

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 00-025
NPDES NO. CA0005240

WASTE DISCHARGE REQUIREMENTS FOR:

C&H SUGAR COMPANY, INC.
AND
CROCKETT-VALONA SANITARY DISTRICT
CROCKETT, CONTRA COSTA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter the Board), finds that:

1. C&H Sugar Company, Inc. (hereinafter called C&H), formerly dba California and Hawaiian Sugar Company, Inc., and the Crockett-Valona Sanitary District (hereinafter the District or CVSD), submitted an application for the reissuance of National Pollutant Discharge Elimination System (NPDES) Permit No. CA0005240. The application, referred to as Report of Waste Discharge, consists of completed State Water Resources Control Board (SWRCB) Form 200 (including Attachment 1); U.S. Environmental Protection Agency (USEPA) Form 3510 (Form 1 - General Facility Information), and USEPA Form 2C (Wastewater Discharge Information) including Attachments 1 through 4.

FACILITY DESCRIPTION

2. C&H owns and operates a facility for refining raw cane sugar (hereinafter the Refinery) at 830 Loring Avenue, Crockett, Contra Costa County. The facility processes raw cane sugar at an average melt rate of 2,810 tons per day over approximately 260 operating days per year. Crystalline and liquid refined sugars are delivered to clients by both trucks and rail cars. The Refinery operates on a 14-day cycle with 10 days on and 4 days down. **Figure 1** is the location map of the Crockett refinery.
3. Both C&H and the District signed a Joint-Use Agreement on November 9, 1976 such that the refinery wastewater and the municipal sewage are treated at the Joint C&H-CVSD Biological Wastewater Treatment Plant (hereinafter the Joint Treatment Plant, or JTP). The Dischargers jointly own the JTP, and C&H is also the operator. This Order names both C&H and the District as the Dischargers. As stormwater discharges are mainly from the refinery facility, and C&H is the sole party generating and discharging Waste 001, the District is therefore exempt from the permit requirements related to Waste 001 and stormwater discharges from the outfalls specified in the Findings below.
4. Municipal sewage from the community of Crockett is collected, comminuted, and dewatered by the District. Crockett is a small community with few industrial activities. Municipal sewage from the District mainly consists of wastewater from residential and commercial sources, and inflow/infiltration. After preliminary treatment, the sewage is pumped to the JTP for secondary treatment and disinfection prior to discharge. All the grit removed by the District is hauled to a permitted Class III disposal site.

EXISTING PERMIT

5. Discharge from the JTP is currently regulated by Waste Discharge Requirements that are specified in Order No. 95-078 (hereinafter the Existing Order). Additionally, the Existing Order also regulates the discharges of stormwater and non-contact barometric condenser cooling water from the refinery. The barometric condenser cooling water is obtained from Carquinez Strait. The State and USEPA have classified the refinery as a major discharger.

WASTEWATER DISCHARGES

6. The Report of Waste Discharge, recent self-monitoring reports, and other relevant available information describe the discharges as follows:
 - a. **Waste 001** consists of an annual average of 16 million gallons per day (MGD) of non-contact once-through cooling water from the Refinery's barometric condenser, condensed vapors from vacuum pans, cooling waters from evaporators and steam turbine heat exchangers. The flow rate, based on 260 operating days, is about 20.5 MGD, whereas it is much lower during the 105 days of refinery shutdown. Waste 001 is discharged from a deep-water diffuser that extends to approximately 200 feet offshore at a depth of 47 feet (lat. 38°03'27", long. 122°13'06"). **Figure 2** is a schematic flow diagram for the Refinery non-contact once-through cooling water.
 - b. **Waste 002** consists of primary treated process wastewater from the Refinery and pretreated sewage from the District. Refinery process wastewater comprises of bone char washings, scum and filter aid slurries, refinery equipment washdowns, rail car washings, and contaminated stormwater runoff from process areas. The annual average flow rate of the refinery wastewater is approximately 0.53 MGD. The Refinery's sanitary wastes and tank truck washings, which account for less than 0.01 MGD, are combined with the pretreated sewage from the District. The annual dry weather flow (ADWF) rate of the District sewage is 0.3 MGD. During wet weather, the peak wet weather flow of the sewage may increase to 3.1 MGD. Excess sewage, which is due to stormwater inflow/infiltration, is temporarily stored in a stormwater surge tank prior to returning it to the JTP for treatment. The combined wastewater and sewage at an average of 0.83 MGD are treated at the JTP and discharge to Carquinez Strait via a deep-water outfall E-002 (lat. 38°03'30", long. 122°13'28"). The outfall is 637 feet west of the refinery plant and equipped with a multi-port diffuser located directly below the Carquinez Bridge. **Figures 3a** and **3b** are schematic flow diagrams for the Refinery process wastewater and the District sewage system, respectively.
 - c. **Waste 003** consists of stormwater runoff from an area between the boiler house and Warehouse No.3, as well as from boiler house roof drains. The area between the buildings is used primarily for foot traffic and for forklift truck traffic that transports packaging materials and maintenance parts in and out of the warehouse. Waste 003 discharges to Carquinez Strait via a shallow collection point designated as E-003 (lat. 38°03'27", long. 122°13'03"). The estimated flow rate of Waste 003 is less than 1,000 gallons per day (GPD).
 - d. **Waste 005** consists of stormwater runoff from an area of up to 216,500 square feet located centrally in the Refinery yard as well as from an area south of the railroad tracks on both sides of the extension of Rolph Avenue. The runoff is from areas adjacent to and surrounding the metal shop, and product storage and transfer operations. The

primary impact on stormwater is likely to be sugar from loading or transfer operations in this area. Drainage from small portions within this area are isolated and sent to the JTP. Waste 005 combines with street runoff from Crockett and discharges to Carquinez Strait (lat. 38°03'27", long. 122°13'11") via a shallow collection point designated as E-005. The estimated discharge rate of Waste 005 is 15,000 GPD.

- e. **Waste 006** consists of stormwater runoff from a large parcel south of the railroad tracks. The area is primarily used for staging packaged product trucks prior to loading operations. A part of the area is also used for storing loaded packaged product vans. Waste 006 discharges to Carquinez Strait via a pipe under the railroad tracks to the drainage channel (lat. 38°03'27", long. 122°13'31") on the south side of the warehouse yard. The discharge point is designated as E-006. The estimated discharge rate of Waste 006 is 1,000 GPD. Waste 006 is not identified in the Existing Order.
- f. **Waste 007** consists of stormwater runoff from community areas and hills as well as from a small area on the fringe of the truck staging area. It discharges to Edwards Creek before the creek enters the culverts that extend under the railroad tracks to Carquinez Strait (lat. 38°03'27", long. 122°13'18"). The discharge point is designated as E-007. The estimated discharge rate of Waste 007 is less than 100 GPD. Waste 007 is not identified in the Existing Order.
- g. **Waste 008** consists of stormwater runoff from an area of approximately 19,000 square feet located at the western portion of the Refinery yard. Activities in this area are generally the same as those for Waste 005, and include activities around the Herreshoff Kiln, a bermed steam-cleaning rack, a firehouse, and a garage. The drainage directly under the Herreshoff Kiln and the cleaning rack is discharged to the JTP. Waste 008 discharges to Carquinez Strait (lat. 38°03'27", long. 122°13'11") via a shallow collection point designated as E-008. The estimated discharge rate of Waste 008 is 3,000 GPD.
- h. **Waste 009** consists of stormwater runoff from the Refinery's raw sugar loading dock, which is approximately 30,625 square feet. Water is returned to the plant when sugar is present of the dock during and following ship loading. Water from the dock is allowed to flow to the oil-water separator, from which water is pumped back to the refinery for recovery of sugar and to the primary waste treatment plant (PWTP) and JTP for treatment. Stormwater at Waste 009 discharges to Carquinez Strait (lat. 38°03'26", long. 122°12'46") via the outlet (E-009) of the oil water separator located at the eastern end of the dock. The estimated discharge rate of Waste 009 is less than 100 GPD.
- i. **Waste 011** consists of stormwater runoff from an area of approximately 2,500 square feet north of the Herreshoff Kiln. Washwater and stormwater associated with the trash compactor located near outfall E-011 are collected in a grated trench and diverted to the primary treatment station. Waste 005 discharges to Carquinez Strait (lat. 38°03'27", long. 122°13'11") via a shallow collection point designated as E-011. The estimated discharge rate of Waste 011 is 15,000 GPD.
- j. **Waste 012** consists of stormwater runoff from an area of approximately 1,550 square feet located to the east of the canopied product and material storage area in the Refinery yard. Waste 012 discharges to Carquinez Strait (lat. 38°03'27", long. 122°13'11") via a shallow collection point designated as E-012. The estimated discharge rate of Waste 012 is less than 500 GPD.

k. **Waste 013** consists of stormwater runoff from an area of approximately 15,690 square feet south of Warehouse No.1, which is located at the western side of Refinery. Activities include non-hazardous waste storage and handling, and truck traffic associated with warehouse operations. Sugar is expected to be the possible contaminants exposed to stormwater in this area. Waste 013 discharges to Carquinez Strait (lat. 38°03'27", long. 122°13'15") via a shallow collection point designated as E-013. The estimated discharge rate of Waste 013 is 4,500 GPD.

l. **Waste 014** consists of stormwater runoff from a Refinery yard area of approximately 74,320 square feet adjacent to the PWTP and hazardous waste storage area. A grated trench and a collection swale have been installed around the loading area for sludge trucks and the trash collection area. Any washwater and stormwater collected in these structures is pumped back to the PWTP. Waste 014 discharges to Carquinez Strait (lat. 38°03'22", long. 122°13'15") via a concrete flood control channel designated as E-014. The estimated discharge rate of Waste 014 is 15,000 GPD.

m. **Waste 016** consists of stormwater runoff from undeveloped areas in JTP premises, community streets and hills adjacent to the JTP. Waste 016 discharges at an estimated rate of 25,000 GPD into a nearby creek (lat. 38°03'19", long. 122°13'36") feeding Carquinez Strait. A structure was put in place in 1998 to prevent process waters from entering E-016.

n. **Figure 4** is a schematic flow diagram for the stormwater discharges described above, whereas **Figure 5** is the general refinery plot plan showing the various stormwater discharge areas of the Refinery.

FORMER WASTE 003

7. The Existing Order describes that former Waste 003 consisted of 0.02 MGD of boiler house wastewaters including brine and rinse waters from zeolite softeners, fan cooling waters, sampler wastewaters, and pump gland sealing waters. Some of Waste 001 might be diverted through a valved connection for discharge with former Waste 003 for pH adjustment provided compliance with the temperature requirement for Waste 003 is maintained. Since mid-1996, C&H has discontinued its own steam production, and relied on the steam supply from its neighboring facility, Crockett Cogeneration. Waste 003 no longer carries wastewater related to boiler house operations. As described in above Findings, Waste 003 now only consists of stormwater runoff.

WASTEWATER TREATMENT UNITS

Refinery process wastewater, with the exception of char filter wash water, is collected and sent to the influent works of the PWTP. The wastewater is treated to adjust pH and is dosed with polymer prior to routing to a thickener for the removal of solids. Clarified water overflows from the thickener to an effluent tank, where it is combined with char filter wash water and pumped to the JTP. If the pumps fail to remove the combined wastewater, it will automatically overflow to the pump station of the District.

The effluent from the PWTP combines with the District sewage in the Surge Basin at the P. The combined wastewater is metered into three one million gallon capacity aeration basins for biological treatment. Phosphoric acid and urea are added to the combined influent

to provide adequate nutrients. Water in the reactors is inoculated with return activated biosolids¹ and is kept aerated by a fine-bubble diffuser system. Effluent from the aeration basins flows to two dissolved-air flotation clarifiers. With the aid of polymers, biosolids are removed from the effluent in these clarifiers. Prior to discharging to Carquinez Strait, the clarifier effluent flows to a series of chlorination chambers where sodium hypochlorite is added at the inlet of the first chamber for bacterial kill. The disinfected effluent is dosed with sodium bisulfite to remove the chlorine residual before it is discharged at E-002. Figure 6 is a diagram of the JTP process.

CHARACTERISTICS OF WASTEWATER

10. Process wastewater from the sugar refinery operation has a typical characteristic of high carbohydrate loading and deficiency in key nutrients including nitrogen and phosphorus. The annual average chemical oxygen demand (COD) concentration in the primary-treated refinery wastewater is approximately 3,930 mg/l. If conditions of high COD loading and low oxygen supply occur, they will result in unsatisfactory bioprocess performance. At times, floating floc has been observed at the sampling location in the chlorination basin. It is a possibility that these are the result of poor clarifier performance at times of heavy COD loads.
11. Due to significant amount of inflow and infiltration into the collection system, the wet weather sewage flow from the District typically carries a high percentage of settable matters. The District has recently submitted a facilities plan for sewer system improvements. One of the purposes of the project is to reduce inflow and infiltration, and to improve the grit removal facilities to reduce the present operation and maintenance problems related to grit carryover to the JTP. On February 3, 2000, the State approved the District's facilities plan.

BIOSOLIDS TREATMENT

12. Solids removed from the PWTP are dewatered on a belt filter and loaded on a truck for off-site disposal as soil amendment. Waste biosolids from the dissolved air clarifiers at the JTP are dewatered by belt presses, mixed with lime if stabilization is necessary, and discharged to a truck for off-site disposal. Liquor removed from belt-presses is combined with washings, waste samples, drips, stormwater, and other process waters in a plant sump, and returned to the clarifiers for treatment.

STORMWATER POLLUTION PREVENTION PLAN

13. On August 26, 1992, C&H prepared its first stormwater pollution prevention program (SWPPP) to comply with the statewide Stormwater General Permit issued by the State Board. On April 19, 1995, the SWPPP was modified to comply with requirements of the Existing Order. The Existing Order requires C&H to (1) update the SWPPP to address all areas contributing storm water discharge from facilities owned and operated by C&H, (2) include pollution prevention measures which are above and beyond the current practices to further reduce and control sources of total organic carbon (TOC) and total suspended solids (TSS) increase the level of pollution prevention measures, and (3) evaluate and update the SWPPP annually or sooner if there is a change in the operation of the facility which may substantially affect the quality of the storm water discharged from the facility.

¹ The term "biosolids" or "biosolid" is interchangeably used with the term "sludge".

The SWPPP was revised on August 30, 1995, June 18, 1999, and February 14, 2000 to represent the up-to-date storm water control measures at the Refinery.

BEST MANAGEMENT PRACTICES PLAN

14. C&H submitted a revised Best Management Practices Plan (BMPP) on February 14, 2000 to reflect the up-to-date best management practices in place at the Refinery. This BMPP contains site-specific information, and is cross-referenced in the above SWPPP.

REGIONAL MONITORING PROGRAM

15. On April 15, 1992, the Board adopted Resolution No. 92-043 directing the Executive Officer to implement the Regional Monitoring Program (RMP) for the San Francisco Bay. Subsequent to a public hearing and various meetings, Board staff requested major permit holders in this region, under authority of section 13267 of California Water Code, to report on the water quality of the estuary. These permit holders, including C&H, responded to this request by participating in a collaborative effort, through the San Francisco Estuary Institute (formerly the Aquatic Habitat Institute). This effort has come to be known as the San Francisco Bay Regional Monitoring Program for Trace Substances. This Order specifies that C&H shall continue to participate in the RMP, which involves collection of data on pollutants and toxicity in water, sediment and biota of the estuary. Annual reports from the RMP are referenced elsewhere in this Order.

EFFLUENT TOXICITY CONTROL PROGRAM

16. The Basin Plan adopts an Effluent Toxicity Control Program (ETCP) that requires certain permit holders to monitor the toxicity of their effluent using critical life stage toxicity tests. The Board implements the water quality objective for toxicity through the ETCP and by monitoring the toxicity of waters at or near discharge sites. The long-term goal of the ETCP is to develop water-quality based effluent limits (WQBELs) using information about the acute and chronic toxicity of each discharge and resulting toxicity in the receiving water. C&H had previously performed a screening phase effluent toxicity study for the influent Carquinez Strait water and Waste 001. The results of the variability phase test using red abalone, purple sea urchin and marine diatom show that Waste001 does not contribute additional chronic toxicity to the influent bay water. Thus this Order continues the existing condition that no chronic toxicity test is required for Waste 001.
17. There are no chronic toxicity data associated with treated Waste 002. However, the nature and flow volume of Waste 002 suggests that there is a low potential for the treated effluent to cause chronic toxicity in Carquinez Strait.

RECEIVING WATER SALINITY

18. The Existing Order describes Carquinez Strait for treated Waste 002 as marine. Such a designation was based on data contained in the 1993 Annual Report for the RMP, and data from the Department of Water Resources for the years 1993, 1992, 1986, 1985 and 1984. These data showed that the salinity of the receiving water is above 5 parts per thousand greater than ninety-five percent of the time. The salinity data in the recent RMP reports do not show significant difference from that in 1993 Annual Report. This Order continues the existing designation of the receiving water as brackish and marine in character.

TOTAL COLIFORM IN EFFLUENT E-002

19. The Existing Order specifies an in-stream compliance point for total coliform at locations E-002-D, which is in the disinfection chamber where sufficient contact between the effluent and disinfectant has been made. The Dischargers confirmed that elevated concentrations of total coliform have been found in wastewater at locations downstream of this compliance point. The Dischargers further indicate that coliform reproduction after disinfection may be the reason for the elevated levels detected. This Order contains a provision requiring the Discharger to investigate and eliminate, if technically feasible and economically viable, the elevated levels of total coliform in the disinfected wastewater.

APPLICABLE PLANS, POLICIES AND REGULATIONS

20. On June 21, 1995, the Board adopted a revised Water Quality Control Plan for the San Francisco Bay Region (Basin Plan), which was subsequently approved by the State Water Resources Control Board (State Board) and the Office of Administrative Law on July 20, and November 13, respectively, of 1995. The Basin Plan identifies beneficial uses and water quality objectives for surface waters in the region, as well as effluent limitations and discharge prohibitions intended to protect those uses. This Order implements the plans, policies, and provisions of the Board's Basin Plan.
21. The State Board adopted the Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California (hereinafter referred to as the Thermal Plan) on September 18, 1975. The discharge of Waste 001 are subject to the requirements of the Thermal Plan except for requirements of 5.A(1)a and 5.A(2). C&H is exempt from these requirements based upon State Board Resolution No. 75-72 issued on July 17, 1975, and the USEPA's concurrence by letter of September 2, 1975.
22. The reissuance of waste discharge requirements for these discharges is exempt from the provisions of Chapter 3 (commencing with section 21100 of Division 13) of the Public Resources Code (CEQA) pursuant to section 13389 of the California Water Code.
23. Under 40 CFR 122.44, "Establishing Limitations, Standards, and Other Permit Conditions", NPDES permits should also include toxic pollutant limitations if the Dischargers use or manufacture a toxic pollutant as an intermediate or final product or byproduct.
24. Effluent limitations and toxic effluent standards established pursuant to sections 301, 304, 306, and 307 of the Federal Water Pollution Control Act and amendments thereto are applicable to the discharges herein.
25. C&H is classified as a crystalline cane sugar refinery as defined by the USEPA in 40 CFR 409.20. Effluent limitation guidelines requiring the application of best practicable control technology currently available (BPT) and best conventional pollutant control technology (BCT) were promulgated by the USEPA for some of the pollutants in Waste 002. In addition, BPT and BCT were established by USEPA in 40 CFR Part 133 for conventional pollutants in the discharge of municipal sewage. 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, they are WQBELs. The WQBELs are based on the Basin Plan, other State Plans and policies, or USEPA water quality criteria. The fact sheet for this Order includes the specific basis for each effluent limitation.

BENEFICIAL USES OF RECEIVING WATER

26. The beneficial uses of Carquinez Strait and its tributaries are, in part or in entirety:

- a. Industrial service supply
- b. Navigation
- c. Water contact recreation
- d. Non-contact recreation
- e. Commercial and sport fishing
- f. Wildlife habitat
- g. Preservation of rare and endangered species
- h. Fish migration and spawning
- i. Estuarine habitat

303(d)-LISTED POLLUTANTS

27. On May 12, 1999, the USEPA approved a revised list of impaired waterbodies prepared by the State. The list (hereinafter referred to as the 303(d) list) was prepared in accordance with section 303(d) of the federal Clean Water Act to identify specific water bodies where water quality standards are not expected to be met after implementation of technology-based effluent limitations on point sources. Carquinez Strait is listed as one of these impaired water bodies. The pollutants impairing Carquinez Strait include copper, mercury, nickel, selenium, dioxin and furan compounds, chlordane, DDT, Dieldrin, Diazinon, exotic species, PCBs total and dioxin-like PCBs (hereinafter the PCBs).

TOTAL MAXIMUM DAILY LOADS AND WASTE LOAD ALLOCATIONS

28. Based on the 303(d) list of pollutants impairing Carquinez Strait, the Board plans to adopt Total Maximum Daily Loads (TMDLs) for these pollutants no later than 2010. However future review of the 303(d) list for Carquinez Strait may result in revision of the schedule and/or provide schedules for other pollutants.

29. The TMDLs will establish waste load allocations (WLAs) and load allocations for point sources and non-point sources, respectively, and will result in achieving the water quality standards for the waterbody. The final effluent limitations for this discharge will be based on WLAs that are derived from the TMDLs.

30. The following summarizes the Board's strategy to collect water quality data and to develop TMDLs:

- a. Data collection – The Board will request that dischargers collectively assist in developing and implementing analytical techniques capable of detecting 303(d)-listed pollutants to at least their respective levels of concern or water quality objectives. The Board will require dischargers to characterize the pollutant loads from their facilities into the water-quality limited waterbodies. The results will be used in the development of TMDLs, but may also be used to update/revise the 303(d) list and/or change the water quality objectives for the impaired waterbodies including Carquinez Strait.
- b. Funding mechanism – The Board has received, and anticipates continuation to receive, resources from federal and state agencies for the development of TMDLs. To ensure

timely development of TMDLs, the Board intends to supplement these resources by allocating development costs among dischargers through the RMP or other appropriate funding mechanisms.

REASONABLE POTENTIAL (RP) ANALYSIS

31. 40 CFR 122.44(d)(1)(ii) requires that when determining whether a discharge causes, has the reasonable potential to cause, or contributes to a receiving water excursion above a narrative or numeric criterion within the State water quality standards, the permitting authority shall use procedures which account for existing controls on point and nonpoint sources of pollution, the variability of the pollutant or pollutant parameter in the effluent, the sensitivity of the species to toxicity testing (when evaluating whole effluent toxicity), and where appropriate, the dilution of the effluent in the receiving water.
32. Toxic/priority pollutants detected in the effluent discharge from the site have been evaluated with respect to its RP to cause or contribute to exceedance of the relevant water quality objective. The number of data used in the RP analysis varies depending on the abundance of available effluent data. For copper, because of its monthly monitoring requirement, effluent data collected during the period from January 1997 through December 1999 were evaluated. For toxic pollutants subject to less frequent monitoring requirements, effluent data collected from May 1995 through December 1999 were evaluated. These include lead, mercury, nickel, and all organic priority pollutants measured by USEPA Methods 608, 610, 624, and 625. The Existing Order does not require monitoring of selenium, as there is no known or suspected source of this pollutant at the Refinery.
33. In performing the RP analysis, pollutants reported as non-detected were assumed to have concentrations at their detection limits. This assumption is consistent with the intent of the RP evaluation in which anticipated maximum receiving water effluent concentrations are compared with the appropriate narrative or numerical water quality objectives/criteria to determine if the potential of excursions above these objectives/criteria exists.
34. Because of effluent variability, there is always some degree of uncertainty in determining an effluent's impact on the receiving water. The USEPA's Technical Support Document for Water Quality-Based Toxics Control (TSD) of 1991 (USEPA/505/2-90-001) addresses this issue by suggesting the use of a statistical approach, on which the RP analysis for this Order is based. The anticipated maximum effluent concentration of each pollutant is calculated using a 99% confidence level and a 99% probability.
35. The Basin Plan allows dilution, up to 10:1, for discharges to deep water. A 1973 report of "Study of Management of Thermal Discharges From Cooling Operations for California and Hawaiian Sugar Company" contains information showing that the dilution available from Carquinez Strait is at least 10:1. As Carquinez Strait is listed as impaired by pollutants identified on the 303(d) list, there is a lack of assimilative capacity available in the receiving water. Thus, it is inappropriate to allow dilution credit in projecting maximum receiving water concentrations of the 303(d)-listed pollutants that impair Carquinez Strait.
36. The maximum receiving water concentration of each pollutant is estimated considering the background level, dilution if appropriate, 303(d) listing, and maximum effluent concentrations. The projected receiving water concentration is then compared to the appropriate water quality objective. When there is no specific numerical water quality objective available in the Basin Plan, the appropriate water quality criterion in the USEPA's

National Toxics Rule (NTR) is considered. Criteria specified in the proposed California Toxics Rule (CTR) are also reviewed if no applicable criteria are available in NTR. For the purpose of determining RP, a translator value of 1 is assumed for the ratio of dissolved portion vs. total recoverable portion of each metal pollutant. This is consistent with the USEPA's "Metal Translator Guidance for Calculating A Total Recoverable Permit Limit from a Dissolved Criterion" (USEPA 823-B-96-007) of 1996.

37. Tables A and B of this Order summarize the RP analysis results for the toxic and priority pollutants monitored at the Refinery. Mercury, lead, copper and nickel exhibit RP to cause or contribute to exceedance of the water quality objectives in the receiving water. If dilution credit were assumed, then both copper and nickel would not exhibit reasonable potential.
38. For all other organic priority and toxic pollutants, except PAHs and PCBs, there is only one datum available for each of them over the last five years. The applicable water quality objectives or criteria are below the levels that current analytical techniques can measure for these pollutants. In a letter dated February 23, 2000, C&H confirms that there are no likely sources of these pollutants at the Refinery and its use of any pesticides and herbicides is regulated by strict food industry regulations. Regarding PCBs, C&H confirms that there are only two out of 26 power transformers containing PCBs content (no more than one part per million). These transformers are reportedly maintained in good clean condition and are inspected on a regular basis. It is also unknown whether or not there are sources of PCBs-laden wastewater from the District. Thus, it is unlikely that PCBs or PCBs-laden water will be discharged into the wastewater treatment system. However, there are possible sources of PAHs on the site and from the District's sewage. Thus, reasonable potential is determined to exist for PAHs. Reasonable potential for the rest of organic toxic/priority pollutants cannot be determined at this time. Additionally monitoring for these pollutants are required in this Order to allow future re-evaluation of their reasonable potential.

EFFLUENT LIMITS DELETION

39. Based on the RP results, the following existing effluent limitations are excluded in this Order as they do not pose reasonable potential to cause, or contribute to an excursion above any numeric or narrative water quality objectives:
 - a. Monthly average concentration limits for chloroform and halomethanes;
 - b. Daily average concentration limits for total phenols; and
 - c. Both daily and monthly average concentration limits for PCBs.

BASIS FOR EFFLUENT LIMITATIONS

40. When a discharge causes, has the reasonable potential to cause, or contributes to a receiving water excursion above a narrative or numeric criterion within a State water quality standard, federal law and regulations require the establishment of WQBELs that will protect water quality. Pollutants exhibiting RP in the discharge authorized by this Order are identified in above Findings. The Board plans to adopt TMDLs that will include WLAs for the 303(d)-listed pollutants. When each TMDL is complete, the Board will adopt a WQBEL consistent with the corresponding WLA. If authorized, a time schedule may be included in the revised permit to require compliance with the final WQBEL.
41. In the interim, until final WQBELs are adopted, state and federal antibacksliding and antidegradation policies require that the Board retains effluent concentration limits from the

Table A: RPA Results for Pollutants with Detection Limits Below WQOs

Pollutants	Projected Maximum (99%) Concentration (ug/l)	Applicable WQO (ug/l)	Reasonable Potential
Copper	31.2	4.9	yes
Mercury	0.508	0.025	yes
Lead	20.9	5.6	yes
Nickel	20.3	7.1	yes
Chloroform	245.63	470	no
Halomethanes	85.43	470	no
Phenol	21.8	4600000	no

Table B: RPA Results for Organic Pollutants with Detection Limits Above WQOs

Pollutants	Applicable WQO (ug/l)	Reasonable Potential	The detection limits of these pollutants are above their WQOs
PCB total	0.00017	no	
PAHs	0.049	yes	

1. In the best professional judgment of the Board, from a technical standpoint, the value of 4.9 ug/l for copper is considered protective of the most sensitive beneficial use of the San Francisco Bay
2. C&H has provided information indicating that there is no likely source of PCBs in the refinery process wastewater, and there is no known source of PCB-laden wastewater from the District.

Existing Order to ensure that the waterbody will not be further degraded. In addition to interim concentration limits, interim performance-based mass limits are required to limit the discharge of 303(d)-listed pollutants to their current levels. These interim mass limits are based on recent discharge data.. Where pollutants have existing high detection limits (such as for PCBs, Chlordane, DDT, Dieldrin, Dioxins and Furans, etc.), interim mass limits are not required because meaningful performance-based limits cannot be calculated for those pollutants with non-detectable concentrations. However, the dischargers, through participation in the RMP, are required to investigate alternative analytical procedures that result in lower detection limits.

42. In the event that a TMDL is not adopted by this Regional Board by 2010, and an extension of the schedule has not been granted by the USEPA, the Board will impose one of the following alternative final limits:
 - a. For a 303(d)-listed bioaccumulative pollutant, the final alternative limit will be no net loading (No net loading means that the actual loading from the discharge must be offset by at least equivalent loading of the same pollutant achieved through mass offset). In the absence of a TMDL, any loading to the impaired waterbody has the reasonable potential to cause or contribute to an excursion of the narrative toxicity criterion. Additionally, the existing numeric objective may not be adequate to ensure safe levels of the pollutant in sediment and/or fish. This is because in the case of fish tissue, the bioconcentration factor (BCF), on which the criterion was based, was measured in the laboratory and, therefore, reflects uptake from the water only. Bioaccumulative factors (BAFs) on the other hand, are measured in the field where the uptake in fish is through both food and water. Thus, the bioaccumulation rate in the system may be greater than the bioconcentration rate used to calculate the national water quality, which is based on a laboratory-derived BCF. Another reason that the existing water quality objectives may not be adequate is that the criteria they are based on do not always account for routes of exposure, for site-specific circumstances that may render the pollutant more bioavailable, for accumulation in sediment, or for concentrating effects resulting from evaporation.
 - b. For a 303(d)-listed non-bioaccumulative pollutant, the alternative final mass limit will be based on water quality objectives applied at the end of the discharge pipe (i.e. without a dilution factor used to calculate the limit).

WASTE MINIMIZATION

43. Pollutants listed on the 303(d) list or identified in Findings 37 and 38 have reasonable potential to cause or contribute to exceedance of State water quality standards. To help achieve water quality objectives, the dischargers shall implement a waste minimization plan in addition to complying with the effluent limitations. This Order contains a provision requiring the Dischargers to submit and implement a waste minimization plan for these pollutants.

OPTIONAL MASS OFFSET

44. This Order contains requirements to prevent further degradation of the impaired waterbody. Such requirements include the adoption of mass limits that are based on the treatment plant performance, provisions for aggressive source control and pollution prevention, feasibility studies for wastewater reclamation, and treatment plant optimization. After implementing

these efforts, the Dischargers may find that further net reductions of the total mass loadings of the 303(d)-listed pollutants to the receiving water can be achieved through a mass offset program. This Order includes an optional provision for a mass offset program.

NOTIFICATION

45. The Board notified the Dischargers and interested agencies and persons of its intent to re-issue waste discharge requirements for the discharge, and has provided them with an opportunity for a public hearing and to submit their written views and recommendations.
46. The Board, in a public hearing, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that the Dischargers, in order to meet the provisions of 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. Prohibitions

1. The discharge of Waste 001 and treated Waste 002 to Carquinez Strait at any point at which the wastewater does not receive a minimum initial dilution of at least 10:1 is prohibited.
2. The use of algacides or anti-fouling additives in the barometric condenser cooling water system contributing to Waste 001 is prohibited.
3. The bypass or overflow of untreated or partially treated Waste 002 to waters of the State, either at the treatment plant or from the collection system or pump station tributary to the treatment plant is prohibited.
4. Discharges of water, materials, thermal wastes, elevated temperature wastes, toxic wastes, deleterious substances, or wastes other than those authorized by this Order, to a storm drain system, tributaries of Carquinez Strait, or waters of the State are prohibited.
5. The handling, storage, treatment, or discharge of wastewater or biosolids by the Dischargers shall not cause a condition of pollution, contamination, or nuisance as defined in Section 13050 of the California Water Code.

B. Effluent Limitations

1. The discharge of effluent shall not exceed the following total mass emission rates for biological oxygen demand, or BOD₅, and TSS:
 - a. Total mass emission rate of BOD₅ contributed by Waste 001² and treated Waste 002 shall be determined by summing the calculated industrial effluent guideline limits for C&H with the calculated municipal limits for the District as follows:

² BOD₅ for Waste 001 shall be the net increase above intake water BOD₅ loading.

$$\begin{aligned} \text{BOD}_5 \text{ Limit} &= \text{C\&H} + \text{District} \\ \text{Monthly Average Limit (lb/day)} &= 2,417 + (30 \text{ mg/l}) \times (\text{District Flow in MGD}) \times (8.34) \\ \text{Daily Maximum Limit (lb/day)} &= 6,688 + (60 \text{ mg/l}) \times (\text{District Flow in MGD}) \times (8.34) \end{aligned}$$

- b. Total mass emission rate of TSS contributed by treated Waste 002 shall be determined by summing the calculated industrial effluent guideline limits for C&H with the calculated municipal limits for the District as follows:

$$\begin{aligned} \text{TSS Limit} &= \text{C\&H} + \text{District} \\ \text{Monthly Average Limit (lb/day)} &= 506 + (30 \text{ mg/l}) \times (\text{District Flow in MGD}) \times (8.34) \\ \text{Daily Maximum Limit (lb/day)} &= 1,517 + (60 \text{ mg/l}) \times (\text{District Flow in MGD}) \times (8.34) \end{aligned}$$

2. The discharges of Waste 001 and treated Waste 002 shall not have pH value less than 6.0 nor greater than 9.0.
3. The median of 5 consecutive samples collected from the discharge of treated Waste 002 shall not have total coliform bacteria exceeded 240 MPN/100ml. Any single sample shall not exceed 10,000 MPN/100ml.
4. The discharge of treated Waste 002 shall not have residual chlorine greater than 0.0 mg/l.
5. The discharge of treated Waste 002 shall comply with the following limitations in accordance with the specified schedule:

<u>Constituent</u>	<u>Unit</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Compliance Dates</u>
Settleable Matters	ml/l-hr	10	20	4/19/2000 – 4/18/2005
		1	2	4/19/2005 – 4/18/2010
		0.1	0.2	4/19/2010 onwards

6. The discharge of treated Waste 002 shall meet the following acute toxicity limitations:

The survival of test fishes in 96-hour flow-through bioassays of Waste 002 as discharged shall be an eleven-sample³ median value of not less than 90-percent survival, and an eleven-sample 90-percentile⁴ value of not less than 70-percent survival. Test fishes shall be specified by the Executive Officer in the Self-Monitoring Program.

³ A bioassay test showing survival of less than 90 percent represents a violation of this effluent limitation, if five or more of the past ten or less bioassay tests show less than 90 percent survival.

⁴ A bioassay test showing survival of less than 70 percent represents a violation of this effluent limit, if one or more of the past ten or less tests shows less than 70 percent survival.

7. The discharge of treated Waste 002 containing constituents in excess of the following limitations is prohibited:

<u>Constituent</u>	<u>Unit</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>
Lead	µg/l	--	50.3
PAHs ⁵	µg/l	0.49	150

8. The discharge of Waste 002 containing constituents in excess of the following interim limitations is prohibited:

<u>Constituent</u>	<u>Unit</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>
Copper	µg/l	--	37
Mercury	µg/l	0.21	1
Nickel	µg/l	--	53

<u>Constituent</u>	<u>Unit</u>	<u>Running Annual Average⁶</u>
Copper	lb/month	1.84
Mercury	lb/month	0.04

<u>Constituent</u>	<u>Unit</u>	<u>Monthly Average Mass Loading⁷</u>
Nickel	lb/month	1.5

C. Storm Water Limitations

1. The discharge of storm water runoff Wastes 003 through and including 016 outside the pH range or containing constituents in excess of the following limits is prohibited:

<u>Constituent</u>	<u>Units</u>	<u>Limitation</u>
pH	standard units	6.5 to 8.5

⁵ The list of PAHs is specified in Attachment A.

⁶ Mass limit is based on running annual average mass load. Running annual averages shall be calculated by taking the arithmetic average of the current monthly mass loading value (see sample calculation below) and the previous 11-month' values.

Sample Calculation: If a pollutant X is sampled twice per month, the monthly average daily mass load is: $=\frac{1}{2} (\sum F_i \times C_i)$,

And the monthly mass load is given by:

$$=[\frac{1}{2} (\sum F_i \times C_i)] \times (365 \text{ days/year}) / (12 \text{ months/year})$$

Where F_i is the daily average flow rate of the day when the sample was collected and C_i is the concentration of the pollutant X detected in the effluent.

Compliance of these mass limits will be required starting from the next calendar month upon the adoption of this Order.

⁷ Monthly average mass loading (lb/month) = total monthly flow rate (MGD) x monthly average concentration (µg/l or ppb) measured in the same calendar month x conversion factor (0.00834).

<u>Constituent</u>	<u>Units</u>	<u>Limitation</u>
Visible oil	---	none observed
Visible color	---	none observed

D. Receiving Water Limitations

1. No discharge of wastes including Waste 001 shall create a zone, defined by water temperatures of more than 1 degree Fahrenheit above natural receiving water temperatures, which exceeds 25 percent of the cross-sectional area of Carquinez Strait at any point.
2. No discharge of wastes including Waste 001 shall cause a surface water temperature rise greater than 4 degrees Fahrenheit above the natural temperature of the receiving water at any time or place.
3. The discharge shall not cause the following conditions to exist in waters of the State at any place at levels that cause nuisance or adversely affect beneficial uses:
 - 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 growths; and
 - e. Toxic or other deleterious substances to be present in concentrations or quantities which will 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.
4. The discharge shall not cause the following limits to be exceeded in waters of the State at any place within one foot of the water surface:
 - a. pH: 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: the concentration of dissolved oxygen shall not be less than 5.0 mg/l any time, 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: 0.1 mg/l maximum
 - d. Un-ionized ammonia (as N): annual median 0.025 mg/l
maximum at any time 0.16 mg/l
5. The discharge shall not cause a violation of any applicable water quality standards adopted by the Board or State Board 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 Board will revise and modify the Order in accordance with such standards.

E. Biosolids (or Sludge) Management Practices

1. Permanent biosolids disposal activities at the JTP are not authorized by this Order.
2. The treatment, disposal, storage, or processing of biosolids shall not cause waste material to be in any position where it is, or can be, carried from the biosolids treatment, disposal, storage, or processing site and deposited in waters of the State.
3. The biosolids treatment, storage and handling site shall have facilities adequate to divert surface runoff from adjacent areas, to protect boundaries of the site from erosion, and to prevent any conditions that would cause drainage from the materials in the temporary storage site. Adequate protection is defined as protection from at least 100-year storm and protection from the highest possible tidal stage that may occur.

F. Provisions

1. Effective Date of Permit

This Order shall serve as a NPDES permit pursuant to section 402 of the Federal Water Pollution Control Act, or amendments thereto, and shall take effect at the end of ten days from the date of hearing provided that the Regional Administrator of the USEPA has no objections. If the Regional Administrator objects to its issuance, this Order shall not become effective until such objection is withdrawn.

2. Permit Modification

Pursuant to USEPA regulations 40 CFR 122.44, 122.62, and 124.5, this Order may be modified prior to the expiration date to include effluent limits for other toxic or pollutants if monitoring results of these pollutants indicate that either reasonable potentials of exceeding the corresponding site-specific water quality objectives or significant amount of these pollutants exist in the discharge resulting in a threat of impacts to the water quality or beneficial uses of Carquinez Strait exist.

3. Self-Monitoring Program

This Order includes all items of the attached Self-Monitoring Program as adopted by the Board and as may be amended pursuant to USEPA regulations 40 CFR 122.62, 122.63, and 124.5.

4. Standard Provisions and Reporting

This Order includes all items, except as mentioned otherwise, of the attached "Standard Provisions and Reporting Requirements" of August 1993.

5. Compliance with Acute Toxicity Effluent Limitations

Compliance with the acute toxicity limitations in Effluent Limitations B.6 of this Order shall be evaluated by measuring the survival rate of the fish species in a flow-through 96-hour bioassay. Each test consists of exposing ten fish of to undiluted effluent for 96 hours, and each fish represents a single sample. Each toxicity test shall be performed according to protocols approved by the USEPA or equivalent alternatives acceptable to the Executive Officer.

6. Regional Monitoring Program

C&H shall continue to participate in the Regional Monitoring Program (RMP) for trace substances in San Francisco Bay in lieu of more extensive effluent and receiving water self-monitoring requirements that may be imposed.

7. Submittal of Updated Plans

C&H shall submit updated Stormwater Pollution Prevention Plan (SWPPP) and Best Management Practices Plan (BMPP) either annually or sooner if there is a change in the operation of the Refinery, which may substantially affect the quality of the storm water discharged. Annual update shall be submitted by June 30 of each year after 2000. If there is no change to either of these plans, then the annual update shall be a letter indicating that the plan is unchanged.

In any update of the SWPPP and BMPP, C&H shall (1) include at least an up-to-date drainage map for the facility; (2) identify on a map of appropriate scale the areas which contribute runoff to the permitted discharge points; (3) describe the activities in each area and the potential for contamination of stormwater runoff and discharge of hazardous waste/material; and, (4) address the feasibility for containment and/or treatment of the stormwater.

- a. The SWPPP shall describe site-specific management practices for minimizing stormwater runoff from being contaminated, and for preventing contaminated stormwater runoff from being discharged directly to waters of the State.
- b. The BMPP shall entail site-specific plans and procedures implemented and/or to be implemented to prevent hazardous waste/material from being discharged to waters of the State. The updated BMPP shall be consistent with the requirements of 40 CFR 125, Subpart K, and the general guidance contained in the "NPDES Best Management Guidance Document", USEPA Report No. 600/9-79-045, December 1979 (revised June 1981). In particular, a risk assessment of each area identified by C&H shall be performed to determine the potential of hazardous waste/material discharge to surface waters.

The SWPPP and BMPP may include time schedules for the completion of management practices and procedures. C&H shall begin implementing the SWPPP and BMPP within 10 calendar days of approval by the Executive Officer, unless otherwise directed.

8. Contingency Plan Update

The Dischargers shall submit no later than September 15, 2000 an updated contingency plan to the Executive Officer for approval. The Contingency Plan shall be consistent with the requirements of Board Resolution No. 74-10, and be site-specific to the Refinery and the community of Crockett. The Dischargers shall begin implementing the Contingency Plan within 10 calendar days of approval, unless otherwise directed. The contingency plan shall be reviewed at the same time with the SWPPP and BMPP. Updated information shall be submitted within 30 days of revision. Discharging pollutants in violation of this Order where the Discharger failed to develop and implement an approved contingency plan will be the basis for considering such discharge a willful and negligent violation of this Order pursuant to Section 13387 of the California Water Code.

9. Submittal and Implementation of Waste Minimization Plan (WMP)
The Dischargers shall submit, no later than September 15, 2000, a WMP acceptable to the Executive Officer for the reduction in the use or generation of pollutants that are listed on the 303(d) list and identified in the Findings 37 and 38. "Waste Minimization" means any action that causes a net reduction in the use of a hazardous substance or other pollutant that is discharged into water and includes any of the following: input change, operational improvement, production process change, or product reformulation. The Dischargers shall begin implementation of the WMP within 30 days of the Executive Officer's approval of the WMP.
10. Reporting Requirements for WMP
Progress reports shall be submitted commencing with the Self-Monitoring Report that corresponds to three months after implementation begins, and then quarterly thereafter, until implementation is concluded. The annual monitoring report shall include a section that summarizes the implementation progress of the WMP. This section shall include: a discussion of program activities; an evaluation of the effectiveness or deficiencies of the WMP; the resources expended; and, proposed changes to the existing WMP and time schedules. A final report of completion, acceptable to the Executive Officer, shall be submitted within 45 days after all the implementation work has been completed.
11. Optional Mass Offset
If the Dischargers wish to pursue a mass offset program, a mass offset plan for reducing the 303(d)-listed pollutants to the same receiving waterbody needs to be submitted for Board approval.
12. Progress Report Submittals for Settleable Matter Reduction
Until 2010, the District is required to submit progress reports every two years to describe the implementation status of its facilities plan, which is designed to reduce inflow/infiltration and to improve the grit removal facilities so as to reduce the grit carryover to the JTP. Each progress report shall be submitted to the Executive Officer by May 1st every other year, beginning with the first one due in 2002.
13. Total Coliform Study for Effluent E002
The Dischargers are required to submit, by August 15, 2000, a proposal acceptable to the Executive Officer to investigate the cause(s) of elevated concentrations of total coliform in the final channel of the chlorination chamber. The proposal shall include details for assessing all potential and probable sources that cause elevated levels of total coliform in the disinfected wastewater. The study should at least cover a period of one hydrologic cycle, and at least consist of following components:
 - a. Results of JTP operation log review;
 - b. A recommendation of appropriate monitoring stations in the wastewater treatment to assess the trend of total coliform concentration;
 - c. A methodology to evaluate and verify the disinfection efficiency; and,
 - d. Management and technical strategies to control and eliminate, if possible and cost-effective, these sources of high levels of total coliform in the disinfected wastewater.
14. Compliance Schedule for Detection Limited Pollutants
If the analytical method for PAHs is improved or new method is developed which improves (or lowers) the analytical quantification limit beyond that indicated in the Self-Monitoring Program, and the Dischargers using the new or improved method finds the

above pollutant present at levels above the effluent limit specified in B.8, but below the former analytical quantification limit established, the Dischargers shall notify the Executive Officer, accelerate monitoring for the pollutant of concern to characterize the discharge, and within 60 days develop and initiate a source identification and reduction investigation acceptable to the Executive Officer. Until this Order is revised, compliance with the effluent limitation B.8 shall be determined at the former analytical quantification limit specified in the Self-Monitoring Program.

15. Reopener for Monitoring Reduction

If the Dischargers could demonstrate that, based on the monitoring results for a complete hydrologic cycle, the actual discharge of mass loading of a toxic pollutant to the receiving water is consistently at a low or insignificant level, the permit may be modified prior to the expiration date to reduce the monitoring frequency.

16. Signatory and Certification

All applications, reports, or information submitted to the Board shall be signed and certified pursuant to the requirements of 40 CFR 122.41(k).

17. Change of Ownership/Business Operation

In the event of any change in control or ownership of the Refinery, business operation, or waste, C&H shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be forwarded to this office. C&H shall comply with the requirements established in Standard Provisions E.4 of August 1993. These requirements are also binding upon the succeeding site owner or operator.

18. Notification of Changes

Pursuant to the requirements of 40 CFR 122.42(a) C&H must notify the Board as soon as it knows or has reason to believe (1) that it has begun or expect to begin, 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 limits in 40 CFR 122.42(a).

19. Consistent Use of Lowest Detection Limits

The Dischargers are encouraged to consistently use the lowest possible detection limits commercially available to analyze all required chemical parameters in its waste discharges, provided that the analytical methods are USEPA approved, or if equivalent alternative methods are proposed, they shall be acceptable to Executive Officer

20. Rescission of Existing Order

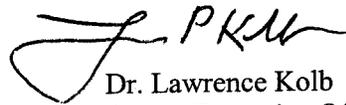
The requirements prescribed by this Order supersede the requirements specified by existing Order No. 95-078, which is hereby rescinded.

21. Permit Expiration

This Order expires on April 19, 2005, and the Dischargers must file a Report of Waste Discharge in accordance with Title 23, Chapter 3, Subchapter 9 of the California Administrative Code, not later than 180 days in advance of such date as application for the reissuance of waste discharge requirements.

22. The Dischargers shall immediately comply with all limitations, prohibitions, and other provisions of this Order upon its adoption by the Board.

I, Lawrence Kolb, Acting 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, San Francisco Bay Region, on April 19, 2000



Dr. Lawrence Kolb
Acting Executive Officer

Attachments:

- Figure 1. Site Map
 - Figure 2. Schematic Flow Diagram for
Barometric Condenser Non-Contact Cooling Water
 - Figure 3a. Schematic Flow Diagram for Sugar Refinery Process Wastewater
 - Figure 3b. Schematic Flow Diagram for District Sewage
 - Figure 4. Schematic Flow Diagram for Storm Water Discharges
 - Figure 5. Sugar Refinery Plot Plan for Storm Water Discharges
 - Figure 6. Schematic Flow Diagram for JTP Wastewater
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- A. Definition of Terms for Chemical Pollutants
 - B. Self-Monitoring Program, Parts A (August 1993) and B
 - C. Standard Provisions, and Reporting Requirements dated August 1993

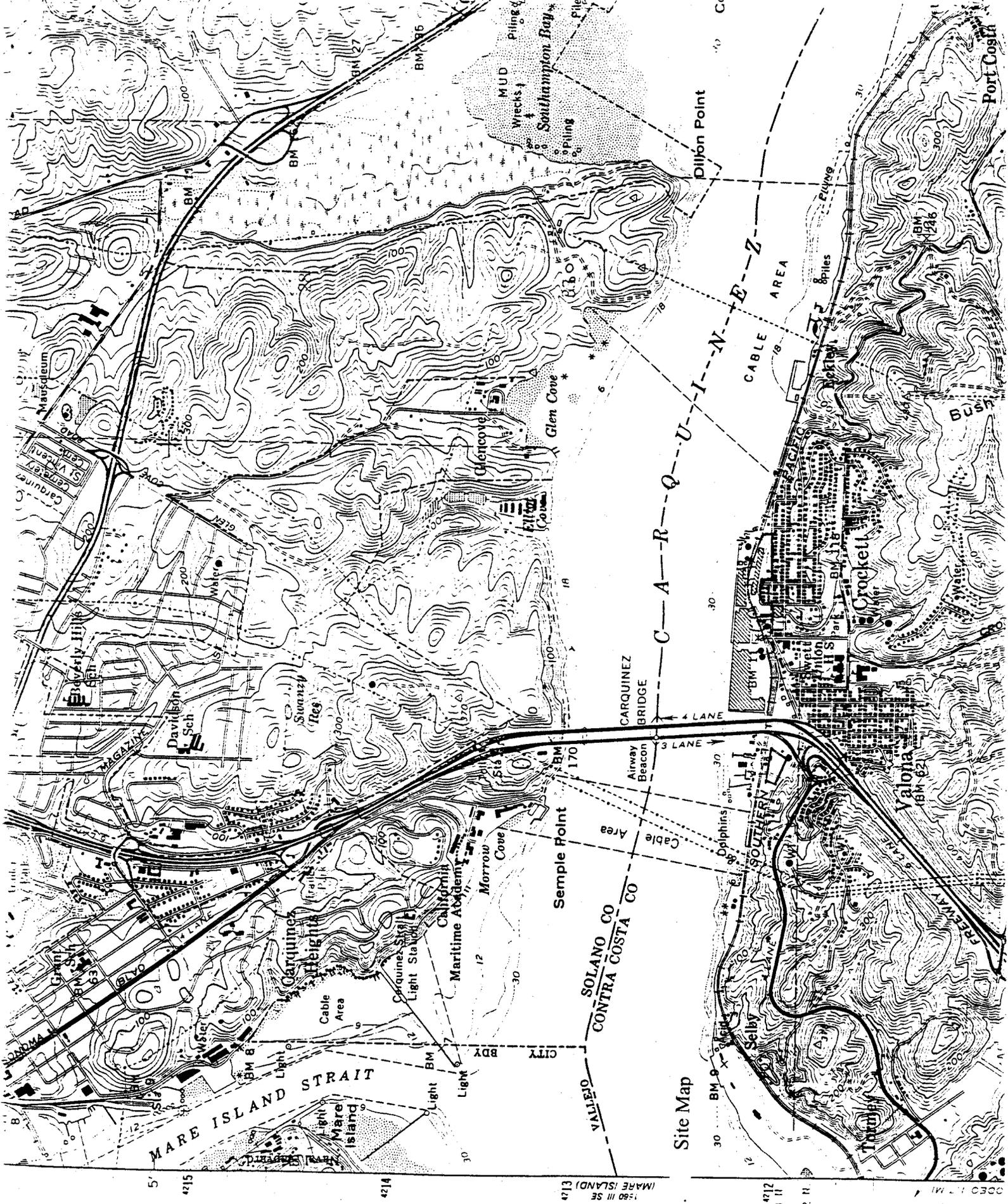
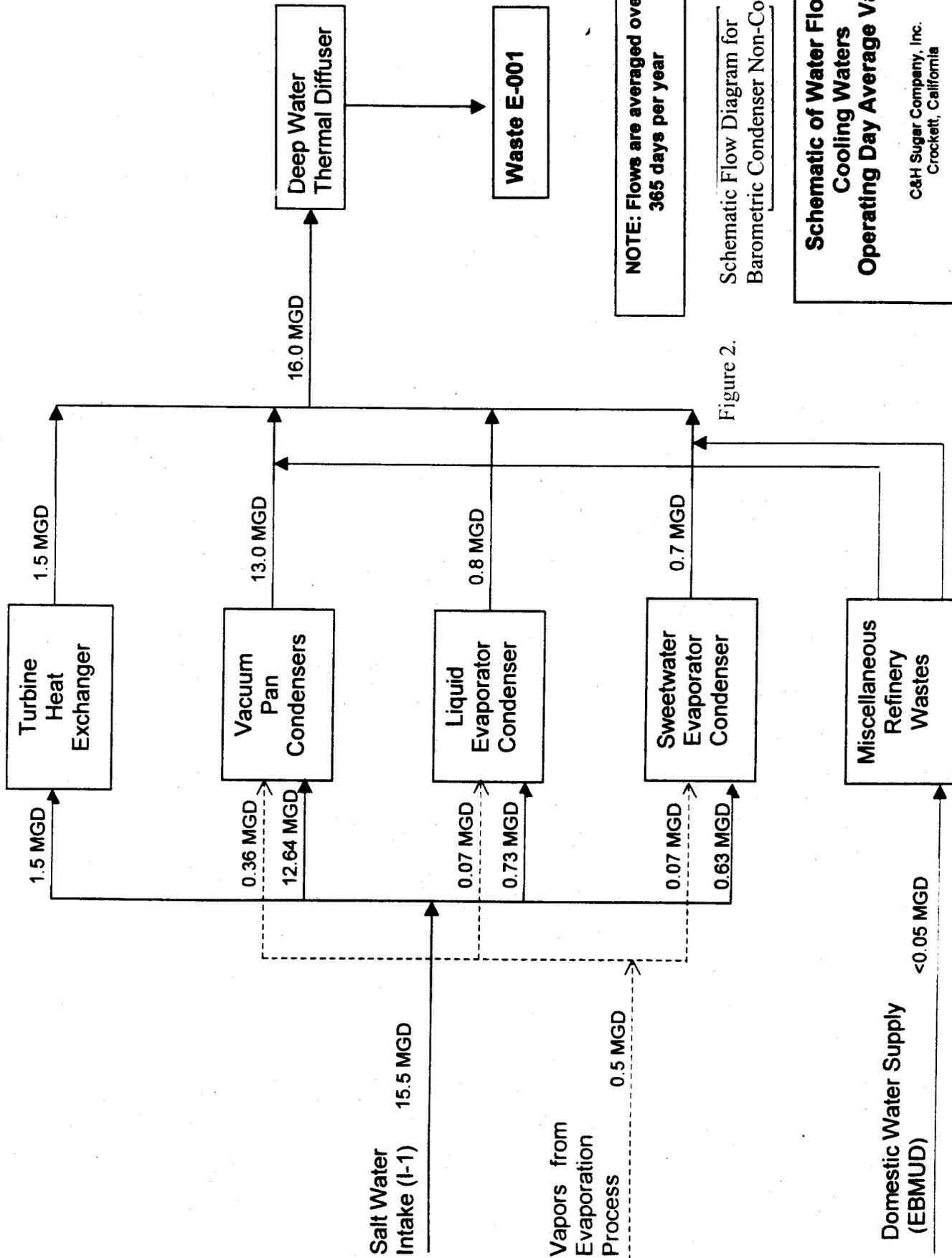


Figure 1.

4215
4214
4213 (MARE ISLAND) 1-50 III SE
4212
1. 3 II
1. 2 H



NOTE: Flows are averaged over 365 days per year

Figure 2.

Schematic Flow Diagram for Barometric Condenser Non-Contact Cooling Water

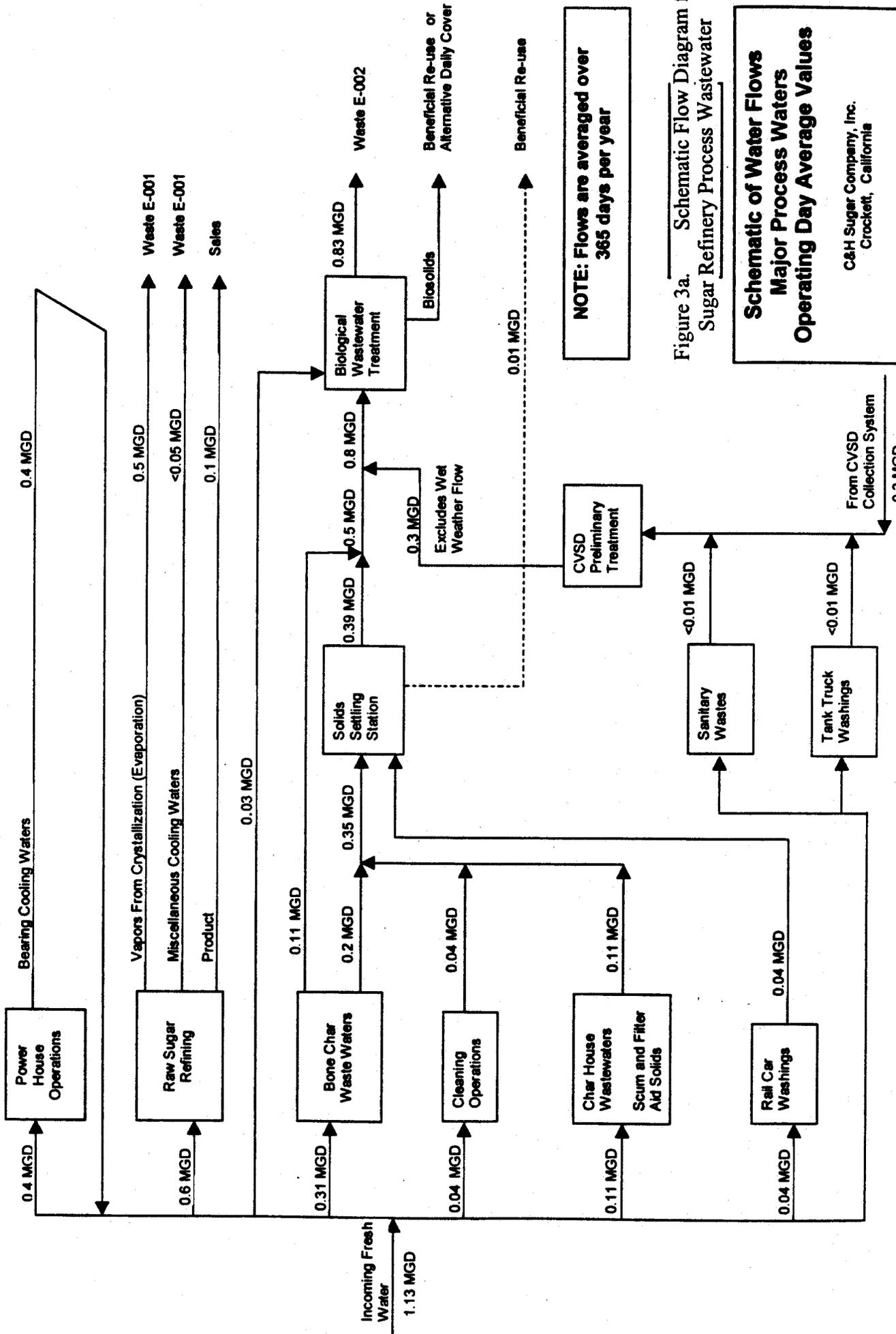
Schematic of Water Flows Cooling Waters Operating Day Average Values

C&H Sugar Company, Inc.
Crockett, California

EPA ID No. CAD009134503

January 2000

Sheet 1 of 4



NOTE: Flows are averaged over 365 days per year

Figure 3a. Schematic Flow Diagram for Sugar Refinery Process Wastewater

**Schematic of Water Flows
Major Process Waters
Operating Day Average Values**

C&H Sugar Company, Inc.
Crockett, California

EPA ID No. CAD009134503

January 2000

Sheet 2 of 4

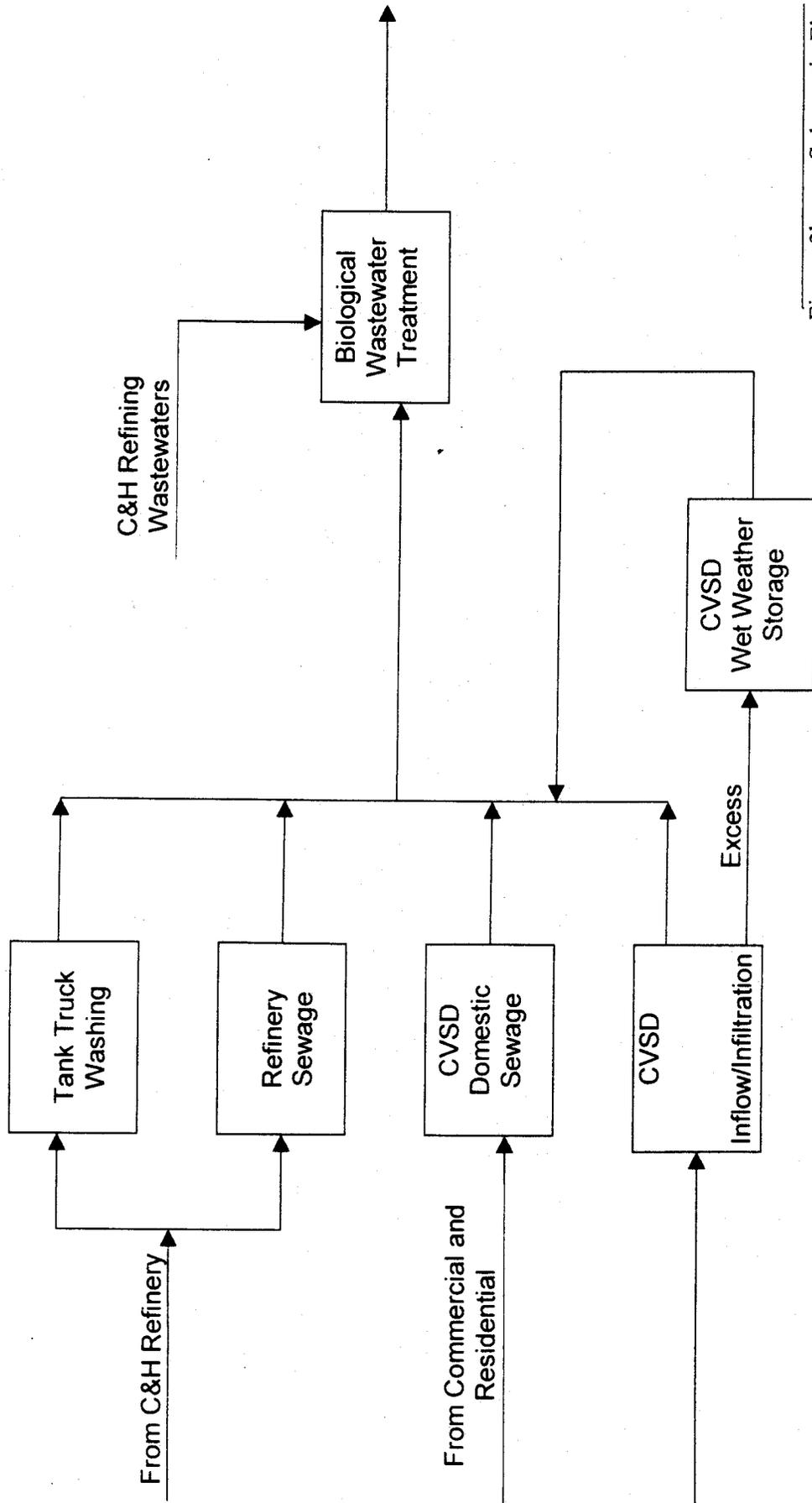


Figure 3b. Schematic Flow Diagram for District Sewage Flow

Schematic of Water Flow Sewage System (I2)

CVSD/C&H Sugar Company, Inc.
Crockett, California

October 1999

Sheet 3 of 4

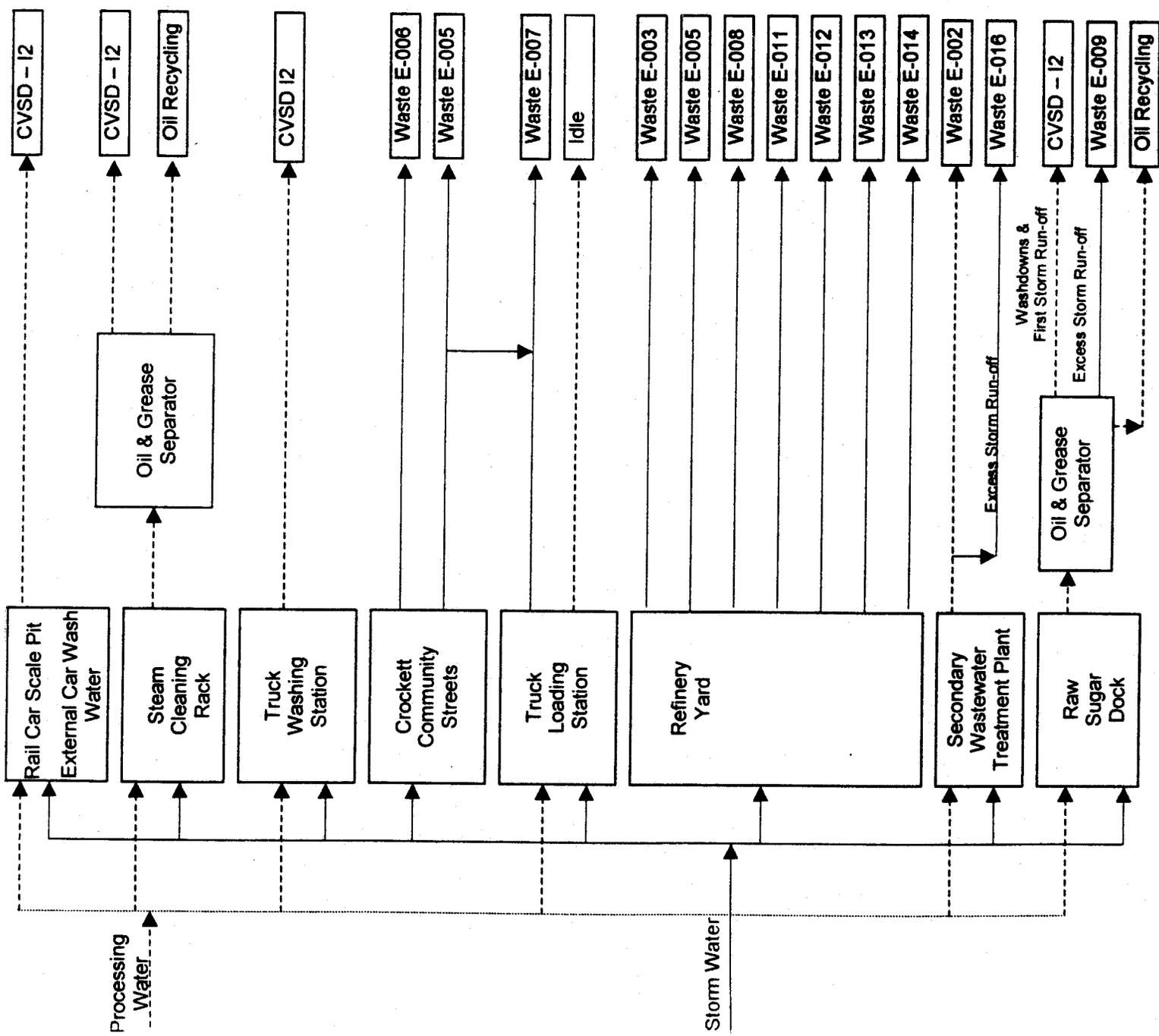
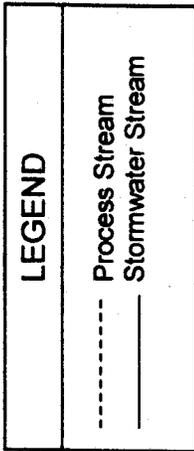


Figure 4. Schematic Flow Diagram for Stormwater Discharges

Schematic of Water Flows
 - Minor Discharges -
 - Stormwater Discharges -

C&H Sugar Company, Inc.
 Crockett, California

EPA ID No. CAD009134503

October 1999

Sheet 4 of 4

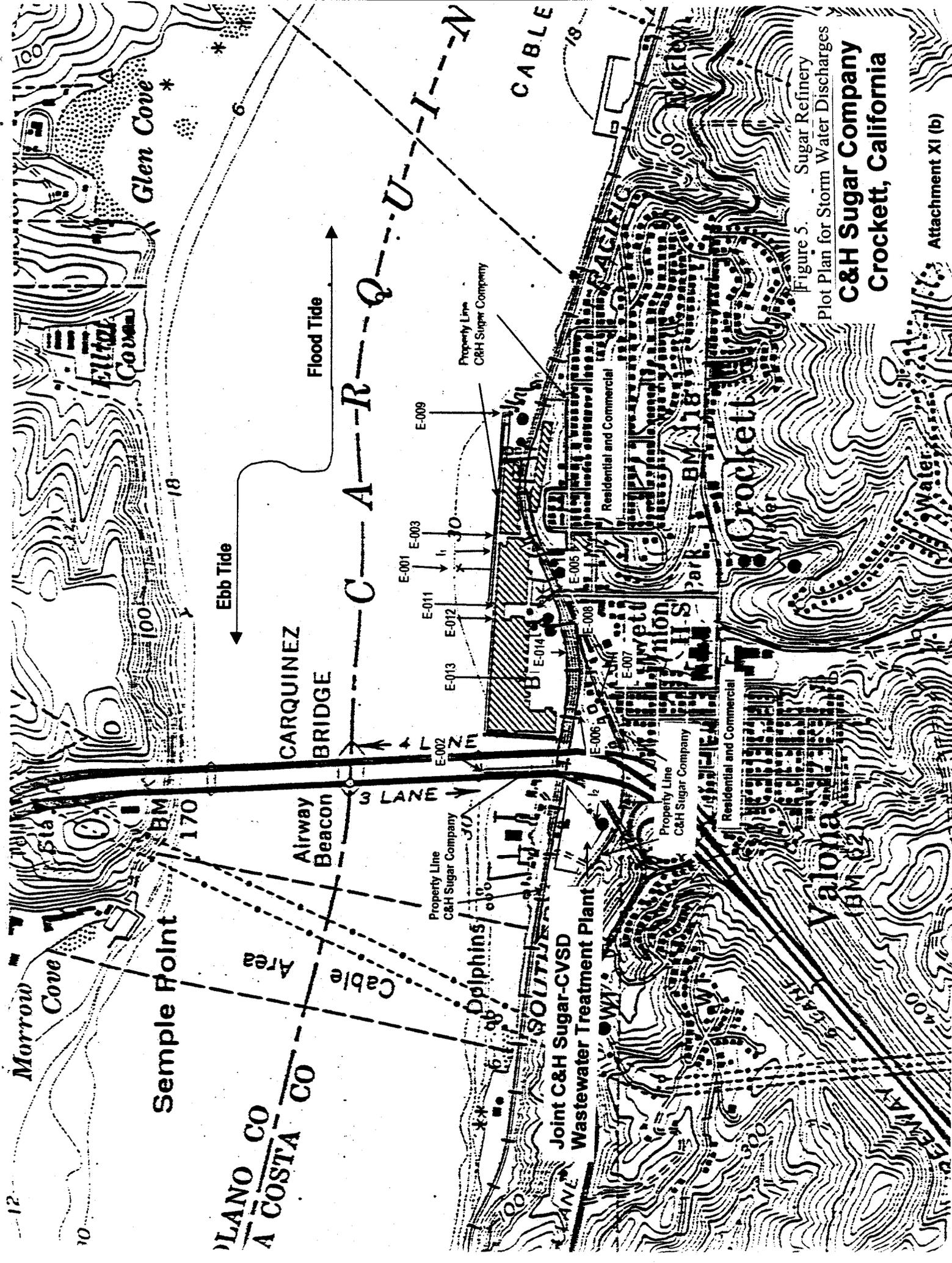


Figure 5. Sugar Refinery Plot Plan for Storm Water Discharges
C&H Sugar Company
Crockett, California

Process Flow Diagram Joint C&H - CVSD Secondary Wastewater Treatment Plant

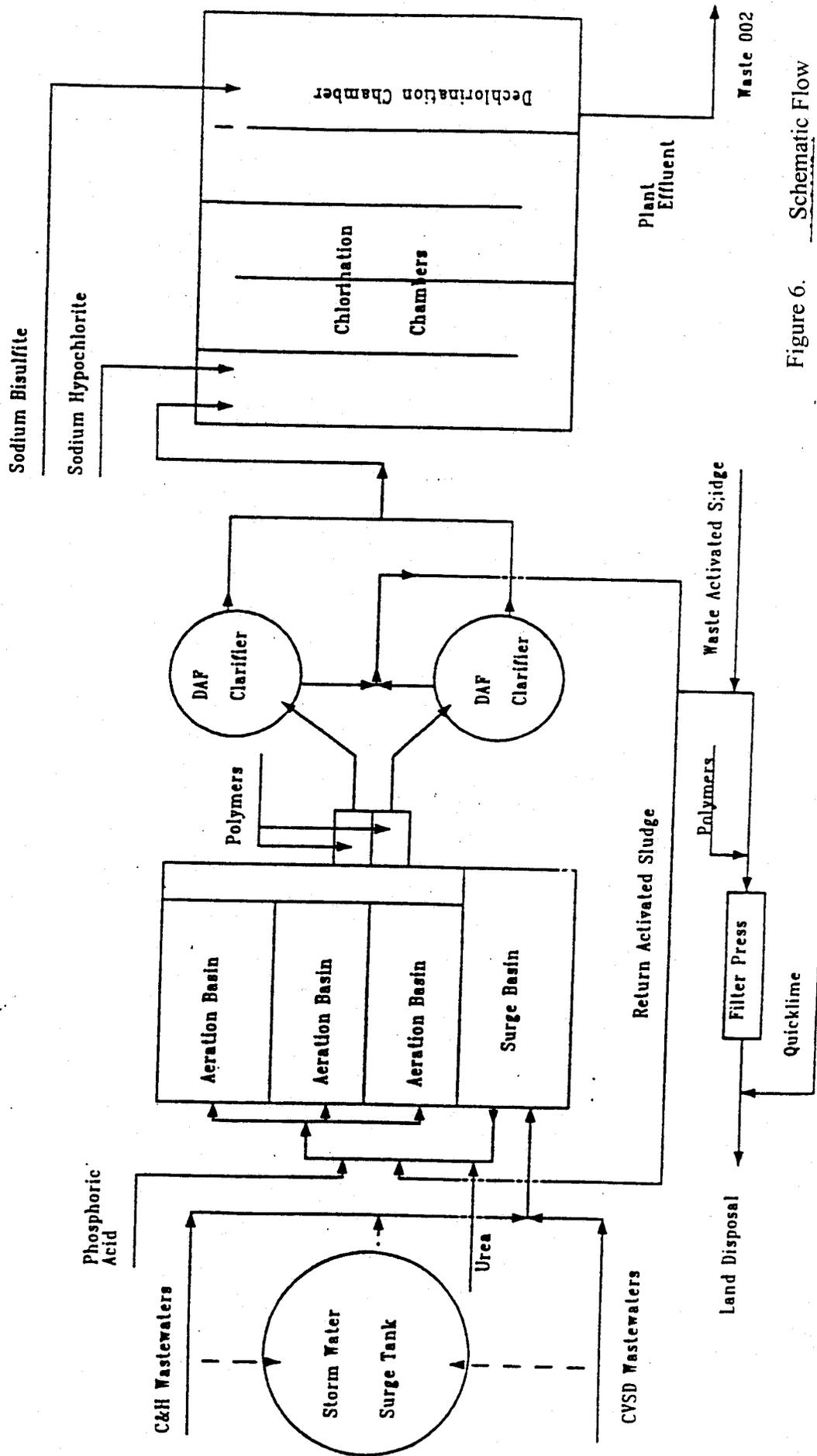


Figure 6. Schematic Flow

Diagram for JTP Wastewater
C&H and CVSD Joint Treatment Plant
ADDRESS NO. CA00005740

ATTACHMENT A

DEFINITION OF TERMS FOR CHEMICAL CONSTITUENTS

Polynuclear Aromatic Hydrocarbons (PAHs) shall mean the following constituents, each of which shall be limited individually at 0.49 µg/l as indicated below.

<u>Constituent</u>	<u>Unit</u>	<u>Monthly Average Effluent Limit</u>
Benzo(a)Anthracene	µg/l	0.49
3,4-Benzo(b)Fluoranthene	µg/l	0.49
Benzo(k)Fluoranthene	µg/l	0.49
Benzo(g,h,i)Perylene	µg/l	0.49
Benzo(a)Pyrene	µg/l	0.49
Chrysene	µg/l	0.49
Dibenz(a,h)Anthracene	µg/l	0.49
Indeno(1,2,3-cd)Pyrene	µg/l	0.49

Polychlorinated Biphenyls (PCBs) shall mean the sum of chlorinated biphenyls whose analytical characteristics resemble those of Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, and Aroclor-1260.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM

FOR

C&H SUGAR COMPANY, INC.
AND
CROCKETT-VALONA SANITARY DISTRICT

AT
CROCKETT
CONTRA COSTA COUNTY

NPDES NO. CA0005240

ORDER NO. 00-025

CONSISTS OF

PART A (dated August 1993)

AND

PART B

PART B

I. DESCRIPTION OF SAMPLING STATIONS

A. Influent and Intake

<u>Station</u>	<u>Description</u>
I-1	At any point in the saltwater intake system that delivers Carquinez Strait water to the Refinery, prior to any treatment or use for cooling or processing.
I-2	At any point in the wastewater conveyance system from Crockett-Valona Sanitary district to the JTP where flow measurements are representative of the flow rates of wastewater delivered by the District.
P-1	At any point in the wastewater treatment system beyond the primary waste treatment plant at the refinery and before the surge tank at the JTP.

B. Effluent

<u>Station</u>	<u>Description</u>
E-001	At any point in the Waste 001 outfall between the point of discharge and the point where all wastes tributary thereto are present such that the sample is representative of the effluent.
E-002	At any point in the outfall leading from the treatment facilities for Waste 002 between the point of discharge and the point at which all waste tributary to that discharge is present.
E-002-D	At a point in the disinfection facilities at which adequate contact with the disinfectant has been achieved.
E-003	At any point in the outfall for Waste 003 between the point of discharge and the point at which all storm water tributary to that discharge is present.
E-005	At any point in the outfall for Waste 005 between the point of discharge and the point at which all storm water tributary to that discharge is present.
E-006	At any point in the outfall for Waste 006 between the point of discharge and the point at which all storm water tributary to that discharge is present.
E-007	To be determined.
E-008	At any point in the outfall for Waste 008 between the point of discharge and the point at which all storm water tributary to that discharge is present.
E-009	At any point in the outfall for Waste 009 between the point of discharge and the point at which all storm water tributary to that discharge is present.

- E-011 At any point in the outfall for Waste 011 between the point of discharge and the point at which all storm water tributary to that discharge is present.
- E-012 At any point in the outfall for Waste 012 between the point of discharge and the point at which all storm water tributary to that discharge is present.
- E-013 At any point in the outfall for Waste 013 between the point of discharge and the point at which all storm water tributary to that discharge is present.
- E-014 At any point in the outfall for Waste 014 between the point of discharge and the point at which all storm water tributary to that discharge is present.
- E-016 At any point in the outfall for Waste 016 between the point of discharge and the point at which all storm water tributary to that discharge is present.

C. Receiving Waters

<u>Station</u>	<u>Description</u>
C-1	At a point in Carquinez Strait, located in the boil caused by Waste 001.
C-2	At a point in Carquinez Strait, located in the vicinity of the diffusers for outfall E-002.
C-RE	At a point in Carquinez Strait, located at the edge of the wharf at its easterly end.
C-RW	At a point in Carquinez Strait, located at the edge of the wharf at its westerly end.

D. Rainfall

<u>Station</u>	<u>Description</u>
R-1	The nearest official National Weather Service rainfall station or other station acceptable to the Executive Officer.

II. SCHEDULE OF SAMPLING AND ANALYSIS

- A. The frequency of sampling and analysis shall be that given in Table 1 (attached).
- B. Because the Refinery operates on a 14-day cycle with 10 days operating and 4 days down, samples for process wastewater at station E-001 and E-002 shall be collected in a well-ordered pattern, as defined below. Day 1 will be the first day of the 10 days on, with day 14 being the last day of the 4 days shutdown. The Dischargers are encouraged to collect samples and conduct bioassay test as early as practicable in each of the sampling and testing cycles. This is because that when collection of additional samples or bioassay re-tests are required, there is still effluent of representative quality available before the Refinery is down.

<u>Sampling Frequency</u>	<u>Day of cycle to be sampled</u>
D	1,2,3,4,5,6,7,8,9,10,11,12,13,14
5/W	1,2,3,4,5,6,7,8,9,10
2/W	2,4,7,9
W	2,7
2W	2
M	2
Q	2
2/Y or Y	2

III. OTHER MONITORING REPORTING REQUIREMENTS

A. Compliance Summary

The transmittal letter of each self-monitoring report shall include summary tables of (i) bioassay acute toxicity data from at least eleven of the most recent samples; (ii) total coliform data from at least five of the most recent samples preceding the current month; and (iii) annual running average mass loads for copper, mercury, and nickel, respectively. Bioassay acute toxicity raw data shall also be included as part of compliance summary submittal.

B. Reporting Data in Electronic Format

The Dischargers shall report all monitoring results in electronic format as approved by the Executive Officer. During the period in which the Dischargers are not yet enrolled in the Regional Board's electronic reporting system, all self-monitoring reports shall be submitted in the current format.

C. Rainfall

The Dischargers shall record the rainfall on each day of the month.

D. Visual Observations of Storm Water Discharge

C&H shall conduct visual observations of the all storm water discharge locations on at least one storm event per month during daylight operating hours that produces a significant storm water discharge to observe the presence of floating and suspended materials, oil and grease, discoloration, turbidity, and odor. "Significant storm water discharge" is a continuous discharge of storm water for a minimum of one hour, or an intermittent discharge of storm water for a minimum of three hours in a 12-hour period.

E. Information Related to Organic and Metallic Pollutants

The Dischargers shall retain and submit (when requested by the Executive Officer) the following information related to the monitoring program for organic and metallic pollutants.

1. Description of sample stations, times, and procedures.
2. Description of sample containers, storage, and holding time prior to analysis.
3. Quality assurance procedures together with any test results for replicate samples, sample blanks, and any quality assurance tests, and the recovery percentages for the internal and surrogate standards.

F. Method Detection Limits

The Dischargers shall submit in the self-monitoring report the metallic & organic test results together with the detection limits (including unidentified peaks). All unidentified (non-Priority Pollutants) peaks detected in USEPA's 624 and 625 test methods shall be identified and semi-quantified. Hydrocarbons detected at < 10 microgram per liter ($\mu\text{g/l}$) based on the nearest internal standard may be appropriately grouped and identified together as aliphatic hydrocarbons, aromatic hydrocarbons, and unsaturated hydrocarbons. All other hydrocarbons detected at > 10 $\mu\text{g/l}$ based on the nearest internal standard shall be identified and semi-quantified.

G. Maps

An updated legible map showing the locations of all ponds, treatment facilities, and points of waste discharge shall be submitted if changes are made.

IV. SCHEDULE OF SAMPLING AND ANALYSIS

A. Sampling Schedule

The schedule of sampling and analysis shall be that given in Table 1 of this Self-Monitoring Program.

B. Sampling Protocols

Sample collection, storage, and analyses shall be performed according to the latest 40 CFR 136 or other methods approved and specified by the Executive Officer.

V. MODIFICATIONS TO PART A

A. Paragraph Deletions

Exclude paragraphs C.1; C.2.a and b; C.3.c; C.5; D.3; and D.4.

B. Paragraph C.2.d.

The last sentence of Paragraph C.2.d. shall be modified as follows:

“... the sampling frequency shall be increased to daily until the additional sampling shows that the most recent monthly average is in compliance with the monthly average limit.”

C. Paragraph F.4

The first sentence shall be modified as follows:

“Self-Monitoring Reports shall be filed regularly for each calendar month (unless specified otherwise) and the Board should receive the written report no later than the fifteenth day of the following month...”

D. Paragraph F.5

Annual Reporting

1. Process and sewage wastewaters: By January 30 of each year, the Dischargers shall submit an annual report to the Executive Officer covering the previous calendar year for Wastes 001 and 002. The report shall contain:

a. Both tabular and graphical summaries of the monitoring data for all parameters

monitored during the previous calendar year.

- b. A comprehensive discussion of the compliance record and the corrective actions taken or planned which may be needed to bring the Dischargers into full compliance with the waste discharge requirements.
 - c. List of approved analyses to include:
 - i. Listing of in-house analyses that are approved by the California Department of Health Services.
 - ii. List of analyses performed by another approved or state-certified laboratories.
 - iii. List of any waived analyses, as approved.
2. Storm water: C&H shall submit an annual report by July 1 of each year covering data for the previous wet weather season. The annual storm water report shall include at minimum the following:
- a. A tabulated summary of all sampling results and a summary of visual observation taken during the inspection;
 - b. A comprehensive discussion of the compliance record and the corrective actions taken or planned which may be needed to bring C&H into full compliance with the waste discharge requirements.
 - c. A comprehensive discussion of the progress and/or success of source identification and control programs for non-effluent limited parameters such as BOD₅ and TSS.

I, Lawrence Kolb, Acting Executive Officer, do hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedure set forth in the Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in the Board's Order No. 00-025.
2. Is effective on the date shown below.
3. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the Dischargers, and revisions will be ordered by the Executive Officer.

April 19, 2000
Effective Date



Dr. Lawrence Kolb
Acting Executive Officer

Attachments:
Table 1 - Schedule of Sampling, Measurement and Analysis

Notes for Table 1:

1. Daily minimum and maximum pH shall be reported.
2. Chlorine residual after adequate contact and prior to dechlorination shall be monitored continuously or every 2 hours and reported as a daily grab. Final chlorine residual after dechlorination shall be monitored and reported.
3. Hydrogen peroxide dosage shall be reported in mg/l and in lb/day on every occurrence when it is manually added to the surge tank as a result of organic overload. For each occurrence lasting for more than one calendar day, the daily dosage (in lbs) of hydrogen peroxide shall be reported in that month's self-monitoring report.
4. Sampling for oil and grease shall consist of 3 grab samples taken at 2-hour intervals during the sampling day, with each grab being collected in a glass container. The entire volume of each sample shall be composed prior to analysis.
5. Ammonia and conductivity are required as part of the fish bioassays. Analysis shall be conducted on grab samples for the toxicity test water for each of the 4-day toxicity test.
6. Monitoring of chemical oxygen demand (COD) shall be performed daily for the wastewater influent to the surge tank. The Dischargers is allowed to submit their in-house COD data instead of using a state-certified laboratory or USEPA approved method, as these data are not used compliance monitoring. However, COD shall be reported in mg/l and lb/day.
7. Rainbow trout shall be tested pursuant to Effluent Limitation B.6. The test shall be conducted using a 96-hour flow-through bioassay. The Dischargers shall perform the test according to protocols approved by the USEPA, State Board, published by the American Society for Testing and Materials (ASTM), or American Public Health Association.
8. Mercury shall be sampled on Day 7 using the USEPA approved ultra-clean techniques. The sample shall be analyzed for mercury using EPA Method 1631, which allows determination of mercury at a detection limit around 0.5 ng/l. If there are other site conditions that may prevent the Dischargers from fully complying with the ultra-clean sampling protocols as indicated in the USEPA approved method, the Discharger should notify the Regional Board immediately.
9. Other pollutants include arsenic, cadmium, total chromium, chromium (VI), silver, zinc, and cyanide. Cyanide may be analyzed as Weak Acid Dissociate Cyanide using protocols specified in Standard Method No. 4500-CN-I, or equivalent alternatives in latest edition. All analytical methods shall be USEPA approved methods. Lowest possible detection limits shall be used for each of these pollutants. Alternative methods of analysis must be approved by the Executive Officer.
10. Report results for Purgeable Hydrocarbons and Extractable Hydrocarbons as specified in Section III.F of this Monitoring Program. Alternative methods of analysis must be approved by the Executive Officer.
11. Report results for polynuclear aromatic hydrocarbon and polychlorinated biphenyls constituents as defined in the Order. Alternative methods of analysis must be approved by the Executive Officer.

12. Standard observations include those for visible oil, visible color, and floating objects.
13. Storm water discharges shall be sampled during the first 30 minutes of the first daylight storm event which occurs during scheduled operating periods and which is preceded by at least 3 days of dry weather. If sampling during the first 30 minutes is impractical, samples shall then be taken during the first two-hour of discharge, and C&H shall explain in the monitoring report why the grab sample(s) could not be taken in the first 30 minutes.

A storm event is defined as a continuous or semi-continuous period of rainfall which produces significant storm water discharge. Significant storm water discharge is a continuous discharge of storm water for approximately one hour or more, or an intermittent discharge of stormwater for a minimum of three hours in a 12-hour period.

C&H may apply to the Executive Officer for reduced number of storm water monitoring locations if it can establish and document that storm water discharges from different locations are substantially identical.

14. Measure or estimate the total volume of storm water discharge from each station for the storm event sampled. Estimates shall be determined from the amount of rainfall and the area of drainage multiplied by a drainage factor satisfactory to the Executive Officer. The areas and drainage factors shall be corresponding to those specified in the SWPPP. Volume of storm water discharge shall be estimated at least twice during the wet weather season of each year: between October 1 and April 30 of the following year.
15. Analysis of copper and lead in storm water discharges are required for discharge during the first wet weather season: October 1, 2000 through April 30 2001.
16. Storm water observations shall be performed monthly during the dry period (May 1 through September 30) of each year.
17. Temperature measurements in the receiving water locations C-RE and C-RW shall be conducted on a weekly basis. Compliance with Receiving Water Limitations D.1 and D.2 will be determined at the average reading of the two measurement locations C-RE and C-RW.
18. Sampling for total coliform at this location is acceptable. As part of the study requirements, the Dischargers is required to sample for total coliform at other locations within the disinfection chambers. The number of locations for total coliform sampling will be determined when the Dischargers submit a proposal for such a study.
19. Sampling for total coliform will not be required if the chlorine contact chambers are closed for clean up or other maintenance purposes, or if there is no effluent flow to the receiving water on a typical sampling day.