

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2003-0065

NPDES NO. CA0078093

WASTE DISCHARGE REQUIREMENTS
FOR
DEPARTMENT OF CORRECTIONS
DEUEL VOCATIONAL INSTITUTION
SAN JOAQUIN COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Regional Board) finds that:

1. The Department of Corrections, Deuel Vocational Institution (hereafter Discharger), a State of California prison facility, submitted a Report of Waste Discharge, dated 27 May 1999, and applied for permit renewal to discharge waste under the National Pollutant Discharge Elimination System (NPDES) from the Discharger's Wastewater Treatment Plant (WWTP) and additional outfalls. Supplemental information to complete filing of the application was submitted on 5 March 2001, 21 June 2001 and 7 March 2002.
2. The Discharger owns and operates a wastewater collection, treatment, and disposal system, and provides sewerage service to Deuel Vocational Institution. The treatment plant is in Section 20, T2S, R6E, MDB&M, on property owned by the State of California's Department of Corrections, as shown in Attachment A, which is a part of this Order. Treated municipal wastewater is discharged into Deuel Drain, a water of the United States, approximately 4 miles east of Tracy, at the point, latitude 37 deg., 45 min., 02 sec. and longitude 121 deg. 19 min., 35 sec. (Outfall 001 in Attachment A). Deuel Drain is part of the Sacramento-San Joaquin Delta, and is tributary to Paradise Cut and the Old River.
3. In addition to the wastewater discharge, the Discharger also discharges commingled industrial wastes, stormwater and contaminated groundwater into Deuel Drain from Outfall 003 and Outfall 004 as shown on Attachment A. The Discharger has a fourth outfall to Deuel Drain, Outfall 002 in Attachment A, through which discharges of wastewater related to dairy farm operations are possible. Discharges from Outfall 002 are not regulated by this Order.
4. The sanitary wastewater treatment system consists of headworks (screening, grit removal, comminutors), extended aeration in an oxidation ditch, secondary clarifier, multimedia filters, and chlorine contact basin. Coagulation and flocculation facilities are available but are not currently in use. There are no dechlorination facilities at the plant. The facility has an unlined aerated lagoon with a surface area of 2.24 acres, and two unlined

facultative ponds, with total surface area of 9.2 acres, that are currently used to collect filter backwash water prior to recycling within the treatment facility. The Discharger also uses the facultative ponds for flow equalization during periods of high plant inflow. Sludge is dewatered in sand drying beds and transported for offsite disposal. The Report of Waste Discharge and additional information describes the discharge through Outfall 001 as follows:

Average Daily Wastewater Flow (ADWF): 0.589 million gallons per day (mgd)¹
 Daily Peak Wet Weather Flow (PWWF): 0.783 mgd
 Design ADWF: 0.620 mgd
 Average Temperature: 72⁰ F (22⁰ C) summer; 64⁰ F (18⁰ C) winter
 Range of pH: 7.1 to 7.2 pH units

<u>Constituent</u>	<u>Average Concentration, mg/l</u>	<u>Mass, lb/day²</u>
BOD ₅ ³	4.5	23
Total Suspended Solids	1.4	6.8
Total Dissolved Solids	1500	7369

<u>Constituent</u>	<u>Range of Concentrations</u>
Electrical Conductivity	1600 to 2400 umhos/cm ⁴
Total Dissolved Solids	1000 to 1900 mg/l ⁴
Chloride	360 to 740 mg/l ⁴
Manganese	< 30 ug/l ⁴
Iron	< 100 ug/l ⁴
Copper	<50 ug/l ⁴
Nitrate	5 to 76 mg/l ⁴
Chlorine	0 mg/l
Bromodichloromethane	2.9 to 19 ug/l ⁴
Bromoform	22 to 260 ug/l ⁴
Chloroform	ND to 3.1 ug/l ⁴
Dibromochloromethane	13 to 62 ug/l ⁴
Ammonia	ND to 0.68 mg/l ⁵

¹ Reported data was based on monthly average data acquired in 1998

² Calculated with an average daily flow of 0.589 mgd

³ 5-day, 20⁰C biochemical oxygen demand

⁴ May 1998 through February 2001 Monitoring Data

⁵ April 1999 through February 2001 Monitoring Data

5. The U.S. Environmental Protection Agency (EPA) and the Regional Board have classified this discharge as a minor discharge.

6. The Regional Board adopted a *Water Quality Control Plan, Fourth Edition, for the Sacramento and San Joaquin River Basins* (hereafter Basin Plan). The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve water quality objectives for all waters of the Basin. These requirements implement the Basin Plan.
7. The beneficial uses of the Delta downstream of the discharge as identified in Table II-1 of the Basin Plan are municipal and domestic supply, agricultural irrigation, agricultural stock watering, industrial process water supply, industrial service supply, water contact recreation, other non-contact water recreation, warm freshwater aquatic habitat, cold freshwater aquatic habitat, warm fish migration habitat, cold fish migration habitat, warm spawning habitat, wildlife habitat, and navigation.
8. The beneficial uses of the underlying ground water are municipal and domestic, industrial service, industrial process and agricultural supply.
9. USEPA adopted the *National Toxics Rule* on 5 February 1993 and the *California Toxics Rule* on 18 May 2000. These Rules contain water quality standards applicable to this discharge. The State Water Resources Control Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (known as the State Implementation Plan (SIP)) which contains guidance on implementation of the *National Toxics Rule* and the *California Toxics Rule*.
10. Section 13263.6(a), California Water Code, requires that “the regional board shall prescribe effluent limitations as part of the waste discharge requirements of a POTW for all substances that the most recent toxic chemical release data reported to the state emergency response commission pursuant to Section 313 of the Emergency Planning and Community Right to Know Act of 1986 (42 U.S.C. Sec. 11023) (EPCRA) indicate as discharged into the POTW, for which the state board or the regional board has established numeric water quality objectives, and has determined that the discharge is or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to, an excursion above any numeric water quality objective”.

The Regional Board has adopted numeric receiving water objectives in the Water Quality Control Plan for the San Joaquin River Basin (Basin Plan) for the following constituents: arsenic, barium, copper, cyanide, iron, manganese, silver and zinc. As detailed elsewhere in this Permit, the Discharger’s monitoring data indicate none of these constituents have a reasonable potential to cause or contribute to an excursion above any numeric water quality objective included within the Basin Plan, or in any State Board plan, so no effluent limitations for these constituents were placed in this permit pursuant to CWC Section 13263.6(a).

SANITARY WASTEWATER TREATMENT PLANT

11. The previous Order contained effluent limitations prohibiting average dry weather flows or peak wet weather discharge flows from exceeding the treatment plant's design flow of 0.62 mgd. However, monitoring reports from February 2000 to February 2001 showed 136 dates where the discharge was in excess of 0.62 mgd. On 21 June 2001, the Discharger requested a discharge flow increase to 1.0 mgd. Additional receiving water and treatment plant capacity studies were required before this request could be granted. On 7 March 2002, the Discharger withdrew the request for an increase in the permitted discharge flow, stating that water conservation measures would be instituted to reduce the volume of wastewater generated. The current Order contains a monthly average effluent flow limit of 0.62 mgd. The Discharger is unable to consistently comply with this limitation.
12. The previous permit provided for a receiving water mixing zone that extended approximately one mile downstream of Outfall 001 (the discharge location) to the confluence of Deuel Drain and Paradise Cut. This mixing zone allowed the receiving water limitations for temperature and the effluent limitation for chlorine residual to be met at the confluence of Deuel Drain and Paradise Cut.

With regard to mixing zones, the Basin Plan states, "...the Regional Water Board may designate mixing zones within which water quality objectives will not apply provided the discharger has demonstrated to the satisfaction of the Regional Water Board that the mixing zone will not adversely impact beneficial uses... In determining the size of such mixing zones, the Regional Water Board will consider the applicable procedures and guidelines in EPA's Water Quality Standards Handbook and the Technical Support Document for Water Quality-based Toxics Control..." The Regional Board finds that, based on water quality evidence and the applicable procedures guidelines currently available, provisions for a mixing zone by allowing compliance with water quality objectives to be determined at the confluence of Deuel Drain and Paradise Cut should not be continued.

Deuel Drain is an ephemeral stream, with minimal dilution in the vicinity of the discharge. Because available dilution is negligible, the Regional Board will not designate any mixing zone within which Basin Plan water quality standards will not apply. The elimination of the mixing zone within Deuel Drain requires that this permit apply Basin Plan water quality standards, which have never been applied to this specific area of the water body for this Discharger.

Effluent limitations for chlorine residual have been included in this permit, as explained below, based on the application of the Basin Plan water quality standards within Deuel Drain. The Discharger is not currently capable of complying with these effluent limitations.

Effluent Limitations for Outfall 001

13. The Regional Board finds that there is a reasonable potential for the discharge to cause or contribute to an excursion above a water quality standard for chlorine, specifically the “narrative toxicity objective” in the Basin Plan. The Discharger uses chlorine for disinfection of the effluent waste stream. Chlorine in the receiving water is toxic and has reasonable potential to be discharged at significant concentrations, since dechlorination facilities are not currently available. The effluent limitation for total residual chlorine in the previous Order was a daily maximum of 0.1 mg/l applied at Paradise Cut. The Discharger is currently capable of complying with this effluent limitation. US EPA’s Ambient Water Quality Criteria for protection of aquatic life are 11 µg/l as a 4-day average (chronic) concentration, and 19 µg/l as a 1-hour average (acute) concentration for total residual chlorine. Federal regulations at 40 CFR Section 122.44(d)(1)(vi)(B) allows the state to establish the effluent limitation using U.S. EPA’s water quality criteria. This Order sets effluent limitations for total residual chlorine based on the U.S. EPA criteria: 0.01 mg/l as a weekly average, and 0.02 mg/l as a daily maximum. The Discharger is not currently capable of complying with these effluent limitations.

14. The Regional Board finds that there is a reasonable potential for the discharge to cause or contribute to an excursion above a water quality standard for ammonia, specifically the “narrative toxicity objective” in the Basin Plan. In addition, the Regional Board finds that there is a reasonable potential for the discharge to cause or contribute to an excursion above a water quality standard for nitrate, specifically the “narrative chemical constituents objective” in the Basin Plan. Untreated domestic wastewater contains ammonia. Nitrification is a biological process that converts ammonia to nitrate, and denitrification is a process that converts nitrate to nitrogen gas, which is released to the atmosphere. Wastewater treatment plants commonly use nitrification and denitrification processes to remove ammonia from the waste stream. Inadequate or incomplete nitrification or denitrification may result in the discharge of ammonia or nitrate to the receiving stream.

Ammonia is known to cause toxicity to aquatic organisms in surface waters. U.S. EPA has developed Ambient Water Quality Criteria for ammonia. For nitrate, U.S. EPA has developed Drinking Water Standards (10,000 ug/l as Primary Maximum Contaminant Level) and Ambient Water Quality Criteria for protection of human health (10,000 ug/l for non-cancer health effects). Additionally, recent toxicity studies have indicated a possibility that nitrate is toxic to aquatic organisms. The federal regulations at 40 CFR Section 122.44(d)(1)(vi)(B) allows the state to establish effluent limitations using U.S. EPA’s water quality criteria.

Existing monitoring data shows that nitrate is present in the treatment plant effluent at concentrations in excess of the primary MCL, indicating that the treatment plant effluent has a reasonable potential to cause or contribute to an in-stream excursion above the

Basin Plan prohibition against the discharge of chemical constituents in concentrations that adversely affect beneficial uses. Effluent limitations for ammonia and nitrate are included in this Order to assure the treatment process adequately nitrifies and denitrifies the waste stream to protect the beneficial uses of the receiving stream. The Discharger is not currently capable of complying with these effluent limitations.

15. The beneficial uses of Deuel Drain, Paradise Cut, Old River and the Delta downstream of the discharge include contact and non-contact water recreation, and irrigation of food crops. To protect these beneficial uses, the Regional Board finds that the wastewater must be disinfected and adequately treated to prevent disease. The principal infectious agents (pathogens) that may be present in raw sewage may be classified into three broad groups: bacteria, parasites, and viruses. Tertiary treatment, consisting of chemical coagulation, sedimentation, and filtration, has been found to remove approximately 99.5% of viruses. Filtration is an effective means of reducing viruses and parasites from the waste stream. The wastewater must be treated to tertiary standards (filtered) to protect contact recreational and food crop irrigation uses.

The California Department of Health Services (DHS) has developed reclamation criteria, California Code of Regulations, Title 22, Division 4, Chapter 3 (Title 22), for the reuse of wastewater. Title 22 requires that for spray irrigation of food crops, parks, playgrounds, school yards, and other areas of similar public access, wastewater be adequately disinfected, oxidized, coagulated, clarified, and filtered, and that the effluent total coliform levels not exceed 2.2 MPN/100 ml as a 7-day median. Title 22 is not directly applicable to surface waters; however, the Regional Board finds that it is appropriate to apply DHS's reclamation criteria because Deuel Drain and Paradise Cut water is used for irrigation of food crops and for contact recreation purposes. The stringent disinfection criteria of Title 22 are appropriate since the undiluted effluent may be used for the irrigation of food crops. Coliform organisms are intended as an indicator of the effectiveness of the entire treatment train and the effectiveness of removing other pathogens. The method of treatment is not prescribed by this Order; however, wastewater must be treated to a level equivalent to that recommended by DHS.

In addition to coliform testing, a turbidity effluent limitation has been included as a second indicator of the effectiveness of the treatment process and to assure compliance with the required level of treatment. The tertiary treatment process, or equivalent, is also capable of reliably meeting a turbidity limitation of 2 nephelometric turbidity units (NTU) as a daily average. Failure of the filtration system such that virus removal is impaired would normally result in increased particles in the effluent, which result in higher effluent turbidity. Turbidity has a major advantage for monitoring filter performance, allowing immediate detection of filter failure and rapid corrective action. Coliform testing, by comparison, is not conducted continuously and requires several hours, to days, to identify high coliform concentrations.

16. This Order contains Effluent Limitations and requires a tertiary level of treatment, or equivalent, necessary to protect the beneficial uses of the receiving water. In accordance with California Water Code, Section 13241, the Regional Board has considered the following:

- a. As stated in the above Findings, the past, present and probable future beneficial uses of the receiving stream include municipal and domestic supply, industrial service supply, water contact recreation, other non-contact water recreation, warm freshwater aquatic habitat, cold freshwater aquatic habitat, warm fish migration habitat, cold fish migration habitat, warm spawning habitat, wildlife habitat, and navigation.
- b. The environmental characteristics of the hydrographic unit, including the quality of the available water, will be improved by the requirement to provide tertiary treatment for this wastewater discharge. Tertiary treatment will allow for the reuse of the undiluted wastewater for food crop irrigation and contact recreation, activities that would otherwise be unsafe according to recommendations from the California Department of Health Services (DHS)
- c. Fishable and swimmable water quality conditions can be reasonably achieved through the coordinated control of all factors which affect water quality in the area.
- d. The economic impact of requiring an increased level of treatment has been considered. The Discharger cannot meet the proposed Title 22 tertiary treatment effluent limitations for coliform and turbidity. The Discharger has submitted a cost estimate of \$4 million dollars for constructing some of the equipment required to achieve compliance with Title 22 requirements and for replacing some existing facilities to improve the operation of the wastewater treatment facility.

The loss of beneficial uses within downstream waters, without the tertiary treatment requirement, include prohibiting the irrigation of food crops and prohibiting public access for contact recreational purposes, would have a detrimental economic impact. In addition to pathogen removal to protect irrigation and recreation, tertiary treatment may also aid in meeting discharge limitations for other pollutants, such as heavy metals, reducing the need for advanced treatment.

- e. The requirement to provide tertiary treatment for this discharge will not adversely impact the need for housing in the area. The potential for developing housing in the area will be facilitated by improved water quality, which protects the contact recreation and irrigation uses of the receiving water. DHS recommends that, in order to protect the public health, undiluted wastewater effluent must be treated to

a tertiary level, for contact recreational and food crop irrigation uses. Without tertiary treatment, the downstream waters could not be safely utilized for contact recreation or the irrigation of food crops.

- f. It is the Regional Board's policy, (Basin Plan, page IV-15.00, Policy 2) to encourage the reuse of wastewater. The Regional Board requires Dischargers to evaluate how reuse or land disposal of wastewater can be optimized. The need to develop and use recycled water is facilitated by providing a tertiary level of wastewater treatment which will allow for a greater variety of uses in accordance with California Code of Regulations, Title 22.
17. The Regional Board finds that there is a reasonable potential for the discharge to cause or contribute to an excursion above the water quality standards for total dissolved solids (TDS) and electrical conductivity (EC), specifically the "narrative chemical constituents objective" in the Basin Plan. The secondary California maximum contaminant level (MCL) for TDS is 500 mg/l as a recommended level, 1000 mg/l as an upper level, and 1500 mg/l as a short-term maximum. The recommended agricultural water quality goal for TDS is 450 mg/l as a long-term average. For specific conductance (EC), the secondary California MCL is 900 umhos/cm as a recommended level, 1600 umhos/cm as an upper level, and 2200 umhos/cm as a short-term maximum. The recommended agricultural water quality goal for EC is 700 umhos/cm as a long-term average. In addition, the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (95-1WR), dated May 1995, includes water quality objectives for EC of 700 umhos/cm from April to August and 1000 umhos/cm from September to March for the South Delta. The federal regulations at 40 CFR Section 122.44(d)(1)(vi)(B) allows the state to establish effluent limitations using U.S. EPA's water quality criteria. Monitoring data shows the discharge from Outfall 001 contains TDS concentrations from 1100 to 1900 mg/l, and EC levels from 1600 to 2400 umhos/cm. The reported TDS concentrations have increased from that reported in the previous Order (940 mg/l). In addition, the southern one-third of the Delta is 303(d) listed as an impaired water body for total dissolved solids (TDS). The outfall is in the vicinity of this impaired area, so the discharge may impact this 303(d) listed area. Effluent limitations for TDS and EC are contained in this Order. The Discharger is not currently capable of complying with these effluent limitations.
18. Monitoring reports for the wastewater treatment plant effluent show reasonable potential to exceed the CTR criteria for human consumption of water for the following volatile organics: bromodichloromethane, bromoform and dibromochloromethane. The final effluent limitations contained in this Order were calculated using the protocol for human health protection contained in the SIP. The Discharger cannot currently comply with these limitations.

Section 2.1 of the SIP provides that: *“Based on an existing discharger’s request and demonstration that it is infeasible for the discharger to achieve immediate compliance with a CTR criterion, or with an effluent limitation based on a CTR criterion, the RWQCB may establish a compliance schedule in an NPDES permit.”* Section 2.1, further states that compliance schedules may be included in NPDES permits provided that the following justification has been submitted: ... *“(a) documentation that diligent efforts have been made to quantify pollutant levels in the discharge and the sources of the pollutant in the waste stream; (b) documentation of source control measures and/or pollution minimization measures efforts currently underway or completed; (c) a proposal for additional or future source control measures, pollutant minimization actions, or waste treatment (i.e., facility upgrades); and (d) a demonstration that the proposed schedule is as short as practicable.”* This Order requires the Discharger to provide this information. The new water quality based effluent limitations for bromodichloromethane, bromoform and dibromochloromethane become effective on **1 June 2003** if a compliance schedule justification is not completed and submitted by the Discharger to the Regional Board. Otherwise, final water quality based effluent limitations for bromodichloromethane, bromoform and dibromochloromethane become effective on **1 March 2008**.

Based on SIP Section 2.2.2, interim effluent limitations are required when compliance schedules are granted to allow the Discharger an opportunity to provide additional information or construct facilities to meet the specified CTR criteria. The calculated interim effluent limitations for bromodichloromethane, bromoform and dibromochloromethane based on the TSD approach are respectively 50 ug/l, 708 ug/l and 127 ug/l as daily maximums, which will be the enforceable limitations until the final effluent limitations become effective on **1 March 2008**, or **1 June 2003** if a compliance schedule justification is not submitted.

19. Federal regulations require effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause, or contribute to an in-stream excursion above a narrative or numerical water quality standard. This Order contains provisions that:
 - a. require the Discharger to conduct a study to provide information as to whether the levels of NTR and CTR constituents, EPA Priority Pollutants, and constituents for which drinking water maximum contaminant levels (MCL) are prescribed in the California Code of Regulations, in the discharge have the reasonable potential to cause or contribute to an in-stream excursion above a water quality standard, including Basin Plan numeric and narrative objectives and NTR and CTR criteria;
 - b. if the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard, require the Discharger to submit information to calculate effluent limitations for those constituents; and

- c. allow the Regional Board to reopen this Order and include effluent limitations for those constituents.

On 10 September 2001 the Executive Officer issued a letter, in conformance with California Water Code, Section 13267, requiring the Discharger to prepare a technical report assessing water quality. This Order is intended to be consistent with the requirements of the technical report in requiring sampling for NTR, CTR, and additional constituents to determine the full water quality impacts of the discharge. The technical report requirements are intended to be more detailed, listing specific constituents, detection levels, and acceptable time frames and shall take precedence in resolving any conflicts.

RECLAMATION

20. The Discharger plans to use a portion of the wastewater effluent for specific reclamation uses, including irrigation of approximately 3 acres of ground cover on the wastewater treatment plant grounds. The Discharger estimates that the maximum usage will be approximately 20,000 gallons per day. This Order contains requirements to protect beneficial uses from the use of reclaimed water. The Discharger may request additional reclamation uses in accordance with Provision H.3 so long as those uses are within the regulatory scope of this Order.
21. DHS has established statewide reclamation criteria in Title 22, California Code of Regulations, Section 60301, et seq. (hereafter Title 22) for the use of reclaimed water, and has developed guidelines for specific uses. This Order requires compliance with applicable Title 22 requirements.

ANTIDegradation

22. SWRCB Resolution No. 68-16 (hereafter Resolution 68-16) and 40 CFR Section 131.12 require the Regional Board, in regulating discharge of waste, to maintain high quality waters of the State until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in the Regional Board's policies (e.g., quality that exceeds water quality objectives). Resolution 68-16 requires the discharge be regulated to meet best practicable treatment or control to assure that pollution or nuisance will not occur and the highest water quality consistent with the maximum benefit to the people of the State be maintained.
23. With regards to surface water, this Order establishes interim effluent limitations and compliance schedules for pollutants that cannot immediately be controlled to prevent any additional degradation of surface water by these pollutants. The total allowable

discharge of 0.62 mgd has not been increased from the previous order and, therefore, does not cause additional degradation beyond that allowed in the previous order. The discharge is consistent with Resolution 68-16 and 40 CFR section 131.12 because this Order requires the discharger to meet requirements that will result in best practicable treatment or control to assure that pollution or nuisance will not occur. Some degradation is consistent with maximum benefit to the people of the state because the discharge allows for economic or social development in the area.

24. With regards to groundwater, domestic wastewater contains constituents such as total dissolved solids (TDS), specific conductivity, pathogens, nitrates, organics, metals and oxygen demanding substances (BOD). The Discharger's unlined backwash ponds and aerated lagoon may result in an increase in the concentration of these constituents in groundwater. Some degradation of groundwater by the Discharger is consistent with Resolution 68-16 provided that:
- a. The degradation is limited in extent;
 - b. The degradation after effective source control, treatment, and control is limited to waste constituents typically encountered in municipal wastewater as specified in the groundwater limitations in this Order;
 - c. The Discharger minimizes the degradation by fully implementing, regularly maintaining, and optimally operating best practicable control technology (BPCT) measures; and
 - d. The degradation does not result in water quality less than that prescribed in the Basin Plan, e.g., does not exceed water quality objectives.

GROUNDWATER

25. Monitoring of the groundwater must be conducted to determine if the discharge has caused an increase in constituent concentrations, when compared to background. The monitoring must, at a minimum, require a complete assessment of groundwater impacts including the vertical and lateral extent of degradation, an assessment of all wastewater-related constituents which may have migrated to groundwater, an analysis of whether additional or different methods of treatment or control of the discharge are necessary to provide best practicable treatment or control to comply with Resolution No. 68-16. Economic analysis is only one of many factors considered in determining best practicable treatment. If monitoring indicates that the discharge has incrementally increased constituent concentrations in groundwater above background, this permit may be reopened and modified. Until groundwater monitoring is sufficient, this Order contains Groundwater Limitations that allow groundwater quality to be degraded for certain constituents when compared to background groundwater quality, but not to exceed water

quality objectives. If groundwater quality has been degraded by the discharge, the incremental change in pollutant concentration (when compared with background) may not be increased. If groundwater quality has been or may be degraded by the discharge, this Order may be reopened and specific numeric limitations established consistent with Resolution 68-16 and the Basin Plan.

26. The treatment and storage facilities associated with the discharge of treated municipal wastewater, except for discharges of residual sludge and solid waste, are exempt from the requirements of Title 27, California Code of Regulations (CCR), section 20005 et seq. (hereafter Title 27). The exemption, pursuant to Title 27 CCR section 20090(a), is based on the following:
- a. The waste consists primarily of domestic sewage and treated effluent;
 - b. The waste discharge requirements are consistent with water quality objectives; and
 - c. The treatment and storage facilities described herein are associated with a municipal wastewater treatment plant.
27. This Order requires the Discharger to prepare technical and monitoring reports as authorized by California Water Code Section 13267 and to monitor the groundwater in compliance with the attached Monitoring and Reporting Program No. R5-2003-0065. The monitoring reports are necessary to evaluate impacts to waters of the state to assure protection of beneficial uses, to assure compliance with State and Regional Board plans and policies, including Resolution 68-16, and to assure compliance with this Order. The Department of Correction discharges the waste that is regulated by this Order.

INDUSTRIAL DISCHARGES

28. The previous NPDES Order No. 94-212 regulated the industrial outfalls as stormwater outfalls. However, monitoring data from May 1999 to February 2001 show there are year-round non-stormwater discharges from these outfalls to Deuel Drain. From Outfall 003, the average discharge flow is 0.157 mgd, with peaks up to 0.538 mgd. Flows from Outfall 004 show an average discharge flow of 0.074 mgd, with peaks up to 1.2 mgd. The flows increase in the summer. These trends indicate the probability of substantial non-stormwater content.
29. Recent monitoring data indicates the discharges from the industrial outfalls are contaminated with volatile organic compounds (VOCs), including ethylbenzene, chloroform, dibromochloromethane, cis-1,2-dichloroethene, tetrachloroethene, trichloroethene, benzene, toluene and xylene. These discharges are probably originating from infiltration of contaminated groundwater into the pipelines connected to the outfalls and from discharges of industrial chemical wastes into floor drains that discharge to the outfalls.

30. The discharge of VOCs to the receiving water is not consistent with the provisions of 40 CFR 131.12 and SWRCB Resolution 68-16. The Discharger has not implemented a program to extract and treat the contaminated groundwater nor a program to prevent industrial wastes from entering floor drains that discharge to the industrial outfalls. There is available technology that provides best practicable treatment or control and that are capable of removing VOCs below the established limits of detection. Therefore, this Order contains effluent limitations for VOCs discharged through outfalls 003 and 004 based on implementation of best practicable treatment or control of the discharge at the source. Daily maximum effluent concentrations are contained in this Order to allow for some effluent quality variation and for the false positive analytical results inherent in analyses near the limits of detection. The Discharger is not currently capable of complying with these effluent limitations.
31. Federal Regulations for storm water discharges were promulgated by the United States Environmental Protection Agency (USEPA) on 16 November 1990 (40 CFR Parts 122, 123, 124). The regulations require operators of specific categories of facilities, with discharges of storm water associated with industrial activities (storm water), to obtain NPDES permits and to implement Best Available Technology Economically Achievable (BAT) and Best Conventional Pollutant Control Technology (BCT) to reduce or eliminate industrial storm water pollution.

The State Water Resources Control Board adopted Order No. 97-03-DWQ (General Industrial Stormwater Permit No. CAS000001) that specifies waste discharge requirements for discharges of storm water associated with industrial activities, excluding construction activities, and requires submittal of a Notice of Intent by industries to be covered under the permit. However, the General Permit is not appropriate for DVI due to the co-mingling of storm water, contaminated groundwater, and industrial wastewater in outfalls 003 and 004, making the discharges non-storm water. This individual permit and the provisions it contains relieves the Discharger from seeking coverage under the General Industrial Stormwater Permit.

WASTEWATER RELATED TO DAIRY OPERATIONS

32. The dairy operation at DVI is run by Prison Industries. The program consists of dairy production, milk processing, and farm crop irrigation using dairy wastewater blended with irrigation tailwater and San Joaquin River water. The management of the dairy and crop irrigation wastewater is regulated by General Order No. 96-270. The General Order states that wastewater must be retained on-site for all rain events less than a 25-year 24-hour frequency storm.

GENERAL

33. Effluent limitations, and toxic and pretreatment effluent standards established pursuant to Sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 304 (Information and Guidelines), and 307 (Toxic and Pretreatment Effluent Standards) of the Clean Water Act (CWA) and amendments thereto are applicable to the discharge.
34. The discharge is presently governed by Waste Discharge Requirements Order No. 94-212, adopted by the Regional Board on 5 August 1994.
35. The action to adopt an NPDES permit is exempt from the provisions of Chapter 3 of the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000, et seq.), requiring preparation of an environmental impact report or negative declaration in accordance with Section 13389 of the California Water Code.
36. The Regional Board has considered the information in the attached Fact Sheet in developing the Findings of this Order. The Fact Sheet is part of this Order.
37. The Regional Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge and has provided them with an opportunity for a public hearing and to submit their written views and recommendations.
38. The Regional Board, in a public meeting, heard and considered all comments pertaining to the discharge.
39. This Order shall serve as an NPDES permit pursuant to Section 402 of the Clean Water Act, and amendments thereto, and shall take effect 50 days following permit adoption (effective 25 April 2003), provided the Regional Administrator of US EPA has no objections.

IT IS HEREBY ORDERED that Order No. 94-212 is rescinded and the Department of Corrections, Deuel Vocational Institution, its agents, successors and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, and the provisions of the Clean Water Act and regulations and guidelines adopted thereunder, shall comply with the following:

A. Discharge Prohibitions:

1. Discharge of wastewater at a location or in a manner different from that described in Findings No. 2 and 3 is prohibited.
2. The bypass or overflow of wastes to surface waters is prohibited, except as allowed by Standard Provision A.13. [See attached "Standard Provisions and Reporting Requirements for Waste Discharge Requirements (NPDES)"].

3. Neither the discharge nor its treatment shall create a nuisance as defined in Section 13050 of the California Water Code.

B. Effluent Limitations (Outfall 001):

1. Effluent shall not exceed the following limits:

<u>Constituents</u>	<u>Units</u>	<u>Monthly Average</u>	<u>Weekly Average</u>	<u>Daily Average</u>	<u>Daily Maximum</u>
BOD ^{1,2}	mg/l	20	30	---	40
	lb/day ³	103	155	---	207
Total Suspended Solids ²	mg/l	20	30	---	40
	lb/day ³	103	155	---	207
Settleable Solids	ml/l	0.1	---	---	0.2
Oil and Grease	mg/l	10	---	---	15
	lb/day ³	52	---	---	77
Electrical Conductivity	umhos/cm	700	---	---	1600
Total Dissolved Solids	mg/l	450	---	---	1000
	lb/day ³	2330	---	---	5174
Ammonia	mg N/l	Attachment F	---	---	Attachment G
	lb N/day ³	Footnote 4	---	---	Footnote 4
Nitrate	mg N/l	10	---	---	15
	lb N/day ³	52	---	---	77
Bromodichloro-methane ⁵	ug/l	0.56	---	---	1.06
	lb/day ³	0.003	---	---	0.006

<u>Constituents</u>	<u>Units</u>	<u>Monthly Average</u>	<u>Weekly Average</u>	<u>Daily Average</u>	<u>Daily Maximum</u>
Bromoform ⁵	ug/l	4.3	---	---	8.39
	lb/day ³	0.022	---	---	0.043
Dibromochloro-methane ⁵	ug/l	0.41	---	---	0.67
	lb/day ³	0.002	---	---	0.003

- 1 5-day, 20°C biochemical oxygen demand (BOD)
 2 24-hour composite sample
 3 Based upon a dry weather flow of 0.62 mgd
 4 Using the value, in mg/l, determined from Attachment F or G as appropriate, calculate the lb/day using the formula: $z \text{ mg/l} \times 8.345 \times 0.62 \text{ mgd} = y \text{ lb/day}$.

5 Effective 1 March 2008

2. Effective immediately and until 1 March 2005, effluent shall not exceed the following limitations:

<u>Constituents</u>	<u>Units</u>	<u>Daily Maximum</u>
Chlorine Residual	mg/l	0.1
	lb/day ¹	0.52

1 Based upon a dry weather flow of 0.62 mgd

After 1 March 2005, and in accordance with Provision H.4, effluent shall not exceed the following limitations:

<u>Constituents</u>	<u>Units</u>	<u>1-Hour Average</u>	<u>4-Day Average</u>
Chlorine Residual	mg/l	0.02	0.01
	lb/day ¹	0.10	0.05

1 Based upon a dry weather flow of 0.62 mgd

3. Effective immediately and until 1 March 2008, effluent shall not exceed the following limitations:

<u>Constituents</u>	<u>Units</u>	<u>Monthly Median</u>	<u>Daily Maximum</u>
Total Coliform	MPN/100 ml	2.2	23

After 1 March 2008, and in accordance with Provision H.5, effluent shall not exceed the following limitations:

<u>Constituents</u>	<u>Units</u>	<u>Weekly Median</u>	<u>Daily Average</u>	<u>Daily Maximum</u>
Total Coliform	MPN/100 ml	2.2		23
Turbidity	NTU		2	5

4. The following interim effluent limitations are effective until 1 March 2008:

<u>Constituents</u>	<u>Units</u>	<u>Daily Maximum</u>
Bromodichloromethane	ug/l	50
	lb/day ¹	0.26
Bromoform	ug/l	708
	lb/day ¹	3.66
Dibromochloromethane	ug/l	127
	lb/day ¹	0.66

1 Based upon a dry weather flow of 0.62 mgd

5. Wastewater shall be oxidized, coagulated and filtered, or equivalent treatment provided.
6. The arithmetic mean of 20⁰ C BOD (5-day) and total suspended solids in effluent samples collected over a monthly period shall not exceed 15% of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period (85% removal).
7. The discharge shall not have a pH less than 6.5 nor greater than 8.5.

8. The monthly average dry weather discharge flow shall not exceed 0.62 million gallons per day.
9. Survival of aquatic organisms in 96-hour acute bioassays of undiluted waste shall be no less than:
 - Minimum for any one bioassay - - - - - 70%
 - Median for any three or more consecutive bioassays - - - - 90%
10. The maximum effluent temperature shall not exceed the natural receiving water by more than 20⁰F.

C. Effluent Limitations (Outfalls 003 and 004):

1. Effluent from Outfalls 003 and 004 shall not exceed the following limits:

<u>Constituents</u>	<u>Units</u>	<u>30-Day Average</u>	<u>Daily Maximum</u>
Benzene	ug/l	<0.5	1.0
Bromoform	ug/l	<0.5	1.0
Chloroform	ug/l	<0.5	1.0
Dibromochloromethane	ug/l	<0.41	1.0
cis-1,2-dichloroethene	ug/l	<0.5	1.0
Ethylbenzene	ug/l	<0.5	1.0
Tetrachloroethene	ug/l	<0.5	1.0
Toluene	ug/l	<0.5	1.0
Trichloroethene	ug/l	<0.5	1.0
Xylene	ug/l	<0.5	1.0

D. Water Reclamation

1. Use of reclaimed water covered by this Order shall be limited to the specific reclamation uses outlined in Finding No. 20, including ground cover irrigation. Additional specific reclamation uses may be approved by the Executive Officer in accordance with Provision H.3.
2. Reclaimed water shall be disinfected tertiary treated effluent. For disinfection, the median number of coliform organisms in the water shall not exceed 2.2 MPN/100 ml, as determined from the bacteriological results of the last seven days for which analyses have been completed, and the number of coliform organisms shall not exceed 23 MPN/100 ml in more than 1 sample per month.
3. Reclaimed water shall meet the criteria contained in Title 22, Division 4, CCR (section 60301, et seq.).
4. Reclaimed wastewater shall meet the requirements of Effluent Limitations B.1 before being used.
5. Reclaimed wastewater shall be applied in accordance with the Irrigation Management Plan dated 8 March 2001.
6. Supplementing reclaimed water with a domestic drinking water source or an irrigation industrial well requires an air gap device or backflow prevention device that complies with 17 CCR, Section 7853, et seq.
7. The total mass of nutrients in reclaimed water and other fertilizers applied by the user shall not exceed the agronomic requirements of the crop being irrigated.
8. There shall be no irrigation or impoundment of reclaimed water within 50 feet of any irrigation well or within 100 feet of any domestic well, unless it is demonstrated that a lesser distance will not affect the public health and beneficial uses of ground water.
9. The perimeter of the reclamation area shall be graded to prevent ponding along public roads or other public areas.
10. Reclaimed water shall not be applied within 30 feet of public roads.
11. Signs with proper wording of sufficient size shall be placed at areas of access and around the perimeter of all areas used for effluent disposal to alert the public of the use of reclaimed water.

12. Areas irrigated with reclaimed water shall be managed so as to prevent the breeding of mosquitoes. More specifically:
 - a. Tail water must be returned and all irrigation water must infiltrate completely within 48 hours of application.
 - b. Ditches must be maintained free of emergent, marginal, and floating vegetation.
 - c. Low-pressure and unpressurized pipelines and ditches accessible to mosquitoes shall not be used to store reclaimed waters.
 - d. Reclaimed wastewater shall be managed to prevent runoff onto adjacent properties not owned or controlled by the Discharger.

E. Sludge Disposal:

1. Collected screenings, sludges, and other solids removed from liquid wastes shall be disposed of in a manner approved by the Executive Officer, and consistent with *Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste*, as set forth in Title 27, CCR, Division 2, Subdivision 1, Section 20005, et seq.
2. Any proposed change in sludge use or disposal practice from a previously approved practice shall be reported to the Executive Officer and EPA Regional Administrator at least **90 days** in advance of the change.
3. Use and disposal of sewage sludge shall comply with existing Federal and State laws and regulations, including permitting requirements and technical standards included in 40 CFR 503.

If the State Water Resources Control Board and the Regional Water Quality Control Boards are given the authority to implement regulations contained in 40 CFR 503, this Order may be reopened to incorporate appropriate time schedules and technical standards. The Discharger must comply with the standards and time schedules contained in 40 CFR 503 whether or not they have been incorporated into this Order.

4. The Discharger is encouraged to comply with the “Manual of Good Practice for Agricultural Land Application of Biosolids” developed by the California Water Environment Association.

F. Receiving Water Limitations:

Receiving water limitations are based upon water quality objectives contained in the Basin Plan. As such they are a required part of the permit.

The discharge shall not cause the following in the receiving water:

1. Concentrations of dissolved oxygen in Deuel Drain to fall below 5.0 mg/l. The monthly median of the mean daily dissolved oxygen concentration shall not fall below 85 percent of saturation in the main water mass, and the 95th percentile concentration shall not fall below 75 percent of saturation.
2. Oils, greases, waxes, or other materials to form a visible film or coating on the water surface or on the stream bottom.
3. Oils, greases, waxes, floating material (liquids, solids, foams, and scums) or suspended material to create a nuisance or adversely affect beneficial uses.
4. Concentrations of any materials in the receiving waters which are deleterious to human, animal, aquatic, or plant life.
5. Esthetically undesirable discoloration.
6. Fungus, slimes, or other objectionable growths.
7. The turbidity to increase as follows:
 - a. More than 1 Nephelometric Turbidity Units (NTUs) where natural turbidity is between 0 and 5 NTUs.
 - b. More than 20 percent where natural turbidity is between 5 and 50 NTUs.
 - c. More than 10 NTUs where natural turbidity is between 50 and 100 NTUs.
 - d. More than 10 percent where natural turbidity is greater than 100 NTUs.
8. A zone, defined by water temperatures of more than 1⁰F above natural receiving water temperature, which exceeds 25 percent of the cross-sectional area of the main river channel at any point.
9. The surface water temperature to rise greater than 4⁰F above the natural temperature of the receiving waters at any time or place.
10. The ambient pH to fall below 6.5, exceed 8.5, or change by more than 0.5 units.

11. Deposition of material that causes nuisance or adversely affects beneficial uses.
12. Radionuclides to be present in concentrations that exceed maximum contaminant levels specified in the California Code of Regulations, Title 22; that harm human, plant, animal or aquatic life; or that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.
13. Aquatic communities and populations, including vertebrate, invertebrate, and plant species, to be degraded.
14. Toxic pollutants to be present in the water column, sediments, or biota in concentrations that adversely affect beneficial uses; that produce detrimental response in human, plant, animal, or aquatic life; or that bioaccumulate in aquatic resources at levels which are harmful to human health.
15. Violation of any applicable water quality standard for receiving waters adopted by the Regional Board or the State Water Resources Control Board pursuant to the CWA and regulations adopted thereunder.
16. Taste or odor-producing substances to impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin or to cause nuisance or adversely affect beneficial uses.
17. The fecal coliform concentration in any 30-day period to exceed a geometric mean of 200 MPN/100 ml or cause more than 10 percent of total samples to exceed 400 MPN/100 ml.

G. Groundwater Limitations:

Release of waste constituents from any storage, treatment, or disposal component associated with the WWTP shall not, in combination with other sources cause the following in groundwater:

- a. Adversely impact beneficial uses or exceed water quality objectives.
- b. Any constituent concentration, when compared with background, shall not be incrementally increased beyond the current concentration in down gradient wells.

H. Provisions:

1. The treatment facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.
2. The Discharger shall not allow pollutant-free wastewater to be discharged into the collection, treatment, and disposal system in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.
3. If the Discharger intends to use reclaimed water for additional specific uses beyond those described in Finding No. 20, it shall first submit an Engineering Report for Executive Officer approval. The Engineering Report shall conform with the *Guidelines for the Preparation of an Engineering Report for the Production, Distribution and Use of Recycled Water*, March 2001, issued by the Department of Health Services.
4. By **1 March 2005**, the discharge from Outfall 001 shall be adequately dechlorinated. The Discharger shall comply with the following time schedule:

<u>Task</u>	<u>Compliance Date</u>	<u>Report Due</u>
Complete Plans and Specifications for dechlorination treatment facilities.	1 February 2004	1 March 2004
Complete construction of dechlorination treatment facilities.	1 February 2005	1 March 2005
Full compliance with Effluent Limitation B.2.	1 March 2005	1 April 2005

The Discharger shall submit to the Regional Board on or before each report due date, the specified document or, if appropriate, a written report detailing compliance or noncompliance with the specific schedule date and task. If noncompliance is being reported, the reasons for such noncompliance shall be stated; the report shall also include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Regional Board by letter when it returns to compliance with the time schedule.

5. New effluent limitations for turbidity, coliform, and tertiary treatment requirements have been included in this Order. To comply with these limits, it will be necessary for the Discharger to modify the existing treatment facility. To allow for these modifications a time schedule to comply with these new limits is included. The Discharger shall comply with the following time schedule to

complete the necessary improvements and fully comply with the new discharge limits.

<u>Task</u>	<u>Compliance Date</u>	<u>Report Due</u>
Submit Workplan and Time Schedule		90 days after permit adoption
Submit Annual Status Report		1 March, annually
Identify and Describe Scope of Projects		1 December 2003
Complete Facility Modifications	1 January 2008	1 February 2008
Full Compliance with Effluent Limitation B.3.	1 March 2008	1 April 2008

The Discharger shall submit to the Regional Board on or before each report due date, the specified document or, if appropriate, a written report detailing compliance or noncompliance with the specific schedule date and task. If noncompliance is being reported, the reasons for such noncompliance shall be stated; the report shall also include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Regional Board by letter when it returns to compliance with the time schedule.

6. **Bromodichloromethane, Bromoform and Dibromochloromethane Compliance Schedule:** By **15 May 2003**, the Discharger shall complete and submit a compliance schedule justification for bromodichloromethane, bromoform and dibromochloromethane in the wastewater treatment plant effluent (Outfall 001). The compliance schedule justification shall include all items specified by the SIP Section 2.1, Paragraph 3 (items (a) through (d)). The new water quality based effluent limitations for bromodichloromethane, bromoform and dibromochloromethane in the wastewater treatment plant effluent (Outfall 001) become effective on **1 June 2003** if a compliance schedule justification meeting the requirements of Section 2.1 of the SIP is not completed and submitted by the Discharger. Otherwise the new final water quality based effluent limitations for bromodichloromethane, bromoform and dibromochloromethane in the wastewater treatment plant effluent (Outfall 001) required by this Order shall become effective on **1 March 2008**. As this schedule is greater than one year, the Discharger shall submit semi-annual progress reports on **15 January** and **15 July** each year until the Discharger achieves compliance with the final water quality based effluent limitations for bromodichloromethane,

bromoform and dibromochloromethane in the wastewater treatment plant effluent (Outfall 001).

7. *Pollution Prevention Plans:* The Discharger shall prepare pollution prevention plans that conform to the requirements contained in CWC Section 13263.3(d)(3) for bromodichloromethane, bromoform and dibromochloromethane in the wastewater treatment plant effluent (Outfall 001). A work plan and time schedule for preparation of these pollution prevention plans shall be completed and submitted to the Executive Officer for approval by **1 July 2005**. A progress report shall be submitted every **six (6) months** after approval of the work plan. All of the work specified within the work plan shall be completed and results submitted in report format to the Regional Board by **1 March 2007**, and compliance with Effluent Limitations B.1 shall be achieved by **1 March 2008**. Should pollution prevention not be feasible, this Order may be reopened for addition and/or modification of limitations and requirements for these constituents.
8. *Treatment Feasibility Studies:* The Discharger shall perform treatment feasibility studies that examine the feasibility, costs and benefits of treatment to remove bromoform, dibromochloromethane and bromodichloromethane from the wastewater treatment plant discharge (Outfall 001). A work plan and time schedule for completing the work components shall be submitted to the Executive Officer for approval by **1 July 2005**. A progress report shall be submitted every **six (6) months** after approval of the work plan. All of the work specified within the work plan shall be completed and results submitted in report format to the Regional Board by **1 March 2007**, and compliance with Effluent Limitations B.1 for these constituents shall be achieved by **1 March 2008**. Should these studies show that treatment is not feasible, this Order may be reopened for addition and/or modification of limitations and requirements for these constituents.
9. *Groundwater Monitoring:* To determine compliance with the Groundwater Limitations, the Discharger shall submit a Groundwater Monitoring Workplan by **1 September 2003**. The groundwater monitoring network shall include one or more background monitoring wells and a sufficient number of designated monitoring wells to evaluate performance of best practicable control technology (BPCT) measures and determine if the discharge has degraded groundwater. These include monitoring wells downgradient of every treatment, storage, and disposal unit that does or may release waste constituents to groundwater. The monitoring wells shall be installed, developed, a Groundwater Well Installation Report submitted to the Regional Board, and groundwater monitoring shall commence by **1 March 2004**. The Groundwater Monitoring Workplan and Monitoring Well Installation Report shall be prepared by a Registered Geologist and shall contain the information listed in Attachment C, "*Items to be Included in*

a Monitoring Well Installation Workplan and a Monitoring Well Installation Report of Results.” All wells shall comply with appropriate standards as described in *California Well Standards Bulletin 74-90* (June 1991) and *Water Well Standards: State of California Bulletin 94-81* (December 1981), and any more stringent standards adopted by the Discharger or county pursuant to CWC section 13801.

After one year of monitoring, the Discharger shall characterize natural background quality of monitored constituents in a technical report, to be submitted by **1 April 2005**. If the monitoring shows that any constituent concentrations are increased above background water quality, the Discharger shall submit a technical report describing the evaluation’s results and critiquing each evaluated component with respect to BPCT and minimizing the discharge’s impact on groundwater quality. In no case shall the discharge be allowed to exceed a water quality objective. Where treatment system deficiencies are documented, the technical report shall provide recommendations for necessary modifications (e.g., new or revised salinity source control measures, wastewater treatment plant component upgrade and retrofit) to achieve BPCT and identify the source of funding and proposed schedule for modifications for achieving full compliance prior to expiration of this Order. This Order may be reopened and additional groundwater limitations added.

10. *State Implementation Plan Study:* The discharge may contain constituents that have a reasonable potential to cause or contribute to an exceedance of NTR, CTR water quality objectives, or supplemental constituents that could exceed Basin Plan numeric or narrative water quality objectives. The constituents are specifically listed in a letter for submission of a technical report requirement issued by the Executive Officer on 10 September 2001. A copy of that letter, including its Attachments I through IV, is incorporated into this Order as Attachment B. The Discharger shall comply with the following time schedule in conducting a study of these constituents potential effect in surface waters:

<u>Task</u>	<u>Compliance Date</u>
Submit Study Report for Dioxins	1 November 2004

This Provision is intended to be consistent with the requirements of the 10 September 2001 technical report request. The Discharger shall submit to the Regional Board on or before each compliance due date, the specified document or a written report detailing compliance or noncompliance with the specific date and task. If noncompliance is reported, the Discharger shall state the reasons for noncompliance and include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Regional Board by letter when it

returns to compliance with the time schedule.

If after review of the study results it is determined that the discharge has reasonable potential to cause or contribute to an exceedance of a water quality objective this Order will be reopened and effluent limitations added for the subject constituents.

11. The Discharger shall conduct the chronic toxicity testing specified in the Monitoring and Reporting Program. If the testing indicates that the discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above the water quality objective for toxicity, the Discharger shall initiate a Toxicity Identification Evaluation (TIE) to identify the causes of toxicity. Upon completion of the TIE, the Discharger shall submit a workplan to conduct a Toxicity Reduction Evaluation (TRE) and, after Regional Board evaluation, conduct the TRE. This Order will be reopened and a chronic toxicity limitation included and/or a limitation for the specific toxicant identified in the TRE included. Additionally, if a chronic toxicity water quality objective is adopted by the State Water Resources Control Board, this Order may be reopened and a limitation based on that objective included.
12. The Discharger shall comply with all the items of the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements (NPDES)", dated 1 March 1991, which are part of this Order. This attachment and its individual paragraphs are referred to as "Standard Provisions."
13. The Discharger shall comply with Monitoring and Reporting Program No.R5-2003-0065, which is part of this Order, and any revisions thereto as ordered by the Executive Officer.

When requested by USEPA, the Discharger shall complete and submit Discharge Monitoring Reports. The submittal date shall be no later than the submittal date specified in the Monitoring and Reporting Program for Discharger Self Monitoring Reports.

14. This Order expires on 1 April 2008 and the Discharger must file a Report of Waste Discharge in accordance with Title 23, CCR, not later than 180 days in advance of such date in application for renewal of waste discharge requirements if it wishes to continue the discharge.
15. Prior to making any change in the discharge point, place of use, or purpose of use of the wastewater, the Discharger shall obtain approval of, or clearance from the State Water Resources Control Board (Division of Water Rights).

16. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to this office.

To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, address and telephone number of the persons responsible for contact with the Regional Board and a statement. The statement shall comply with the signatory paragraph of Standard Provision D.6 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer shall be approved or disapproved in writing by the Executive Officer.

I, THOMAS R. PINKOS, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 25 April 2003.

THOMAS R. PINKOS, Executive Officer

04/01/03
KYN/PHL

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2003-0065

NPDES NO. CA0078093

FOR
DEPARTMENT OF CORRECTIONS
DEUEL VOCATIONAL INSTITUTION
SAN JOAQUIN COUNTY

This Monitoring and Reporting Program is issued pursuant to Water Code Section 13267. The Discharger shall not implement any changes to this Program unless and until the Regional Board or Executive Officer issues a revised Monitoring and Reporting Program. Specific sample station locations shall be established under direction of the Board's staff, and a description of the stations shall be attached to this Order.

WASTEWATER TREATMENT PLANT INFLUENT MONITORING

Samples shall be collected at approximately the same time as effluent samples and should be representative of the influent for the period sampled. Influent monitoring shall include at least the following:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>
Flow	mgd	Meter	Continuous
pH ³	pH units	Grab ²	Daily
Temperature ³	⁰ F/ ⁰ C	Grab ²	Daily
20 ⁰ C BOD ₅	mg/l, lb/day	24-hr Composite	Daily
Total Suspended Solids	mg/l, lb/day	24-hr Composite	Daily
Electrical Conductivity @25 ⁰ C	µmhos/cm	Grab ²	Weekly
Ammonia ^{1,3}	mg N/l, lb/day	Grab ²	Weekly
Total Dissolved Solids	mg/l, lb/day	Grab ²	Monthly
Nitrate	mg N/l, lb/day	Grab ²	Monthly

¹ Report as both total and un-ionized ammonia.

² Grab samples shall not be collected at the same time each day.

³ pH and temperature data shall be collected on the same date and at the same time as the ammonia sample.

EFFLUENT MONITORING

WASTEWATER TREATMENT PLANT OUTFALL 001

Effluent samples shall be collected downstream from the last connection through which wastes can be admitted into outfall 001. Effluent samples should be representative of the volume and quality of the discharge. Time of collection of samples shall be recorded. Effluent monitoring shall include at least the following:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>
Flow	Mgd	Meter	Continuous
Turbidity	NTU	Meter	Continuous
20 ⁰ C BOD ₅	mg/l, lb/day	24 hr. Composite	Daily
Total Suspended Solids	mg/l, lb/day	24 hr. Composite	Daily
Settleable Solids	ml/l	Grab ¹	Daily
Electrical Conductivity @25 ⁰ C	µmhos/cm	Grab ¹	Daily
Total Coliform Organisms	MPN/100 ml	Grab ¹	Daily
Chlorine Residual	mg/l, lb/day	Grab ¹	Daily
pH ³	pH Units	Grab ¹	Daily
Temperature ³	⁰ F/ ⁰ C	Grab ¹	Daily
Ammonia ² (as N)	mg N/l, lb/day	Grab ¹	Weekly
Acute Toxicity ⁴	% Survival	Flow Through	Weekly
Total Dissolved Solids	mg/l, lb/day	Grab ¹	Weekly
Nitrate	mg N/l, lb/day	Grab ¹	Weekly
Chloride	mg/l, lb/day	Grab ¹	Monthly
Volatile Organics ⁵	ug/l, lb/day	Grab ¹	Monthly
Standard Minerals ⁶	mg/l	Grab ¹	Quarterly

¹ Grab samples shall not be collected at the same time each day.

² Sample shall be collected on the same date and at the same time as the acute bioassay sample. Report as both total and un-ionized ammonia.

³ pH and temperature data shall be collected on the same date and at the same time as the ammonia sample.

⁴ The acute toxicity sample shall be collected on the same date and at the same time as the ammonia sample. The acute toxicity samples shall be analyzed using EPA 821-R-02-012, Fifth Edition, or later amendment with Board staff approval. Temperature and pH shall be recorded at the time of sample collection. Test species shall be fathead minnows (*Pimephales promelas*), with no pH adjustment unless approved by the Executive Officer.

⁵ As defined in the State Implementation Plan 13267 letter, dated 10 September 2001. (Attachment B)

⁶ Standard Minerals shall include all major cations and anions and include a verification that the analysis is complete (i.e., cation/anion balance).

If the discharge is intermittent rather than continuous, then on the first day of each such intermittent discharge, the Discharger shall monitor and record data for all of the constituents listed above, after which the frequencies of analysis given in the schedule shall apply for the duration of each such intermittent discharge. In no event shall the Discharger be required to monitor and record data more often than twice the frequencies listed in the schedule.

INDUSTRIAL OUTFALLS 003 AND 004

Effluent samples shall be collected downstream from the last connection through which wastes can be admitted into the outfall. Effluent samples should be representative of the volume and quality of the discharge. Time of collection of samples shall be recorded. Effluent monitoring shall include at least the following:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>
Flow	mgd	Totalizer Reading	Daily
20°C BOD ₅	mg/l, lb/day	Grab ¹	Weekly
Total Coliform Organisms	MPN/100 ml	Grab ¹	Weekly
Chlorine Residual	mg/l, lb/day	Grab ¹	Weekly
Electrical Conductivity @25°C	µmhos/cm	Grab ¹	Weekly
Total Dissolved Solids	mg/l, lb/day	Grab ¹	Weekly
Volatile Organics ²	ug/l, lb/day	Grab ¹	Monthly

¹ Grab samples shall not be collected at the same time each day.

² As defined in the State Implementation Plan 13267 letter, dated 10 September 2001 (Attachment B).

If the discharge is intermittent rather than continuous, then on the first day of each such intermittent discharge, the Discharger shall monitor and record data for all of the constituents listed above, after which the frequencies of analysis given in the schedule shall apply for the duration of each such intermittent discharge. In no event shall the Discharger be required to monitor and record data more often than twice the frequencies listed in the schedule.

RECEIVING WATER MONITORING

All receiving water samples shall be grab samples. Receiving water sampling may be postponed or eliminated if hazardous water conditions prevent safe access to the sampling locations. Receiving water samples shall include at least the following:

<u>Station</u>	<u>Description</u>
R-1A	Deuel Drain 450 feet upstream from the point of discharge of Outfall 001.
R-2A	Deuel Drain 450 feet downstream from the point of discharge of Outfall 001.

<u>Constituents</u>	<u>Units</u>	<u>Station</u>	<u>Sampling Frequency</u>
Dissolved Oxygen	mg/l	R-1A, R-2A	Weekly
pH ¹	pH Units	R-1A, R-2A	Weekly
Turbidity	Turbidity Units	R-1A, R-2A	Weekly
Temperature ¹	°F (°C)	R-1A, R-2A	Weekly
Electrical Conductivity @25 ⁰ C	µmhos/cm	R-1A, R-2A	Weekly
Fecal Coliform Organisms	MPN/100 ml	R-1A, R-2A	Weekly
Chlorine Residual	mg/l	R-1A, R-2A	Weekly
Total Dissolved Solids	mg/l	R-1A, R-2A	Monthly
Ammonia ¹	mg N/l	R-1A, R-2A	Monthly
Un-ionized Ammonia as N (calculated)	mg/l	R-1A, R-2A	Monthly
Nitrate	mg N/l	R-1A, R-2A	Monthly
Standard Minerals ²	mg/l	R-1A, R-2A	Quarterly
Radionuclides	pCi/l	R-1A, R-2A	Quarterly

¹ Temperature and pH shall be determined at the time of sample collection for the calculation of un-ionized ammonia concentration

² Standard Minerals shall include all major cations and anions and include a verification that the analysis is complete (i.e., cation/anion balance).

In conducting the receiving water sampling, a log shall be kept of the receiving water conditions throughout the reach bounded by Stations R-1A and R-2A. Attention shall be given to the presence or absence of:

- | | |
|---------------------------------|--|
| a. Floating or suspended matter | e. Visible films, sheens or coatings |
| b. Discoloration | f. Fungi, slimes, or objectionable growths |
| c. Bottom deposits | g. Potential nuisance conditions |
| d. Aquatic life | |

Notes on receiving water conditions shall be summarized in the monitoring report.

THREE SPECIES CHRONIC TOXICITY MONITORING

Chronic toxicity monitoring shall be conducted to determine whether the effluent is contributing toxicity to Deuel Drain. The testing shall be conducted as specified in EPA 821-R-02-013. Chronic toxicity samples shall be collected of the wastewater treatment plant's effluent prior to its entering Deuel Drain. Twenty-four hour composite samples shall be representative of the volume and quality of the discharge. Time of sample collection shall be recorded. Dilution and control waters shall be obtained immediately upstream of the discharge from an area unaffected by the discharge in the receiving waters. Standard dilution water can be used if the receiving water source exhibits toxicity and is approved by the Executive Officer. The sensitivity of the test organisms to a reference toxicant shall be determined concurrently with each bioassay and reported with the test results. Both the reference toxicant and effluent test must meet all test acceptability criteria as specified in the chronic manual. If the test acceptability criteria are not achieved, then the Discharger must re-sample and re-test within 14 days. Chronic toxicity monitoring shall include the following:

Species: *Pimephales promelas*, *Ceriodaphnia dubia*, and *Selenastrum capricornutum*

Frequency: Once per quarter, four quarters per year

	<u>Dilutions (%)</u>					<u>Controls</u>	
	<u>100</u>	<u>50</u>	<u>25</u>	<u>12.5</u>	<u>6.25</u>	<u>Deuel Drain Water</u>	<u>Lab Water</u>
% WWTP Effluent	100	50	25	12.5	6.25	0	0
% Dilution Water ¹	0	50	75	87.5	93.75	100	0
% Lab Water	0	0	0	0	0	0	100

¹ Dilution water shall be receiving water from Deuel Drain taken upstream of the discharge point.

GROUND WATER MONITORING

Groundwater monitoring shall commence by 1 March 2004. Prior to sampling, the groundwater elevations shall be measured and the wells shall be purged at least three well volumes until pH and electrical conductivity have stabilized. Depth to groundwater shall be measured to the nearest 0.01 feet. Samples shall be collected using standard EPA methods. Groundwater monitoring shall include, at a minimum, the following:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>
Groundwater elevation	Feet	Measurement	Quarterly
Total Dissolved Solids	mg/l	Grab	Quarterly
Ammonia as Nitrogen	mg/l	Grab	Quarterly

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>
Nitrates as Nitrogen	mg/l	Grab	Quarterly
PH	pH Units	Grab	Quarterly
Electrical Conductivity @25°C	µmhos/cm	Grab	Quarterly
Total Coliform Organisms	MPN/100 ml	Grab	Quarterly

RECLAIMED WATER MONITORING

All samples shall be grab samples, collected at the location where reclaimed water is provided for use. Reclaimed water monitoring shall include at least the following:

<u>Constituents/Parameter</u>	<u>Units</u>	<u>Sampling Frequency</u>
Volume Used	mgd	Daily when used
Total Coliform Organisms	MPN/100 ml	Twice Weekly when used

SLUDGE MONITORING

The Discharger shall conduct annual monitoring of sludge quality, including sludge percent solids and quantitative results of chemical analysis for the priority pollutants listed in 40 CFR 122 Appendix D, Tables II and III (excluding total phenols). All sludge samples shall be a composite of a minimum of twelve (12) discrete samples taken at equal time intervals over 24 hours. Suggested methods for analysis of sludge are provided in EPA publications titled "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods" and "Test Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater". Recommended analytical holding times for sludge samples should reflect those specified in 40 CFR 136.6.3(e). Other guidance is available in EPA's POTW Sludge Sampling and Analysis Guidance Document, August 1989.

Sampling records shall be retained for a minimum of five years. A log shall be kept of sludge quantities generated and of handling and disposal activities. The frequency of entries is discretionary; however, the log should be complete enough to serve as a basis for part of the annual report.

WATER SUPPLY MONITORING

A sampling station shall be established where a representative sample of the municipal water supply can be obtained. Water supply monitoring shall include at least the following:

<u>Constituents</u>	<u>Units</u>	<u>Sampling Frequency</u>
Electrical Conductivity ¹ @ 25 ⁰ C	µmhos/cm	Monthly
Total Dissolved Solids	mg/l	Monthly
Standard Minerals ²	mg/l	Quarterly

¹ If the water supply is from more than one source, the EC shall be reported as a weighted average and include copies of supporting calculations.

² Standard Minerals shall include all major cations and anions and include a verification that the analysis is complete (i.e., cation/anion balance).

REPORTING REQUIREMENTS

The Discharger shall adhere to the following reporting requirements:

A. Monthly Self-Monitoring Reports

Monitoring results shall be submitted to the Regional Board by the **first day** of the second month following sample collection. Quarterly and semi-annual monitoring results shall be submitted by the **first day** of the second month following monitoring and shall be included in the monthly report for the corresponding month in which the Quarterly or semi-annual monitoring was conducted.

In reporting the monitoring data, the Discharger shall at a minimum arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner to illustrate clearly whether the discharge complies with waste discharge requirements. The highest daily maximum for the month, monthly and weekly averages, and medians, and removal efficiencies (%) for BOD and Suspended Solids, should be determined and recorded.

If the Discharger monitors any pollutant at the locations designated herein more frequently than is required by this Order, the results of such monitoring shall be included in the calculation and reporting of the values required in the discharge monitoring report form. Such increased frequency shall be indicated on the discharge monitoring report form.

B. Groundwater Monitoring Reporting

As required by the California Business and Professions Code Sections 6735, 7835, and 7835.1, all Groundwater Monitoring Reports shall be prepared under the direct supervision of a Registered Engineer or Geologist and signed by the registered professional and shall include:

1. The results of quarterly groundwater monitoring shall be submitted with the corresponding self-monitoring report for that month in which the monitoring was performed.
2. A narrative description of all preparatory, monitoring, sampling, and analytical testing activities for the groundwater monitoring. The narrative shall be sufficiently detailed to verify compliance with the WDR, this MRP, and the Standard Provisions and Reporting Requirements. Field logs shall support the narrative for each well documenting depth to groundwater; parameters measured before, during, and after purging; method of purging; calculation of casing volume; and total volume of water purged.
3. Calculation of groundwater elevations, an assessment of groundwater flow direction and gradient on the date of measurement, comparison of previous flow direction and gradient data, and discussion of seasonal trends if any.
4. A narrative discussion of the analytical results for all media and locations monitored including spatial and temporal trends, with reference to summary data tables, graphs, and appended analytical reports (as applicable).
5. A comparison of monitoring data to the discharge specifications, groundwater limitations and surface water limitations, and explanation of any violation of those requirements.
6. Summary data tables of historical and current water table elevations and analytical results.
7. A scaled map showing relevant structures and surface features of the facility, the locations of monitoring wells and any other sampling stations, and groundwater elevation contours referenced to mean sea level datum.
8. Copies of laboratory analytical report(s) for groundwater, if requested by Regional Board staff.

C. Annual Sludge Monitoring Report

1. Within **90 days** of the effective date of this Order, and annually **by 30 January** thereafter, the Discharger shall submit the following information as part of the sludge monitoring report:
 - a. Annual sludge production in dry tons and percent solids.
 - b. A schematic diagram showing sludge handling facilities and a solids flow diagram.

- c. Depth of application and drying time for sludge drying beds.
- d. Results of annual sludge pollutant monitoring.
- e. A description of disposal methods, including the following information related to the disposal methods used at the facility. If more than one method is used, include the percentage of annual sludge production disposed by each method.
 - i. For **landfill disposal**, include (1) the Regional Board's WDR numbers that regulate the landfill(s) used, (2) the present classifications of the landfill(s) used, and (3) the names and locations of the receiving facility(ies).
 - ii. For **land application**, include (1) location of the site(s), (2) the Regional Board's WDR numbers that regulate the site(s), (3) the application rate in lbs/year (specify wet or dry), and (4) subsequent uses of the land.
 - iii. For **incineration**, include (1) name and location of the site(s) where sludge incineration occurs, (2) the Regional Board's WDR numbers that regulate the site(s), (3) the disposal method of the ash, and (4) the names and locations of facilities receiving ash (if applicable).
 - iv. For **composting**, include (1) name and location of the site(s) where sludge composting occurs, and (2) the Regional Board's WDR numbers that regulate the site(s).

D. Annual Report

By **30 January** of each year, the Discharger shall submit a written report to the Executive Officer containing the following:

1. The names, certificate grades, and general responsibilities of all persons employed at the WWTP (Standard Provision A.5).
2. The names and telephone numbers of persons to contact regarding the plant for emergency and routine situations.
3. A statement certifying when the flow meter and other monitoring instruments and devices were last calibrated, including identification of who performed the calibration (Standard Provision C.6).
4. A statement certifying whether the current operation and maintenance manual, and contingency plan, reflect the wastewater treatment plant as currently constructed and

operated, and the dates when these documents were last revised and last reviewed for adequacy.

E. Other Reporting Requirements

1. The Discharger may also be requested to submit an annual report to the Regional Board with both tabular and graphical summaries of the monitoring data obtained during the previous year. Any such request shall be made in writing. The report shall discuss the compliance record. If violations have occurred, the report shall also discuss the corrective actions taken and planned to bring the discharge into full compliance with the waste discharge requirements.
2. All reports submitted in response to this Order shall comply with the signatory requirements of Standard Provision D.6.

The Discharger shall implement the above monitoring program on the first day of the month following effective date of this Order.

Ordered by: _____
THOMAS R. PINKOS, Executive Officer

25 April 2003
(Date)

04/03/03
KYN/PHL