	667
Nitrate + Nitrite-N	mg/L	----	8.0
	lbs/day[2]	----	10,700
Ammonia-N	mg/L	1.96©	10.1®
	lbs/day[2]	2,615	13,500
Nitrate-N	mg/L	----	8.0
	lbs/day[2]	----	10,700
Nitrite-N	mg/L	----	1.0
	lbs/day[2]	----	1,334
Manganese[3]	µg/L	----	50
	lbs/day[2]	----	66.7
Cyanide[3]	µg/L	4.3	8.5
	lbs/day[2]	5.7	11.3
Antimony[3]	µg/L	----	6.0
	lbs/day[2]	----	8.01
Arsenic[3,4]	µg/L	----	10
	lbs/day[2]	----	66.7
Beryllium[3]	µg/L	----	4.0
	lbs/day[2]	----	5.34
Cadmium[3, 4]	µg/L	2.0	4.0/3.1*
	lbs/day[2]	2.7	5.34/4.14*
Chromium (VI)[5]	µg/L	8.1	16.3
	lbs/day[2]	10.8	21.8
Copper[3, 4]	µg/L	7.1	14.0
	lbs/day[2]	9.5	18.7

[3] These discharge limits are expressed as total recoverable.
[4] Concentrations correspond to a total hardness of 100 mg/L. For other conditions where total hardness exceeds 100 mg/L, the limits can be calculated by following the instructions outlined in 40 CFR Part 131.
[5] The Discharger has the option to meet the hexavalent chromium limitations with a total chromium analysis. However, if the total chromium level exceeds the hexavalent chromium limitation, it will be considered a violation unless an analysis has been made for hexavalent chromium in replicate sample and the result reported is within the hexavalent chromium limits.
* Effluent limit applies only during wet weather discharges.

Constituents	Units	Discharge Limitations Monthly Average	Daily Maximum
Lead [3, 4]	µg/L	2.6	5.2
	lbs/day[2]	3.5	6.94
Mercury [3]	µg/L	0.05	0.10
	lbs/day[2]	0.07	0.13
Nickel [3, 4]	µg/L	35	96
	lbs/day[2]	47	128
Selenium [3]	µg/L	4.1	8.2/5[#]
	lbs/day[2]	5.5	10.9/6.67[#]
Silver [3, 4]	µg/L	2.0	4.1
	lbs/day[2]	2.7	5.5
Thallium [3]	µg/L	----	2.0
	lbs/day[2]	----	2.7
Zinc [3, 4]	µg/L	54	119
	lbs/day[2]	72	159
1,1-Dichloroethylene	µg/L	3.2	6.0
	lbs/day[2]	4.3	8.0
Trichloroethylene	µg/L	----	5.0
	lbs/day[2]	----	6.7
Perchlorate	µg/L	----	6.0
	lbs/day[2]	----	8.0
TCDD	µg/L	1.4E-08	2.8E-08
	lbs/day	1.9E-08	3.7E-08
2,4,6-Trichlorophenol	µg/L	6.5	13.0
	lbs/day	8.7	17
2,4-Dinitrotoluene	µg/L	9.1	18.3
	lbs/day	12	24
Alpha BHC	µg/L	0.01	0.03
	lbs/day	0.013	0.04
Bis(2-ethylhxyl)phthalate	µg/L	----	4.0
	lbs/day	----	5.3
N-Nitrosodimethylamine	µg/L	8.1	16.3
	lbs/day	10.8	21.8
Pentachlorophenol	µg/L	8.2	16.5
	lbs/day	10.9	22
Radioactivity			
Gross Alpha	pCi/L	----	15
Gross Beta	pCi/L	----	50
Combined Radium-226 & Radium-228	pCi/L	----	5.0
Tritium	pCi/L	----	20,000
Strontium-90	pCi/L	----	8.0

[#] Effluent limit applies only during dry weather discharges.

4. The discharge of storm water runoff only from Discharge Nos. 003, through 010 with constituents in excess of the following limits is prohibited:

Constituents	Units	Discharge Limitations Monthly Average	Daily Maximum
Oil and grease	mg/L	----	15
	lbs/day[2]	----	2,227
Total dissolved solids	mg/L	----	850
	lbs/day[2]	----	126,184
Total dissolved solids	mg/L	----	950[6]
	lbs/day[2]	----	141,029
Chloride	mg/L	----	150
	lbs/day[2]	----	22,268
Boron[3]	mg/L	----	1.0
	lbs/day[2]	----	148
Sulfate	mg/L	----	250[7]
	lbs/day[2]	----	37,113
Sulfate	mg/L	----	300[6]
	lbs/day[2]	----	44,536
Fluoride	mg/L	----	1.6
	lbs/day[2]	----	238
Nitrate + Nitrite-N	mg/L	----	10[7]
	lbs/day[2]	----	1,485
Nitrate + Nitrite-N	mg/L	----	8.0[6]
	lbs/day[2]	----	1,188
Ammonia-N (Outfall 008 only)	mg/L	1.96©	10.1®
	lbs/day	291	1,500
Nitrate-N (Outfall 008 only)	mg/L	--	8.0
	lbs/day	--	1,190
Nitrite-N (Outfall 008 only)	mg/L	--	1.0
	lbs/day	--	148
Selenium(Outfall 008 only)	µg/L	----	5[#]
	lbs/day	----	0.7[#]
Zinc(Outfall 008 only)	µg/L	----	159*
	lbs/day	----	23.6*
Perchlorate	µg/L	----	6.0
	lbs/day[2]	----	0.89
Antimony[3]	µg/L	----	6.0
	lbs/day[2]	----	0.89
Cadmium[3,4]	µg/L	----	4.0/(3.1* (Outfall 008 only))
	lbs/day[2]	----	0.59/(0.46* (Outfall 008 only))
Copper[3,4]	µg/L	----	14.0
	lbs/day[2]	----	2.08
Mercury[3]	µg/L	----	0.13
	lbs/day[2]	----	0.02

Constituents	Units	Discharge Limitations Monthly Average	Daily Maximum
Thallium[3]	µg/L	----	2.0
	lbs/day[2]	----	0.3
Lead[3]	µg/L	----	5.2
	lbs/day[2]	----	0.77
TCDD	µg/L	----	2.8E-08
	lbs/day[2]	----	4.2E-09
Radioactivity			
Gross Alpha	pCi/L	----	15
Gross Beta	pCi/L	----	50
Combined Radium-226 &		----	
Radium-228	pCi/L	----	5
Tritium	pCi/L	----	20,000
Strontium-90	pCi/L	----	8

5. Effluent Limitations for wastewater from Outfalls 012, 013 and 014 are:

Constituents	Units	Discharge Limitations Monthly Average	Daily Maximum
Oil and grease	mg/L	10	15
	lbs/day[2]	0.3	0.5
Total dissolved solids	mg/L	----	950
	lbs/day[2]	----	31.7
Total suspended solids	mg/L	15	45
	lbs/day[2]	0. 5	1.5
Settleable solids	ml/L	0.1	0.3
Chloride	mg/L	----	150
	lbs/day[2]	----	5.0
Boron[3,7]	mg/L	----	1.0
	lbs/day[2]	----	0.03
Sulfate	mg/L	----	300[6]
	lbs/day[2]	----	10
Fluoride	mg/L	----	1.6
	lbs/day[2]	----	0.05
Nitrate + Nitrite-N	mg/L	----	8.0[6]
	lbs/day[2]	----	0.3
Ammonia-N	mg/L	1.96©	10.1®
	lbs/day	0.07	0.34
Nitrate-N	mg/L	----	8.0
	lbs/day	----	0.27
Nitrite-N	mg/L	----	1.0
	lbs/day	----	0.03
Cadmium	µg/L	----	3.1*
	lbs/day	----	0.0001*

Constituents	Units	Discharge Limitations Monthly Average	Daily Maximum
Selenium	µg/L lbs/day	---- ----	5[#] 0.0002[#]
Zinc	µg/L lbs/day	---- ----	159* 0.005*
Copper[3,4]	µg/L lbs/day[2]	6.7 0.0002	13.5 0.0004
Lead[3]	µg/L lbs/day[2]	2.6 0.00009	5.2 0.0002
Mercury[3]	µg/L lbs/day[2]	0.05 0.000002	0.10 0.000003
TCDD	µg/L lbs/day[2]	1.4E-08 4.67E-13	2.8E-08 9.3E-12
Naphthalene	µg/L lbs/day[2]	---- ----	21 0.0007
Total petroleum hydrocarbons	µg/L lbs/day[2]	---- ----	100 0.003
Ethylene dibromide	µg/L lbs/day[2]	---- ----	50 0.002
Tertiary butyl alcohol 1,4-Dioxane	µg/L lbs/day[2] µg/L lbs/day[2]	---- ---- ---- ----	12 0.0004 3 0.0001
Perchlorate	µg/L lbs/day[2]	---- ----	6.0 0.0002

6. Effluent Limitations for Wastewater Treatment Plants from Outfalls 015 through 017 are:

Constituents	Units	Discharge Limitations		
		30-Day Average	7-Day Average	Daily Maximum
Total suspended solids	mg/L lbs/day[2]	30 15	45 23	--- ---
BOD_5 20°C	mg/L lbs/day[2]	30 15	45 23	--- ---
Oil and grease	mg/L lbs/day[2]	10 5	--- ---	15 7.5
Settleable solids	ml/L	0.1	---	0.3

[6] The limit applies to discharges from Outfall 008 only.
[7]The limit is applicable for discharges from Outfalls 003 through 007, 009 and 010 which flows to Calleguas Creek. It is not applicable at Outfall 008 which dicharges to Bell Creek and subsequently the Los Angeles River..

Constituents	Units	Discharge Limitations		
		30-Day Average	7-Day Average	Daily Maximum
Total residual chlorine	mg/L	----	---	0.1
	lbs/day[2]	----	---	0.05
Total dissolved solids	mg/L	----	---	950
	lbs/day[2]	----	---	475
Sulfate	mg/L	----	----	300
	lbs/day[2]	----	----	150
Fluoride	mg/L	----	----	1.6
	lbs/day[2]	----	----	0.8
Barium[3]	mg/L	----	----	1.0
	lbs/day[2]	----	----	0.5
Detergents (as MBAS)	mg/L	----	----	0.5
	lbs/day[2]	----	----	0.3
Nitrate + Nitrite as Nitrogen	mg/L	----	----	8.0
	lbs/day[2]	----	----	4
Nitrite-N (as Nitrogen)	mg/L	---	----	1.0
	lbs/day[2]	---	----	0.5
Ammonia-N	mg/L	1.96©	----	10.1®
	lbs/day	0.98	----	5
Nitrate-N	mg/L	----	----	8
	lbs/day	----	----	4
Lead	µg/L	----	----	19[#]/62*
	lbs/day	----	----	0.01[#]/0.03*
Selenium	µg/L	----	----	5[#]
	lbs/day	----	----	0.003[#]
Chloride	mg/L	---	----	150
	lbs/day[2]	---	----	75
Boron	mg/L	---	----	1.0
	lbs/day[2]	---	----	0.5
Cadmium	µg/L	2.0	----	4.0/3.1*
	lbs/day[2]	0.001	----	0.002/0.0016*
Chromium III	µg/L	----	----	50
	lbs/day[2]	----	----	0.03
Copper	µg/L	6.7	----	13.5
	lbs/day[2]	0.003	----	0.007
Mercury	µg/L	0.05	----	0.10
	lbs/day[2]	0.00003	----	0.00005
Nickel	µg/L	43	----	86
	lbs/day[2]	0.02	----	0.04
Zinc	µg/L	61	----	123
	lbs/day[2]	0.03	----	0.06

[#]Effluent limit applies only during dry weather discharges.
* Effluent limit applies only during wet weather discharges

Constituents	Units	Discharge Limitations		
		30-Day Average	7-Day Average	Daily Maximum
TCDD	µg/L lbs/day[2]	1.4E-8 7.0E-12	---- ----	2.8E-8 1.4E-11
Perchlorate	µg/L lbs/day[2]	---- ----	---- ----	6 0.003

a. Radioactivity of the wastes discharged shall not exceed the limits specified in Title 22, Chapter 15, Article 5, Section 64443, of the California Code of Regulations, or subsequent revisions.

b. The wastes discharged to watercourses shall at all times be adequately disinfected. For the purpose of this requirements, the wastes shall be considered adequately disinfected if the median number of coliform organisms at some point in the treatment process does not exceed a most probable number (MPN) of 2.2 per 100 millileters, and the number of coliform organisms does not exceed an MPN of 23 per 100 milliliters in more than one sample within any 30-day period. The median value shall be determined from the bacteriological results of the last 30-day period for which analysis has been completed. Samples shall be collected at a time when wastewater flow and characteristics are most demanding on treatment facilities and disinfection processes.

c. The wastes discharged to watercourses shall have received treatment equivalent to that of filtered wastewater. Filtered wastewater means an oxidized and coagulated wastewater that has been passed through natural undisturbed soils or filter media, such as sand or diatomaceous earth, so that the turbidity of the filtered wastewater does not exceed any of the following: (a) a daily average of 2 Nephelometric turbidity units (NTUs); (b) 5 NTUs more than 5 percent of the time (72) minutes during a 24 hour period and (c) never exceeds 10 NTU.

Nothing herein shall be construed to prevent the use of any alternative treatment process or processes provided that they can be demonstrated to the satisfaction of the Executive Officer to achieve compliance with the effluent limitations and requirements.

“Oxidized wastewater” means wastewater in which the organic matter has been stabilized is nonputrescible, and contains dissolved oxygen. “Coagulated wastewater” means oxidized wastewater in which colloidal and finely divided suspended matter have been destabilized and agglomerated upstream of a filter by the addition of suitable floc-forming chemicals.

7. With the exception of Outfalls 001 and 002, in the event that an effluent limitation set forth above for a pollutant other than a radioactive material is exceeded and the Discharger presents within 30 days of the date of discovery documentation that (i) discharges from a solid waste management unit (unit) regulated by DTSC are causing or contributing to the violation, and (ii) the Discharger was in compliance with all applicable requirements of DTSC permits and corrective action requirements for the unit, and (iii) modifications to DTSC's permit or corrective action requirements are necessary to consistently comply with this Order, then the Discharger, DTSC, and Regional Board will work cooperatively to develop a schedule that is as short as possible to take appropriate actions under the RCRA corrective action requirements or permits, as appropriate, to ensure compliance with this Order. This Order may be reopened and modified, in accordance with applicable laws and regulations, or a Time Schedule Order issued to incorporate appropriate interim limits while the appropriate actions are being taken under the RCRA corrective action requirements or permits.

C. Interim Effluent Concentrations

Wastewater Treatment Plants - Outfalls 015 through 017

Constituents	Units	Discharge Limitations		
		30-Day Average	7-Day Average	Daily Maximum
Cadmium	µg/L	2.0	----	4.0
	lbs/day[2]	0.001	----	0.002

The interim effluent concentrations are effective from the effective date of this Order through April 26, 2007. Discharges after April 26, 2007 must comply with the effluent limitations specified in Table B.6 above.

D. Receiving Water Limitations

1. The discharge shall not cause any of the following conditions to exist in the receiving waters at any time:

   a. Floating, suspended or deposited macroscopic particulate matter or foam;

   b. Alteration of temperature, turbidity, or apparent color beyond present natural background levels;

   c. Visible, floating, suspended or deposited oil or other products of petroleum origin;

d. Bottom deposits or aquatic growth; or,

e. Toxic or other deleterious substances to be present in concentrations or quantities which cause deleterious effects on aquatic biota, wildlife, or waterfowl or render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentration.

2. No discharge shall cause a surface water temperature rise greater than 5^{o}F above the natural temperature of the receiving waters at any time or place.

3. The discharge shall not cause the following limits to be exceeded in the receiving waters at any place within one foot of the water surface:

a. The pH shall not be depressed below 6.5 nor raised above 8.5, nor caused to vary from normal ambient pH levels by more than 0.5 units;

b. Dissolved oxygen shall not be less than 5.0 mg/L anytime, and the median dissolved oxygen concentration for any three consecutive months shall not be less than 80 percent of the dissolved oxygen content at saturation;

c. Dissolved sulfide shall not be greater than 0.1 mg/L;

4. Toxicity limitations for discharges from Outfalls 001 through 018:

a. Acute Toxicity Limitation and Requirements

1. The acute toxicity of the effluent shall be such that: (i) the average survival in the undiluted effluent for any three (3) consecutive 96-hour static or continuous flow bioassay tests shall be at least 90%, and (ii) no single test producing less than 70 % survival.

2. If either of the above requirements (Section I.C.4.a.1) is not met, the Discharger shall conduct six additional tests over a six-week period. The discharger shall ensure that they receive results of a failing acute toxicity test within 24 hours of the close of the test and the additional tests shall begin within 3 business days of the receipt of the result. If the additional tests indicate compliance with acute toxicity limitation, the discharger may resume regular testing. However, if the results of any two of the six accelerated tests are less than 90% survival, then the Discharger shall begin a Toxicity Identification Evaluation (TIE). The TIE shall include all reasonable steps to identify the sources of toxicity. Once the sources are identified, the Discharger shall take all reasonable steps to reduce toxicity to meet objective.

3. If the initial test and any of the additional six acute toxicity bioassay test result in less than 70% survival, including the initial test, the Discharger shall immediately begin a TIE.

4. The Discharger shall conduct acute toxicity monitoring as specified in Monitoring and Reporting Program No. 6027.

b. Chronic Toxicity Limitation and Requirements:

1. This Order includes a chronic testing toxicity trigger defined as an exceedance of 1.0 TU_c in a critical life stage test for 100% effluent. (The monthly median for chronic toxicity of 100% effluent shall not exceed 1.0 TU_c in a critical life stage test.)

2. If the chronic toxicity of the effluent exceeds 1.0 TU_c, the Discharger shall immediately implement an accelerated chronic toxicity testing according to MRP No. 6027, Section IV.D. If the results of two of the six accelerated tests exceed 1.0 TU_c, the Discharger shall initiate a TIE and implement the Initial Investigation TRE Workplan. (see MRP No. 6027, Section IV.E.).

3. The Discharger shall conduct chronic toxicity monitoring as specified in MRP No. 6027.

4. The chronic toxicity of the effluent shall be expressed and reported in toxic units, where:

$$TU_c = \frac{100}{NOEC}$$

The No Observable Effect Concentration (NOEC) is expressed as the maximum percent effluent concentration that causes no observable effect on test organisms, as determined by the results of a critical life stage toxicity test.

5. Preparation of an Initial Investigation TRE Workplan

i. The Discharger shall submit a detailed initial investigation Toxicity Reduction Evaluation (TRE) workplan to the Executive Officer of the Regional Board for approval within 90 days of the effective date of this permit. The Discharger shall use EPA manuals EPA/600/2-88/070 (industrial) or EPA/833B-99/002 (municipal) as guidance or current versions. At a minimum, the TRE workplan must contain the provisions in Attachment C. This workplan shall describe the

steps the Discharger intends to follow if toxicity is detected, and should include, at a minimum:

ii. 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;

iii. A description of the facility's methods of maximizing in-house treatment efficiency and good housekeeping practices, and a list of all chemicals used in operation of the facility; and,

iv. If a toxicity identification evaluation (TIE) is necessary, an indication of the person who would conduct the TIEs (i.e., an in-house expert or an outside contractor) (See MRP Section IV.E.3. for guidance manuals).

6. The discharge shall not cause a violation of any applicable water quality standard for receiving waters.

If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the Clean Water Act, or amendments, thereto, the Regional Board will revise and modify this Order in accordance with such standards.

II. Requirements

A. Pollution Prevention and Best Management Practices Plans

The Discharger shall develop, within 90 days of the effective date of this Order, the following plans. If necessary, the plans shall be updated to address any changes in operation and/or management of the facility. Updated plans shall be submitted to the Regional Board within 30 days of revision.

1. A *Storm Water Pollution Prevention Plan* (SWPPP) that describes site-specific management practices for minimizing storm water runoff from being contaminated, and for preventing contaminated storm water runoff from being discharged directly to waters of the State. The SWPPP shall be developed in accordance with the requirements contained in Attachment A and submitted to the Regional Board within 90 days of the effective date of this Order.

2. A *Best Management Practices Plan* (BMPP). The purpose of the BMPP is to establish site-specific procedures that will prevent the discharge of pollutants in non-storm water discharges. The BMPP shall be site-specific and shall cover all areas of the facility.

B. Pursuant to the requirements of 40 CFR 122.42(a), the Discharger must notify the Board as soon as it knows, or has reason to believe (1) that it has begun or expected to begin, to use or manufacture a toxic pollutant not reported in the permit application, or (2) a discharge of toxic pollutant not limited by this Order has occurred, or will occur, in concentrations that exceed the specified limitations in 40 CFR 122.42(a).

C. Compliance Determination

1. Compliance with single constituent effluent limitation – If the concentration of the pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reported Minimum Level (see Reporting Requirement II. C. of *M&RP)*, then the Discharger is out of compliance.

2. Compliance with monthly average limitations - In determining compliance with monthly average limitations, the following provisions shall apply to all constituents:

a. If the analytical result of a single sample, monitored monthly, quarterly, semiannually, or annually, does not exceed the monthly average limit for that constituent, the Discharger has demonstrated compliance with the monthly average limit for that month.

b. If the analytical result of a single sample, monitored monthly, quarterly, semiannually, or annually, exceeds the monthly average limit for any constituent, the Discharger shall collect four additional samples as early as flow is available during the month. All five analytical results shall be reported in the monitoring report for that month, or 45 days after results for the additional samples were received, whichever is later.

When all sample results are greater than or equal to the reported Minimum Level (see Reporting Requirement II. C. of M&RP), the numerical average of the analytical results of these five samples will be used for compliance determination.

When one or more sample results are reported as “Not-Detected (ND)” or “Detected, but Not Quantified (DNQ)” (see Reporting Requirement II. C. of *M&RP*), the median value of these four samples shall be used for compliance determination. If one or both of the middle values is ND or DNQ, the median shall be the lower of the two middle values.

c. In the event of noncompliance with a monthly average effluent limitation, the sampling frequency for that constituent shall be increased to weekly and shall continue at this level until compliance with the monthly average effluent limitation has been demonstrated.

d. If only one sample was obtained for the month or more than a monthly period and the result exceed the monthly average, then the Discharger is in violation of the monthly average limit.

3. Compliance with effluent limitations expressed as a sum of several constituents – If the sum of the individual pollutant concentrations is greater than the effluent limitation, then the Discharger is out of compliance. In calculating the sum of the concentrations of a group of pollutants, consider constituents reported as ND or DNQ to have concentrations equal to zero, provided that the applicable ML is used.

4. Compliance with effluent limitations expressed as a median – in determining compliance with a median limitation, the analytical results in a set of data will be arranged in order of magnitude (either increasing or decreasing order); and

   a. If the number of measurements (n) is odd, then the median will be calculated as = $X_{(n+1)/2}$, or

   b. If the number of measurements (n) is even, then the median will be calculated as = $[X_{n/2} + X_{(n/2)+1}]$, i.e. the midpoint between the n/2 and n/2+1 data points.

5. Compliance with the pH limitation – If the receiving water pH downstream of the discharge, exceeds 8.5 pH units as a result of:

   a. high pH in the storm water, or
   b. elevated pH in the receiving water upstream of the discharge,

   then the exceedance shall not be considered a violation.

6. Compliance with the temperature limitation – If the receiving water temperature downstream of the discharge, exceeds 86°F as a result of:

   a. high temperature in the ambient air, or
   b. elevated temperature in the receiving water upstream of the discharge,

   then the exceedance shall not be considered a violation.

D. In calculating mass emission rates from the monthly average concentrations, use one half of the method detection limit for “Not Detected” (ND) and the estimated concentration for “Detected, but Not Quantified” (DNQ) for the calculation of the monthly average concentration. To be consistent with section II.E.3., if all pollutants belonging to the same group are reported as ND or DNQ, the sum of the individual pollutant concentrations should be considered as zero for the calculation of the monthly average concentration.

E. The discharge of any product registered under the Federal Insecticide, Fungicide, and Rodenticide Act to any waste stream which may ultimately be released to waters of the United States is prohibited unless specifically authorized elsewhere in this permit. This requirement is not applicable to products used for lawn and agricultural purposes. Discharge of chlorine for disinfection in plant potable and service water systems and in sewage treatment is authorized.

F. The discharge of any waste resulting from the combustion of toxic or hazardous wastes to any waste stream which ultimately discharges to waters of the United States is prohibited, unless specifically authorized elsewhere in this permit.

G. There shall be no discharge of PCB compounds, such as those once commonly used for transformer fluid.

H. The Discharger shall notify the Executive Officer in writing no later than six months prior to planned discharge of any chemical, other than chlorine or other product previously reported to the Executive Officer, which may be toxic to aquatic life. Such notification shall include:

a. Name and general composition of the chemical,
b. Frequency of use,
c. Quantities to be used,
d. Proposed discharge concentrations, and
e. USEPA registration number, if applicable.

No discharge of such chemical shall be made prior to the Executive Officer's approval.

I. The Regional Board and USEPA shall be notified immediately by telephone, of the presence of adverse conditions in the receiving waters or on beaches and shores as a result of wastes discharged; written confirmation shall follow as soon as possible but not later than five working days after occurrence.

III. Provisions

A. This Order includes the attached *Standard Provisions and General Monitoring and Reporting Requirements* (Standard Provisions, Attachment N). If there is any conflict between provisions stated hereinbefore and the attached Standard Provisions, those provisions attached herein prevail. Boeing shall report to the Regional Board any monitoring data that exceeds the detection limit for monitored constituents without effluent limitations. The report shall be reported, via facsimile, within 24 hours of the Discharger receiving the data from the lab. Regional Board staff will bring a reopener to the Regional Board within 90 days of determining that reasonable potential exists to cause or to contribute to an exceedance of water quality standards.

B. This Order includes the attached Monitoring and Reporting Program (Attachment T). If there is any conflict between provisions stated in the Monitoring and Reporting Program and the Standard Provisions, those provisions stated in the Monitoring and Reporting Program prevail.

C. This Order may be modified, revoked, and reissued or terminated in accordance with the provisions of 40 CFR sections 122.44, 122.62, 122.63, 122.64, 125.62, and 125.64. Causes for taking such actions include, but are not limited to: failure to comply with any condition of this order and permit, endangerment to human health or the environment resulting from the permitted activity; or acquisition of newly obtained information which would have justified the application of different conditions if known at the time of Order adoption. The filing of a request by the discharger for an Order modification, revocation, and issuance or termination, or a notification of planned changes or anticipated noncompliance does not stay any condition of this Order.

D. The Discharger must comply with the lawful requirements of municipalities, counties, drainage districts, and other local agencies regarding discharges of storm water to storm drain systems or other water courses under their jurisdiction; including applicable requirements in municipal storm water management program developed to comply with NPDES permits issued by the Regional Board to local agencies.

E. Discharge of wastes to any point other than specifically described in this Order and permit is prohibited and constitutes a violation thereof.

F. The Discharger shall comply with all applicable effluent limitations, national standards of performance, toxic effluent standards, and all federal regulations established pursuant to Sections 301, 302, 303(d), 304, 306, 307, 316, and 423 of the Federal Clean Water Act and amendments thereto.

IV. Reopeners

A. This Order may be reopened and modified, in accordance with SIP Section 2.2.2.A, to incorporate new limits based on future reasonable potential analysis to be conducted, upon completion of the collection of additional data by the discharger. Not withstanding the foregoing, in the event that reasonable potential analyses indicate that a pollutant has reasonable potential, the Regional Board staff shall bring an appropriate modification to the Regional Board, at the next practicable Board meeting.

B. This Order may be reopened and modified, in accordance with the provisions set forth in 40 CFR Parts 122 and 124, to include requirements for the implementation of the watershed management approach.

C. This Order may be reopened and modified, in accordance with the provisions set forth in 40 CFR Parts 122 and 124, to include new minimum levels (MLs).

D. This Order may be reopened and modified, to revise effluent limitations as a result of future Basin Plan Amendments, such as an update of an objective or the adoption of a TMDL for Los Angeles River or the Calleguas Creek.

E. This Order may be reopened upon the submission by the discharger, of adequate information, as determined by the Regional Board, to provide for dilution credits or a mixing zone, as may be appropriate.

F. This Order may be reopened and modified, to revise the toxicity language once that language becomes standardized.

G. In accordance with Provision I.B.7, this Order may be reopened and modified to incorporate interim limits, to the extent authorized by law, while DTSC revises and reissues updated RCRA corrective action requirements or permits, as appropriate, to ensure compliance with this Order.

H. This Order may also be reopened and modified, revoked, and reissued or terminated in accordance with the provisions of 40 CFR sections 122.44, 122.62 to 122.64, 125.62, and 125.64. Causes for taking such actions include, but are not limited to, failure to comply with any condition of this order and permit, endangerment to human health or the environment resulting from the permitted activity.

V. Expiration Date

This Order expires on June 10, 2009.

The Discharger must file a Report of Waste Discharge in accordance with Title 23, California Code of Regulations, not later than 180 days in advance of the expiration date as application for issuance of new waste discharge requirements.

VI. Rescission

Order No. 98-051, adopted by this Board on June 29, 1998, is hereby rescinded, except for enforcement purposes.

I, Jonathan S. Bishop, Executive Officer, do hereby certify that the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, Los Angeles Region on March 9, 2006.

_____

Jonathan S. Bishop
Executive Officer