CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

SAN FRANCISCO BAY REGION

ORDER NO. R2-2004-0026

NPDES PERMIT NO. CA0029904

WASTE DISCHARGE REQUIREMENTS FOR:

CROCKETT COGENERATION, a California Limited Partnership

And

PACIFIC CROCKETT ENERGY, INC., its General Partner

CROCKETT, CONTRA COSTA COUNTY

Effective: August 1, 2004

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CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

SAN FRANCISCO BAY REGION

ORDER NO. R2-2004-0026
NPDES PERMIT NO. CA0029904

REISSUING WASTE DISCHARGE REQUIREMENTS FOR:

CROCKETT COGENERATION, a California Limited Partnership
AND
PACIFIC CROCKETT ENERGY, INC., its General Partner

CROCKETT, CONTRA COSTA COUNTY

FINDINGS

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

1. *Discharger and Permit Application.* Crockett Cogeneration, a California Limited Partnership, and Pacific Crockett Energy, Inc., its General Partner (both hereinafter referred collectively as the Discharger), has applied to the Board for reissuance of waste discharge requirements and a permit to discharge treated wastewater to waters of the State and the United States under the National Pollutant Discharge Elimination System (NPDES).

Facility Description

2. *Facility Location and Capacity.* Since May 1995, the Discharger has operated a natural gas-fired electric cogeneration plant, located at 550 Loring Avenue, Crockett. It generates electricity for Pacific Gas and Electric Company with a design net electrical output of 240 Megawatts. Some heat from its turbines, is recovered to produce 425 psig steam at a maximum rate of 400,000 lbs/hr for a neighboring sugar refinery, owned by California and Hawaiian Sugar Company (C&H). Attachment A of this Order shows the location of the facility.

   The Discharger directs its industrial effluent to a deep water outfall pipe owned and operated by C&H. The combined effluent from the Discharger and C&H are discharged to Carquinez Straits, a portion of an enclosed bay and a water of United States and the State. The Discharger's average daily discharge rate from 2000 to 2002 is 243,000 gallons per day (gpd). The permitted flow allowed by this Order is a monthly average of 500,400 gpd.

Treatment Process Description

3. *Treatment Process.* The description of waste discharged from the site is based on information contained in the Report of Waste Discharge, recent self-monitoring reports, and other relevant information provided by the Discharger. Attachment B shows a water process flow diagram.

   a. Waste 001 is comprised of three process waste streams which are treated and discharged through a deep water outfall. Waste 001A consists of an average of 24,480 gallons per day

(gpd) of blowdown from a gas turbine evaporative cooler. Waste 001B averages approximately 152,640 gpd of demineralizer regenerant, and Waste 001C consists of an average of 28,800 gpd of boiler blowdown water at a temperature of approximately 150°F. These streams are mixed in a 150,000 gallon neutralization tank prior to discharge. Water supply from East Bay Municipal Utility District (EBMUD) is added to the boiler blowdown sump to lower the temperature of Waste 001. As necessary, sulfuric acid and caustic soda are added to the neutralization tank to control the pH of the mixed streams.

The final treated effluent, Waste 001, is discharged into Carquinez Straits via C&H's deep water outfall pipe. C&H uses the outfall primarily for discharging non-contact cooling water. The outfall is equipped with a diffuser at latitude 38 degrees 03 minutes 22 seconds North, and longitude 122 degrees 13 minutes 05 seconds West. The outfall is 200 feet from shore at approximately 47 feet below mean low water. Because Waste 001 is discharged through C&H's outfall, this Order provides the Discharger with the same 10:1 dilution credit provided in C&H's NPDES permit (Order No. 00-025).

b. Waste 002 consists of uncontaminated storm water runoff from a total of 2 acres of uncurbed areas throughout the site, 90,000 gallons (annually) of air-cooled condenser wash down water, 15,000 gallons (twice a month) walkways/stairways wash down water, and incidental limited quantity of water condensed from the exterior surface of three roof-type air conditioners. The wash down waters and the condensed water, which are not expected to include any oil or grease, heavy metals or toxic materials, are collected at catch basins throughout the site. Waste 002 is discharged to an outfall at a location of latitude 38°03'22" and longitude 122°12'50". A manually operated valve at manhole #3, is used to prevent the discharge of accidental spills or contaminated storm water from the outfall.

4. *Effluent Description.*. A summary of the effluent measurements for Waste 001 required in the prior Order are presented in the following table. The table contains the statistics of conventional pollutant measurements obtained from January 2000 through December 2002, and of metals measurements obtained from June 2000 through July 2003.

Table 1. Effluent Discharge Description (Waste 001)

Parameter	Median	Daily Minimum	Daily Maximum	Number of Measurements
Oil & Grease (mg/L)			1.5	36
pH (s.u.)	7.00	6.58	8.37	36
Temperature (degrees Farrenheit)	77.7		85.0	36
TSS (mg/L)			9	36
Fathead Minnow (% Survival) [1]	100	95		13
Stickleback (% Survival) [1]	100	90		14
Chromium (µg/L)	<5		43	21
Cyanide (µg/L)	<10		14	16
Lead (µg/L)	2		29	18
Mercury (µg/L)	0.0043		0.022	15
Nickel (µg/L)	<5		67.	18
Silver (µg/L)	<5		0.248[2]	18
Zinc (µg/L)	20		120	30

[1] Pertains to the survival rate of fish at the end of a 4-day acute toxicity test.
[2] This constituent was only detected in one sample, with an estimated value that is detected, but not quantified.

5. *Drinking Water Conservation Plan.* Presently drinking water from EBMUD is mixed with Waste 001 to reduce its temperature to compliance levels. To reduce the use of drinking water, and to provide a long-term solution for complying with the temperature limitation in this Order, the Discharger plans, by June 2004, to use a fan for cooling rather than drinking water. On average, the plan is expected to save 21,600 gpd of drinking water. This plan is consistent with the State Board's policy to use fresh inland waters for cooling only when other alternatives are environmentally undesirable or economically unsound (Water Quality Control Policy on the Use and Disposal of Inland Waters Used for Powerplant Cooling).

6. This discharge was previously governed by Waste Discharge Requirements Order No. 98-100 adopted by the Board on September 16, 1998.

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

Storm Water Discharges

8. *Regulations.* Federal Regulations for storm water discharges were promulgated by the U.S. EPA on November 19, 1990. The regulations [40 CFR Parts 122, 123, and 124] require specific categories of industrial activity (industrial storm water) to obtain a NPDES permit and to implement Best Available Technology Economically Achievable (BAT) and Best Conventional Pollutant Control Technology (BCT) to control pollutants in industrial storm water discharges.

9. *Exemption from Coverage under Statewide Storm Water General Permit.* Provision 10 of this Order requires the Discharger to implement best management practices to reduce or prevent pollutants associated with industrial activity in storm water discharges. Specifically, the Discharger must comply with the storm water provisions of the Standard Provisions and Reporting Requirements for NPDES Surface Water Discharge Permits, August 1993 (the Standard Provisions), which is attached. Because this satisfies the requirements of 40 CFR Parts 122, 123, and 124, it exempts the Discharger from the State Water Resources Control Board's (the State Board's) statewide NPDES permit for storm water discharges associated with industrial activities (NPDES General Permit CAS000001- the General Permit), which was adopted on November 19, 1991, amended on September 17, 1992, and reissued on April 17, 1997.

Regional Monitoring Program

10. On April 15, 1992, the Board adopted Resolution No. 92-043 directing the Executive Officer to implement a Regional Monitoring Program 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 San Francisco Bay Estuary. These permit holders responded to that request by participating in a collaborative effort, through the San Francisco Estuary Institute (formerly the Aquatic Habitat Institute). This effort is known as the San Francisco Bay Regional Monitoring Program for Trace Substances (the RMP). It includes collection of data on pollutants and toxicity in water, sediment and biota of the estuary. The Discharger, as a small discharger, has agreed to participate in the RMP, to demonstrate its support of TMDL projects from which it may receive waste load allocations, and to support the gathering of data which may be used in developing effluent limitations during the next permit reissuance.

Applicable Plans, Policies and Regulations

11. Water quality objectives (WQOs), water quality criteria (WQC), effluent limitations, and calculations contained in this Order are based on the statutes, documents, and guidance detailed in the attached Fact Sheet, and incorporated as part of this Order by reference.

Beneficial Uses

12. This Order is written to protect all beneficial uses of the receiving water. Beneficial uses for Carquinez Strait receiving water, as identified in the Board's June 21, 1995 *Water Quality Control Plan San Francisco Bay Basin (Region 2)* (the Basin Plan) (Table 2-7), and based on known uses of the receiving waters in the vicinity of the discharge, are:

- Commercial and Sport Fishing
- Estuarine Habitat
- Industrial Service Supply
- Fish Migration
- Navigation
- Preservation of Rare and Endangered Species
- Water Contact Recreation
- Noncontact Water Recreation
- Fish Spawning
- Wildlife Habitat

Bases for Effluent Limitations

General Basis

Applicable Water Quality Objectives/Criteria

13. The WQOs and WQC applicable to the receiving waters for this discharge are from the Basin Plan, the U.S. EPA's May 18, 2000 *Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California* (the California Toxics Rule, or the CTR), and the U.S. EPA's *National Toxics Rule* (the NTR).

    a. The Basin Plan specifies numeric WQOs for 10 priority toxic pollutants, as well as narrative WQOs for toxicity and bioaccumulation in order to protect beneficial uses. The pollutants for which the Basin Plan specifies numeric objectives are arsenic, cadmium, chromium (VI), copper in freshwater, lead, mercury, nickel, silver, zinc, and cyanide (see also c., below). The narrative toxicity objective states in part "[a]ll waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce other detrimental responses in aquatic organisms." The bioaccumulation objective states in part "[c]ontrollable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in bottom sediments or aquatic life. Effects on aquatic organisms, wildlife, and human health will be considered." Effluent limitations and provisions contained in this Order are designed to implement these objectives, based on available information.

b. The CTR specifies numeric aquatic life criteria for 23 priority toxic pollutants and numeric human health criteria for 57 priority toxic pollutants. These criteria apply to inland surface waters and enclosed bays and estuaries such as here, except that where the Basin Plan's Tables 3-3 and 3-4 specify numeric objectives for certain of these priority toxic pollutants, the Basin Plan's numeric objectives apply over the CTR (except in the South Bay south of the Dumbarton Bridge).

c. The NTR established numeric aquatic life criteria for selenium, numeric aquatic life and human health criteria for cyanide, and numeric human health criteria for 34 toxic organic pollutants for waters of San Francisco Bay upstream to, and including, Suisun Bay and the Delta. This includes the receiving water for this Discharger.

14. Where numeric objectives have not been established or updated in the Basin Plan, 40 CFR Part 122.44(d) specifies that water quality-based effluent limitations (WQBELs) may be set based on U.S. EPA criteria, supplemented where necessary by other relevant information, to attain and maintain narrative WQOs to fully protect designated beneficial uses. The Fact Sheet for this Order discusses the specific bases and rationales for effluent limitations.

Basin Plan Receiving Water Salinity Policy

15. The Basin Plan states that the salinity characteristics (i.e., freshwater vs. saltwater) of the receiving water shall be considered in determining the applicable WQOs. Freshwater objectives apply to discharges to waters both lying outside the zone of tidal influence and having salinities lower than 5 parts per thousand (ppt) at least 75 percent of the time. Saltwater objectives shall apply to discharges to waters with salinities greater than 5 ppt at least 75 percent of the time. For discharges to waters with salinities in between the two categories or tidally influenced freshwaters that support estuarine beneficial uses, the objectives shall be the lower of the salt or freshwater objectives, based on ambient hardness, for each substance.

CTR Receiving Water Salinity Policy

16. The CTR states that the salinity characteristics (i.e., freshwater vs. saltwater) of the receiving water shall be considered in determining the applicable WQC. Freshwater criteria shall apply to discharges to waters with salinities equal to or less than one ppt at least 95 percent of the time. Saltwater criteria shall apply to discharges to waters with salinities equal to or greater than 10 ppt at least 95 percent of the time in a normal water year. For discharges to water with salinities in between these two categories, or tidally influenced freshwaters that support estuarine beneficial uses, the criteria shall be the lower of the salt or freshwater criteria, (the latter calculated based on ambient hardness), for each substance.

Receiving Water Salinity Classification

17. The receiving water for the subject discharge is Carquinez Strait and is classified as saltwater by the Basin Plan, and esturine by the CTR. The classifications are based on salinity measurements at the RMP sampling station nearest to the discharge location, Davis Point (23 measurements from March 1993 through August 2001). The reasonable potential analysis (RPA) and effluent limitations in this Order are based on the salt water objectives in the Basin Plan where available; if not, then they are based on the more stringent of either the salt or fresh water criteria in the CTR.

Receiving Water Hardness

18. Some WQOs/WQC are hardness dependent. In determining the WQOs/WQC for this Order, the Board used a hardness of 48 mg/L. This is the lowest of the 12 measurements taken from April 1995 through August 2001, at the RMP Davis Point sampling station. Due to the few number of measurements, the lowest value was selected because it is more protective of the environment.

Thermal Plan

19. 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 the Thermal Plan) on September 18, 1975. This Order contains temperature limitations for Waste 001 and the receiving water in accordance with the Thermal Plan requirements for a new discharger that discharges an elevated temperature waste to an estuary. Since the Discharger's facility was constructed after the Thermal Plan was adopted, it is classifed as a new discharge. Since none of the three waste streams constituting Waste 001 is discharged for the purpose of transporting waste heat, Waste 001 is classified as elevated temperature waste, rather than thermal waste. For these classifications, Section 5.B(1) of the Thermal Plan requires:

    a. The maximum temperature of the discharge shall not exceed the natural receiving water termperature by more than 20 degrees Farenheit.

    b. Elevated temperature waste discharges either individually or combined with other discharges shall not create a zone, defined by water temperature of more than 1°F above natural receiving water temperature, which exceeds 25 percent of the cross-sectional area of Carquinez Straits at any point.

    c. No discharge shall cause a surface water temperature rise greater than 4°F above the natural temperature of the receiving waters at any time or place.

Technology-Based Effluent Limitations

20. Order effluent limitations for conventional pollutants are technology-based. Effluent limitation guidelines requiring the application of the best practicable control technology currently available (BPT) and best available technology economically achievable (BAT) have been promulgated by the U.S. EPA on November 19, 1982 and amended on July 8, 1983 for the Steam Electric Power Generating Point Source Category (40 CFR 423). The limitations are considered to be those attainable by BAT and Best Professional Judgement (BPJ) for Low Volume Waste Sources, in the judgement of the Board. The limitations in the prior Order for TSS, and Oil and Grease are more stringent than those specified in 40 CFR 423, but these limits are retained in this Order. This is because the Board staff, based on BPJ, determines the Discharger has the technology to feasibly comply with them, since it has complied with them since 1995. The pH limitation in the prior Order is consistent with 40 CFR 423, and is retained in this Order.

Water Quality-Based Effluent Limitations

21. Toxic substances are regulated by water quality based effluent limitations (WQBELs) derived from the Basin Plan, Tables 3-3 and 3-4, the U.S. EPA's May 18, 2000 *Water Quality*

Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California (the California Toxics Rule, or CTR), the U.S. EPA's *National Toxics Rule* (NTR), and/or best professional judgment (BPJ) as defined in Section IV of the attached Fact Sheet. Further details about the effluent limitations contained in this Order are given below and in the attached Fact Sheet.

a. Maximum Daily Effluent Limitations (MDELs) are used in this Order to protect against acute water quality effects. It is impracticable to use weekly average limitations to guard against acute effects. Although weekly averages are effective for monitoring the performance of biological wastewater treatment plants, the MDELs are necessary for preventing fish kills or mortality to aquatic organisms.

b. NPDES regulations, the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (the State Implementation Plan, or SIP), and U.S. EPA's Technical Support Document (TSD) provide the basis to establish MDELs:

(1) NPDES regulations at 40 CFR Part 122.45(d) state:

"For continuous discharges all permit effluent limitations, standards, and prohibitions, including those necessary to achieve water quality standards, shall *unless impracticable* be stated as:

(a) Maximum daily and average monthly discharge limitations for all discharges other than publicly owned treatment works (POTWs); and

(b) Average weekly and average monthly discharge limitations for POTWs." (Emphasis added.)

(2) The SIP (page 8, Section 1.4) requires WQBELs be expressed as maximum daily effluent limitations (MDELs) and average monthly effluent limitations (AMELs).

Receiving Water Ambient Background Data Used in Calculating WQBELs

22. Ambient background values are used in the RPA and in the calculation of effluent limitations. For the RPA, ambient background concentrations are the observed maximum water column concentrations. The SIP states that for calculating WQBELs, ambient background concentrations are either the observed maximum ambient water column concentrations, or, for criteria/objectives intended to protect human health from carcinogenic effects, the arithmetic mean of observed ambient water concentrations. The ambient background data are derived from three sources:

a. *Regional Monitoring Program (RMP)* - Under the RMP, the Yerba Buena station has been sampled since 1993 for most of the inorganic (CTR constituent numbers 1-15) and some of the organic (CTR constituent numbers 16 – 126) toxic pollutants.

b. *BACWA San Francisco Bay Ambient Water Monitoring Interim Report* - Not all the constituents listed in the CTR were analyzed by the RMP during this time. On May 16, 2003, a group of several San Francisco Bay Region dischargers (known as the Bay Area Clean Water Agencies, or BACWA) also submitted a collaborative receiving water study, entitled the San Francisco Bay Ambient Water Monitoring Interim Report. This report

addresses monitoring results from sampling events in the years 2002 and 2003 for the remaining priority pollutants not monitored by the RMP. The RPA was conducted and the WQBELs were calculated using RMP data from the years 1993 through 2001 for inorganics and organics at the Yerba Buena station, and additional data from the BACWA San Francisco Bay Ambient Water Monitoring Interim Report for the Yerba Buena RMP station.

c. *August 6, 2001 Letter* – In addition to the RMP and BACWA Interim Report, effluent and ambient background monitoring was required by the Board's August 6, 2001, letter titled *Requirement for Monitoring of Pollutants in Effluent and Receiving Water to Implement New Statewide Regulations and Policy* (hereinafter referred to as the Board's August 6, 2001 Letter) – available online, (see Standard Language And Other References Available Online below). The additional data the Discharger collected in response to this letter, was submitted to the Board in an interim report on May 13, 2003. The data supplements any missing RMP and BACWA Interim Report data.

Constituents Identified in the 303(d) List

23. On June 6, 2003, the U.S. EPA approved a revised list of impaired water bodies prepared by the State (the 303(d) list). The State had prepared the 303(d) list pursuant to provisions of Section 303(d) of the federal Clean Water Act requiring identification of specific water bodies where it is expected that water quality standards will not be met after implementation of technology-based effluent limitations on point sources. The pollutants impairing the Carquinez Strait include chlordane, DDT, diazinon, dieldrin, dioxin and furan compounds, mercury, nickel, total PCBs, PCBs (dioxin like), and selenium. Carquinez Strait is also impaired by exotic species.

Dilution and Assimilative Capacity

24. In response to the State Board's Order No. 2001-06, Board staff have evaluated the assimilative capacity of the receiving water for 303(d)-listed pollutants for which the subject discharge has reasonable potential to cause or contribute to an excursion above a water quality standard. The evaluation included a review of RMP data, effluent data, and WQOs. From this evaluation, it is determined that the assimilative capacity is highly variable due to the complex hydrology of the receiving water. Therefore, there is uncertainty associated with the representative nature of the appropriate ambient background data to conclusively quantify the assimilative capacity of the receiving water. Pursuant to Section 1.4.2.1 of the SIP, "dilution credit may be limited or denied on a pollutant-by-pollutant basis…"

a. For certain bioaccumulative pollutants, based on BPJ, dilution credit is not included in calculating the final WQBELs. The Board placed selenium, mercury, and PCBs on the CWA Section 303(d) list. The U.S. EPA added dioxins and furans compounds, chlordane, nickel, dieldrin, and 4,4'-DDT on the CWA Section 303(d) list. Dilution credit is not included for the following pollutants: mercury, dieldrin, 4,4'-DDE, and dioxins and furans. The following factors suggest that there is no more assimilative capacity in the Bay for these pollutants.

i. San Francisco Bay fish tissue data shows that these pollutants, except for selenium, exceed screening levels. The fish tissue data are contained in *Contaminant Concentrations in Fish from San Francisco Bay 1997* (May 1997). Denial of dilution

credits for these pollutants is further justified by fish advisories to the San Francisco Bay. The Office of Environmental Health and Hazard Assessment (OEHHA) performed a preliminary review of the data from the 1994 San Francisco Bay pilot study, *Contaminated Levels in Fish Tissue from San Francisco Bay*. The results of the study showed elevated levels of chemical contaminants in the fish tissues. Based on these results, OEHHA issued an interim consumption advisory covering certain fish species from the Bay in December 1994. This interim consumption advice was issued and is still in effect due to health concerns based on exposure to sport fish from the Bay contaminated with mercury, PCBs, dioxins, and pesticides (e.g., DDT).

b. Furthermore, Section 2.1.1 of the SIP states that for bioaccumulative compounds on the 303(d) list, the Board should consider whether mass-loadings should be limited to current levels. The Board finds that mass loading limitations are warranted for certain bioaccumulative compounds on the 303(d) list for the receiving waters of this discharge. This is to ensure that this discharge does not contribute further to impairment of the narrative objective for bioaccumulation.

c. For non-bioaccumulative constituents, a conservative allowance of 10:1 dilution for discharges to the receiving waters is necessary for protection of beneficial uses. This is based on SIP provisions in Section 1.4.2.1, which allows the Board to further limit dilution credits. The derivation of the dilution credit is outlined below.

   i. A far-field background station is appropriate because the receiving waterbody is a very complex estuarine system with highly variable and seasonal upstream freshwater inflows and diurnal tidal saltwater inputs.

   ii. Due to the complex hydrology of the San Francisco Bay, a mixing zone cannot be accurately established.

   iii. The SIP allows limiting a mixing zone and dilution credit for persistent pollutants (e.g., copper, nickel, and lead).

   The main justification for using a 10:1 dilution credit is uncertainty in accurately determining ambient background and uncertainty in accurately determining the mixing zone in a complex estuarine system with multiple wastewater discharges. The detailed rationale is described in the Fact Sheet.

Total Maximum Daily Loads and Waste Load Allocations

25. The Board plans to adopt Total Maximum Daily Loads (TMDLs) for pollutants on the 303(d) list in Carquinez Strait within the next ten years, with the exception of dioxin and furan compounds. For dioxins and furans, the Board intends to consider this matter further after U.S. EPA completes its national health reassessment. Future review of the 303(d) list for Carquinez Strait may result in revision of the schedules and/or provide schedules for other pollutants.

26. The TMDLs will establish waste load allocations (WLAs) for point sources and load allocations (LAs) for non-point sources, and will result in achieving the water quality standards for the waterbodies. Final WQBELs for 303(d)-listed pollutants in this discharge will be based on WLAs contained in the respective TMDLs.

27. The Board's strategy to collect water quality data and to develop TMDLs is summarized below:

    a. *Data collection* – The Board has given the dischargers the option to collectively assist in developing and implementing analytical techniques capable of detecting 303(d)-listed pollutants to at least their respective levels of concern or WQOs/WQC. This collective effort may include development of sample concentration techniques for approval by the U.S. EPA. 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, and may be used to update or revise the 303(d) list and/or change the WQOs/WQC for the impaired waterbodies including the Carquinez Strait.

    b. *Funding mechanism* – The Board has received, and anticipates continuing to receive, resources from federal and state agencies for TMDL development. 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.

28. Pursuant to Section 2.1.1 of the SIP, "the compliance schedule provisions for the development and adoption of a TMDL only apply when: (a) the Discharger requests and demonstrates that it is infeasible for the Discharger to achieve immediate compliance with a CTR criterion; and (b) the Discharger has made appropriate commitments to support and expedite the development of the TMDL. In determining appropriate commitments, the RWQCB should consider the Discharger's contribution to current loadings and the Discharger's ability to participate in TMDL development."

Interim Limitations and Compliance Schedules

29. Until final WQBELs or WLAs are adopted for 303(d)-listed pollutants, state and federal anti-backsliding and antidegradation policies and the SIP require that the Board include interim effluent limitations for them. The interim effluent limitations will be the lower of the following:

    - current performance; or
    - the previous Order's limitations, unless anti-backsliding conditions are met.

30. The SIP and the Basin Plan authorize compliance schedules in a permit if an existing discharger cannot comply immediately with a new and more stringent effluent limitation. Compliance schedules for limitations derived from CTR or NTR WQC are based on Section 2.2 of the SIP, and compliance schedules for limitations derived from Basin Plan WQOs are based on the Basin Plan. Both the SIP and the Basin Plan require the Discharger to demonstrate the infeasibility of achieving immediate compliance with the new limitation to qualify for a compliance schedule. The SIP and Basin Plan require the following documentation be submitted to the Board to support a finding of infeasibility:

    - Descriptions of diligent efforts the Discharger has made to quantify pollutant levels in the discharge, sources of the pollutant in the waste stream, and the results of those efforts;

    - Descriptions of source control and/or pollution minimization efforts currently under way or completed;

- A proposed schedule for additional or future source control measures, pollutant minimization or waste treatment; and

- A demonstration that the proposed schedule is as short as practicable.

31. On February 3, 2004, the Discharger submitted a feasibility study (hereinafter referred to as the Discharger Feasibility Study) asserting it is infeasible to immediately comply with the final WQBELs calculated according to SIP Section 1.4 for copper, nickel, selenium, cyanide, 4,4'-DDE, dieldrin, and dioxin TEQ. Board staff conducted comparative and/or statistical analysis of recent effluent performance data for these pollutants, as further detailed in the attached Fact Sheet. Based on these analyses for copper, nickel, selenium, cyanide, 4,4'-DDE, dieldrin, and dioxin TEQ, the Board concurs that it is infeasible to achieve immediate compliance.

32. For limitations based on CTR or NTR criteria (copper, selenium, cyanide, 4,4'-DDE, and dieldrin) this Order establishes a 5-year compliance schedule as allowed by the CTR and SIP. For limitations based on the Basin Plan numeric objectives (nickel), this Order establishes a 10-year compliance schedule to implement measures to comply with new standards as of the effective date of those standards. This provision has been construed as authorizing compliance schedules for new interpretations of existing standards (such as the numeric WQOs specified in the Basin Plan) resulting in more stringent limitations than those in the previous Order. Due to the adoption of the SIP, the Board has newly interpreted these objectives. As a result of applying the SIP methodologies, the effluent limitations for some pollutants are more stringent than those in the prior Order, and compliance schedules may be appropriate for the new limitations for those pollutants. The Board may take appropriate enforcement actions if interim limitations and requirements are not met.

    This Order establishes compliance schedules that extend beyond one year for copper, nickel, selenium, cyanide, 4,4'-DDE, dieldrin, and dioxin TEQ. Pursuant to the SIP and 40 CFR 122.47, the Board shall establish interim numeric limitations and interim requirements to control these pollutants. This Order establishes interim limitations for these pollutants based on the previous Order limitations or existing plant performance. This Order also establishes interim requirements in a provision for development of source analysis and source control studies to reduce pollutant loadings.

    Since the compliance schedule for CTR criteria and Basin Plan WQOs exceed the length of the Order (4 years and 11 months), the actual final WQBELs for these pollutants will likely be based on either the Site Specific Objective (SSO) or TMDLs/WLAs as described in other findings specific to each of the pollutants.

Antibacksliding and Antidegradation

33. *Antidegradation and Anti-backsliding.* The limitations in this Order are in compliance with the Clean Water Act Section 402(o) prohibition against establishment of less stringent WQBELs for the following reasons:

    (1) For impairing pollutants, the revised final limitations will be in accordance with TMDLs and WLAs once they are established;

    (2) For non-impairing pollutants, the final limitations are/will be consistent with current State WQOs/WQC;

(3) Antibacksliding does not apply to the interim limitations established under previous Orders.

Specific Basis

Reasonable Potential Analysis

34. Title 40 CFR Part 122.44(d) (1) (i) requires permits to include WQBELs for all pollutants which have the reasonable potential to cause or contribute to an exceedence of an applicable water quality standard (that have Reasonable Potential). Using the methods prescribed in Section 1.3 of the SIP, Board staff analyzed the effluent data to determine if Waste 001 has a reasonable potential to cause or contribute to an excursion above a State water quality standard ("Reasonable Potential Analysis" or "RPA"). For all parameters that have Reasonable Potential, numeric WQBELs are required. The RPA compares the effluent data with numeric and narrative WQOs in the Basin Plan and numeric WQC from the U.S. EPA Gold Book, the NTR, and the CTR.

Reasonable Potential Methodology

35. a. The RPA was based on monthly effluent monitoring data from June 2000 through July 2003 for metals, and March 2002 through July 2003 for certain organic constituents.

The RPA identifies the observed maximum effluent concentration (MEC) in the effluent for each pollutant, based on effluent concentration data. If a pollutant is not detected in any of the effluent samples and all of the reported detection limits are below the WQO, the MEC is defined as the lowest detection limit.

There are three triggers in determining Reasonable Potential:

1) The first trigger is activated if the MEC is greater than the lowest applicable WQO (MEC ≥ WQO), which has been adjusted, if appropriate, for pH, hardness, and translator data. If the MEC is greater than the adjusted WQO, then that pollutant has reasonable potential, and a WQBEL is required.

2) The second trigger is activated if the observed maximum ambient background concentration (B) is greater than the adjusted WQO (B>WQO).

3) The third trigger is activated if a review of other information determines that a WQBEL is required to protect beneficial uses, even though both MEC and B are less than the WQO/WQC. A limitation may be required under certain circumstances to protect beneficial uses.

b. Table 2, below, depicts the results of the RPA. The RPA findings, numeric final WQBELs where required, feasibility determinations, and interim limitations and compliance schedules – as appropriate - are set out in more detail below.

RPA Determinations.

36. The MECs, WQOs/WQC, bases for the WQOs/WQC, background concentrations used and Reasonable Potential conclusions from the RPA are listed in the following table for all

constituents analyzed. The RPA results for some of the constituents in the CTR were not determined because of the lack of an objective/criteria or effluent data. (Further details on the RPA can be found in the Fact Sheet.) Based on the RPA methodology in the SIP, the following 9 constituents have been found to have Reasonable: copper, lead, nickel, selenium, zinc, cyanide, 4,4'-DDE, dieldrin, and dioxin TEQ.

Table 2. Summary of Reasonable Potential Analysis Results

Constituent[1]	WQO/ WQC (µg/L)	BASIS[2]	MEC (µG/L)	MAXIMUM AMBIENT BACKGROUND CONC. (µG/L)	REASONABLE POTENTIAL
1) Antimony	4300	CTR (#1)	1	1.8	No
2) Arsenic	36	BP	11	2.46	No
3) Beryllium	No Criteria	No Criteria	No Criteria	0.215	Undetermined[4]
4) Cadmium	9.3	BP	0.1	0.1268	No
5a) Chromium (III)	113.5	CTR(#5a)	0.9		No
5b) Chromium (VI)	50	BP	43	4.4	No
6) Copper	3.74	CTR (#6)	26	2.45	**Yes**
7) Lead	5.6	BP	29	0.8	**Yes**
8) Mercury*	0.025	BP	0.022	0.0086	No
9) Nickel*	7.1	BP	67	3.7	**Yes**
10) Selenium*	5.0	NTR	8	0.39	**Yes**
11) Silver	2.3	BP	0.248	0.0516	No
12) Thallium	6.3	CTR (#12)	0.1	0.21	No
13) Zinc	58	BP	120	4.4	**Yes**
14) Cyanide	1	NTR	50	<0.4	**Yes**
15) Asbestos	No Criteria	NA	No Criteria	NA	Undetermined[4]
16) Dioxin TEQ*	$1.4x10^{-8}$	BP	$<63.7x10^{-8}$	$7.1x10^{-8}$	**Yes**[3]
109) 4,4'-DDE*	0.00059	CTR (#109)	<0.001	0.000693	**Yes**[3]
111) Dieldrin*	0.00014	CTR (#111)	<0.002	0.000264	**Yes**[3]
CTR #s 17-126 except 109 and 111	Various or NA	CTR	Non-detect, less than WQO, or no WQO	Less than WQO or Not Available	No or Undetermined[4]

Footnotes for Table 2:

[1] * Indicates constituents on 303(d) list, dioxin applies to the toxicity equivalent of 2,3,7,8-TCDD, using 1998 toxicity equivalence factors for dioxins and furans.

[2] BP = Basin Plan;
CTR = California Toxics Rule
NTR = National Toxics Rule

[3] Dioxin TEQ, 4,4'-DDE and Dieldrin: RPA = Yes, based on B>WQO or WQC.

[4] Undetermined due to lack of objective/criteria, and/or lack of effluent data (See Fact Sheet Table B for full RPA results).

RPA Results for Impairing Pollutants

37. While TMDLs and WLAs are being developed, interim concentration limitations are established in this Order for 303(d)-listed pollutants that have reasonable potential to cause or contribute to an excursion above the water quality standard. In addition, mass limitations are required for bioaccumulative 303(d)–listed pollutants (i.e., mercury) that can be reliably detected. Constituents on the 303(d) list for which the RPA determined a need for effluent limitations are selenium, 4,4'-DDE (chemically linked to DDT), dieldrin, and dioxin TEQ. Final determination of Reasonable Potential for other constituents identified on the 303(d) list could not be performed due to lack of available effluent data, or lack of an established WQO or WQC.

RPA Considerations for Specific Pollutants

38. *Dioxin TEQ.*

(1) The CTR establishes a numeric human health WQC of 0.014 picograms per liter (pg/L) for 2,3,7,8-tetrachlorinated dibenzo-p-dioxin (2,3,7,8-TCDD) based on consumption of aquatic organisms.

(2) The preamble of the CTR states that California NPDES permits should use toxicity equivalents (TEQs) where dioxin-like compounds have Reasonable Potential with respect to narrative criteria. In U.S. EPA's National Recommended Water Quality Criteria, December 2002, U.S. EPA published the 1998 World Health Organization Toxicity Equivalence Factor (TEF)[1] scheme. Additionally, the CTR preamble states U.S. EPA's intent to adopt revised WQC guidance subsequent to its health reassessment for dioxin-like compounds.

(3) The SIP applies to all toxic pollutants, including dioxins and furans. The SIP requires a limitation for 2,3,7,8-TCDD, if a limitation is necessary, and requires small dischargers to monitor its effluent for the presence of the 17 congeners (dioxin and furan compounds) once during dry weather and once during wet weather during one year.

(4) The Basin Plan contains a narrative WQO for bio-accumulative substances:

"Many pollutants can accumulate on particulates, in sediments, or bio-accumulate in fish and other aquatic organisms. Controllable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in bottom sediments or aquatic life. Effects on aquatic organisms, wildlife, and human health will be considered."

This narrative WQO applies to dioxin and furan compounds, based in part on the scientific community' consensus that these compounds associate with particulates, accumulate in sediments, and bioaccumulate in the fatty tissue of fish and other organisms.

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[1] The 1998 World Health Organization scheme includes TEFs for dioxin-like PCBs. Since dioxin-like PCBs are already included within "Total PCBs", for which the CTR has established a specific standard, dioxin-like PCBs are not included in this Order's version of the TEF scheme.

(5) The U.S. EPA's 303(d) listing determined that the narrative objective for bio-accumulative pollutants was not met because of the levels of dioxins and furans in the fish tissue.

(6) The Discharger has monitored for dioxins and furans. Self-monitoring data indicate dioxins and furans were sampled once in the year 2002 and once in 2003. The presence of dioxin and furan compounds were not detected in either effluent sample. However, the method detection limits for both samples were above the WQC for 2,3,7,8 TCDD TEQ, and so it could not be determined whether the effluent concentration triggers RP. As shown in Table 2, ambient receiving water quality data provided in the May 16, 2003 BACWA report show 2,3,7,8 TCDD TEQ levels that exceed the WQC; therefore, there is Reasonable Potential for 2,3,7,8 TCDD TEQ.

(7) Compliance

For now, compliance will be determined using standard one-liter samples and an analysis method that is at a minimum capable of achieving one-half the U.S. EPA method 1613 MLs. Compliance using higher sample volumes with lower method detection limits will not be required until after this method is validated by the Board's Executive Officer, or U.S. EPA.

39. *4,4'-DDE and Dieldrin.*

(1) Board staff could not determine MECs for 4,4'-DDE and dieldrin because the effluent data consisted of all non-detect values, with all detection limits higher than the WQC (Section 1.3 of the SIP). Board staff conducted the RPA by comparing the WQC with RMP ambient background concentration data gathered using research-based sample collection, concentration, and analytical methods. This analysis concluded that the background concentrations are greater than the WQC, and therefore, 4,4'-DDE and dieldrin have Reasonable Potential, and numeric WQBELs are required.

(2) The current 303(d) list includes the Bay as impaired for dieldrin and DDT; 4,4'-DDE is chemically linked to the presence of DDT. The Board intends to develop a TMDL that will lead towards overall reduction of dieldrin and 4,4'-DDE. The WQBELs specified in this Order may be changed to reflect the WLAs from this TMDL. Studies are ongoing to investigate the feasibility and reliability of different methods of increasing sample volumes to lower the detection limits for pesticides. If analytical methodologies improve and the detection levels decrease to a point that show discharge concentrations above the limitations in this Order, the Board will re-evaluate the Discharger's feasibility to comply with the limitations and determine the need for a compliance schedule and interim performance-based limitations at that time. Since dieldrin and 4,4'-DDE are both bioaccumulative and on the 303(d) list due to fish tissue concentrations, there is no assimilative capacity, and no dilution credit was allowed in the final limitation calculations.

40. *Cyanide.*

The analytical method (EPA Method 335.2) used by the Discharger to measure total cyanide has elsewhere demonstrated problems with interference. The EPA is currently evaluating the known interferents, and investigating ways to improve EPA Cyanide Methods. A body of

existing evidence indicates that cyanide measurements in effluent may be an artifact of the analytical method and/or a by-product of chlorination. These questions are also being explored in a national research study sponsored by the Water Environment Research Foundation (WERF). The Discharger may investigate the interference issues and alternative analytical methods, to evaluate the accuracy of the prior measurements used to conduct the RPA and to develop interim and final effluent limits. If the Discharger can demonstrate the prior measurements are not accurate by using a better analytical method, the Board may change or remove the interim limit and final WQBELs to reflect the new measurements, pursuant to Provision 16.

41. *Other Organics.*

The Discharger has performed sampling and analysis for the organic constituents listed in the CTR. This data set was used to perform the RPA. The full RPA is presented as an attachment in the Fact Sheet. Effluent and background measurements were available for all organic priority pollutants. However, for 19 organic pollutants, Reasonable Potential cannot be determined because the effluent detection limits are higher than the lowest WQC. For one organic pollutant (benzidine), Reasonable Potential cannot be determined because the background detection limit is higher than the lowest WQC. As part of the priority pollutant monitoring requirement described in the next finding, the Discharger will monitor for these and other consituents in the effluent once more within one year prior to expiration of this Order. When additional data become available, further RPA will be conducted to determine whether to add numeric effluent limitations in the Order.

42. *Effluent Reasonable Potential Monitoring.*

This Order does not include effluent limitations for constituents that do not show Reasonable Potential, but one more set of priority pollutant analysis is required to be collected within one year prior to expiration of this Order. The analyses should be conducted using methods described in the Board's August 6, 2001 Letter, and results should be submitted with the Discharger's next application for permit renewal. The new data may be used to assess whether the effluent quality has changed, and to reevaluate the Reasonable Potential determinations in this Order.

43. *Order Reopener.*

This Order includes a reopener provision to allow numeric effluent limitations to be added or deleted for any constituent that exhibits or does not exhibit, respectively, Reasonable Potential. The Board will make this determination based on monitoring results.

Development of Specific Effluent Limitations

44. **Copper**

a. *RPA Results.* This Order establishes effluent limitations for copper because the 26.0 µg/L MEC exceeds the governing WQC of 3.7 µg/L. The governing WQC is based on the CTR's WQC of 3.1 µg/L for chronic saltwater protection as modified by using the CTR's default copper translator of 0.83.

b. *WQBELs.* The copper WQBELs calculated according to SIP procedures are 13 µg/L average monthly and 25 µg/L maximum daily.

c. *Immediate Compliance Infeasible.* The Discharger Feasibility Study requests an interim limit with a compliance schedule, because it determined it cannot immediately comply with the WQBELs. The Board staff's statistical analysis of effluent data from June 2000 through July 2003 (see Attachment 3 of the attached Fact Sheet) concurs there is a high likelihood the Discharger will not be able to immediately comply with the WQBELs. Because the measures proposed in the Discharger Feasibility Study statisfy the requirements in Section 2.1 of the SIP, the Board will provide the Discharger with an interim limit and compliance schedule.

d. *Interim Limit.* Numeric interim limits for the pollutant must be based on current treatment facility performance or on a prior Order limit, whichever is more stringent. Because the previous Order does not include a limit for copper, the interim limit is set to an Interim Performance-Based Limitation (IPBL). Consistent with past practices, the Board staff specifies the IPBL as the 99.87th percentile value of the Discharger's recent effluent data. Therefore, the interim limit for copper is set at 252 µg/L.

e. *Compliance Schedule Requirements.* In the Final Feasibility Study, the Discharger has proposed additional pollution prevention and source control measures to reduce copper concentration levels in the discharge. Additionally the Discharger may implement a sampling plan, as specified in Provision 7 of this Order to develop information that may be used to establish WQBELs based on dissolved criteria for copper.

f. *Term of Interim Limit.* The copper IPBL shall remain in effect until July 31, 2009. However, during the next permit reissuance, or based on additional data or SSOs, the Board may re-evaluate the copper IPBL and compliance deadline.

45. **Lead**

a. *RPA Results.* This Order establishes effluent limitations for lead because the 29.0 µg/L MEC exceeds the governing WQC of 5.6 µg/L. The governing WQC is based on the Basin Plan's WQO of 5.6 µg/L as a 4-day average for the chronic protection of saltwater aquatic life.

b. *WQBELs.* The lead WQBELs calculated according to SIP procedures are 40 µg/L average monthly and 80 µg/L maximum daily.

c. *Immediate Compliance Feasible.* The Discharger has not requested a compliance schedule for lead. Board staff conducted a statistical analysis of the Discharger's self-monitoring effluent data from June 2000 through July 2003 (see Attachment 3 of the attached Fact Sheet), and based upon this analysis, the Board determines it is feasible for the Discharger to achieve immediate compliance. Therefore, the WQBELs will be in effect in this Order.

46. **Nickel**

a. *RPA Results.* This Order establishes effluent limitations for nickel because the 67 µg/L MEC exceeds the governing WQC of 7.1 µg/L. The governing WQO is based on the Basin Plan's WQO of 7.1 µg/L as a 24-hour average for the chronic protection of saltwater aquatic life.

b. *WQBELs.* The WQBELs calculated according to SIP procedures are 31 µg/L average monthly and 62 µg/L maximum daily.

c. *Immediate Compliance Infeasible.* The Discharger Feasibility Study requests an interim limit with a compliance schedule, because it determined it cannot immediately comply with the WQBELs. The Board staff's statistical analysis of effluent data from June 2000 through July 2003 (See Attachment 3 of the attached Fact Sheet) concurs there is a high likelihood the Discharger will not be able to immediately comply with the WQBELs. Because the measures proposed in the Discharger Feasibility Study statisfy the requirements in Section 2.1 of the SIP, the Board will provide the Discharger with an interim limit and compliance schedule.

d. *Interim Limit.* Because the previous Order does not include a limit for nickel, the interim limit is set to an Interim Performance-Based Limitation (IPBL). Consistent with past practices, the Board staff specifies the IPBL as the 99.87th percentile value of the Discharger's recent effluent data. Therefore, the interim limit for nickel is set at 367 µg/L.

e. *Compliance Schedule Requirements.* In the Final Feasibility Study, the Discharger has proposed additional pollution prevention and source control measures to reduce nickel concentration levels in the discharge. Additionally the Discharger may implement a sampling plan, as specified in Provision 7 of this Order to develop information that may be used to establish WQBELs based on dissolved criteria for nickel.

f. *Term of IPBL.* The nickel IPBL shall remain in effect until March 31, 2010. However, during the next permit reissuance, or based on additional data or SSOs, the Board may re-evaluate the nickel IPBL and compliance deadline.

47. **Selenium**

a. *RPA Results.* This Order establishes effluent limitations for selenium because the 8 µg/L MEC exceeds the governing WQC of 5 µg/L. The governing WQC is based on the NTR's Criterion Continuous Concentration (CCC) for fresh water.

b. *WQBELS.* The WQBELs calculated according to SIP procedures are 4.1 µg/L average monthly and 8.2 µg/L maximum daily.

c. *Immediate Compliance Infeasible.* The Discharger Feasibility Study requests an interim limit with a compliance schedule, because it determined it cannot immediately comply with the WQBELs. The Board staff's statistical analysis of effluent data from June 2000 through July 2003 (See Attachment 3 of the attached Fact Sheet) concurs there is a high likelihood the Discharger will not be able to immediately comply with the WQBELs. Because the measures proposed in the Discharger Feasibility Study statisfy the requirements in Section 2.1 of the SIP, the Board will provide the Discharger with an interim limit and compliance schedule.

d. *Interim Limit..* Because the previous Order does not include a prior limit for selenium, the interim limit is set to an IPBL. Consistent with past practices, the Board staff specifies the IPBL as the 99.87th percentile value of the Discharger's recent effluent data. Therefore, the interim limit for selenium is set at 50.5 µg/L.

e. *Compliance Schedule Requirements.* In the Final Feasibility Study, the Discharger has proposed additional pollution prevention and source control measures to reduce selenium concentration levels in the discharge.

f. *Term of Interim Effluent Limitation.* The selenium IPBL shall remain in effect until July 31, 2009. However, during the next permit reissuance, or based on additional data or TMDLs, the Board may re-evaluate the selenium IPBL and compliance deadline.

48. **Zinc**

a. *RPA Results.* This Order establishes effluent limitations for zinc because the 120 µg/L MEC exceeds the governing WQC of 58 µg/L, demonstrating Reasonable Potential. The governing WQO is based on the Basin Plan's WQO of 58 µg/L as a 24-hour average for the chronic protection of saltwater aquatic life.

b. *WQBELs.* The WQBELs calculated according to SIP procedures are 390 µg/L average monthly and 990 µg/L maximum daily. These WQBELs exceed the average monthly limit of 330 µg/L and daily maximum limit of 840 µg/L contained in the previous Order. To comply with antibacksliding requirements, this Order retains the more stringent zinc limits from the previous Order.

c. *Immediate Compliance Feasible.* The Discharger has not requested a compliance schedule for zinc. Board staff conducted a statistical analysis of the Discharger's self-monitoring effluent data from June 2000 through July 2003 (see Attachment 3 of the attached Fact Sheet), and based upon this analysis, the Board determines it is feasible for the Discharger to achieve immediate compliance. Therefore, final WQBELs will be effective in this Order.

49. **Cyanide**

a. *RPA Results.* This Order establishes effluent limitations for cyanide because the 50 µg/L MEC exceeds the governing WQC of 1 µg/L. The governing WQC is based on the NTR's salt water Criterion Continuous Concentration (CCC) of 1 µg/L.

b. *WQBELs.* The WQBELs calculated according to SIP procedures are 3.2 µg/L average monthly and 6.4 µg/L maximum daily.

c. *Immediate Compliance Infeasible.* The Discharger Feasibility Study requests an interim limit with a compliance schedule, because it determined it cannot immediately comply with the WQBELs. Board staff's statistical analysis of effluent data from June 2000 through July 2003 (See Attachment 3 of the attached Fact Sheet) concurs there is a high likelihood the Discharger will not be able to immediately comply with the WQBELs. Because the measures proposed in the Discharger Feasibility Study statisfy the requirements in Section 2.1 of the SIP, the Board will provide the Discharger with an interim limit and compliance schedule.

d. *Interim Limits.* Because the previous Order does not include a limit for cyanide, the interim limit is set as an IPBL. Consistent with past practices, Board staff specifies the IPBL as the 99.87th percentile value of the Discharger's recent effluent data. Therefore, the interim limit for cyanide is set at 265 µg/L.

e. *Compliance Schedule Requirements.* In the Final Feasibility Study, the Discharger has proposed additional pollution prevention and source control measures to reduce cyanide concentration levels in the discharge.

f. *Term of Interim Effluent Limitation.* The cyanide IPBL shall remain in effect until July 31, 2009. However, during the next permit reissuance, or based on additional data or SSOs, the Board may re-evaluate the IPBL and compliance deadline.

50. **4,4'-DDE and Dieldrin**

a. *RPA Results.* This Order establishes limitations for 4,4'-DDE and dieldrin because the ambient background concentrations (0.00092 µg/L and 0.00038 µg/L, respectively) exceed the governing WQC of 0.00059 µg/L and 0.00014 µg/L, respectively. The governing WQC are based on the CTR's WQC of 0.00059 µg/L and 0.00014 µg/L, respectively, for the protection of human health. The criteria are well below the MLs of 0.05 µg/L and 0.01 µg/L identified in Appendix 4 of the SIP.

b. *WQBELs.* The 4,4'-DDE and dieldrin WQBELs calculated according to SIP procedures are 0.00059 µg/L average monthly and 0.00118 µg/L maximum daily for 4,4'-DDE, and 0.00014 µg/L average monthly and 0.00028 µg/L maximum daily for dieldrin.

c. *Immediate Compliance Infeasible.* The Discharger Feasibility Study requests interim limits with compliance schedules, because it determined it cannot immediately comply with the WQBELs. Because all 4,4'-DDE and dieldrin effluent measurements are non-detects and the detection limits are above the WQBELs, the Board cannot determine whether it is feasibile for the Discharger to immediately comply with the WQBELs. Therefore, the Board agrees with the conclusion of infeasibility. Because the measures proposed in the Discharger Feasibility Study statisfy the requirements in Section 2.1 of the SIP, the Board will provide the Discharger with an interim limit and compliance schedule.

d. *Interim Limits.* Because the previous Order does not include a limitation for 4,4'-DDE or for dieldrin, the interim limits must be set as IPBLs. Because the monitoring data consisted of all non-detect values, the Board cannot determine IPBL with using statistical

analysis, but must set them at levels with which the Discharger can demonstrate compliance. In accordance with compliance determination rules specified in Section 2.4.5 of the SIP, the interim limitations are therefore set at the MLs listed in Appendix 4 of the SIP: 0.05 µg/L for 4,4'-DDE, and 0.01 µg/L for dieldrin.

e. *Compliance Schedule Requirements.* In the Final Feasibility Study, the Discharger has proposed additional pollution prevention and source control measures to reduce 4,4'-DDE and dieldrin concentration levels in the discharge.

f. *Term of Interim Effluent Limitation.* The 4,4'-DDE and dieldrin IPBL's shall remain in effect until July 31, 2009. However, during the next permit reissuance, or based on additional data or TMDLs, the Board may re-evaluate the IPBL's and compliance deadline.

51. **Dioxins and Furans (Dioxin TEQ)**

a. *RPA Results.* This Order establishes limitations for 2,3,7,8 TCDD TEQ because 2,3,7,8 TCDD TEQ levels in the receiving water exceed the Basin Plan's narrative bioaccumulative objective translated from the WQC of 0.014 pg/L for 2,3,7,8 TCDD TEQ.

b. *WQBELs.* The dioxin and furans WQBELs calculated using SIP procedures are 0.014 pg/L average monthly and 0.028 pg/L maximum daily.

c. *Immediate Compliance Infeasible.* The Discharger Feasibility Study requests interim limits with compliance schedules, because it determined it cannot immediately comply with the WQBELs. Because all dioxin and furan effluent measurements are non-detects and the detection limits are above the WQBELs, the Board cannot determine whether it is feasibile for the Discharger to immediately comply with the WQBELs. Therefore, the Board agrees with the conclusion of infeasibility.

d. *Interim Limit.* At this time an interim limit cannot be determined for dioxin TEQ since neither a previous Order limit exists, nor is there enough information to determine an interim limit based on current treatment facility performance. Because the monitoring data consists of all non-detect values, the Board cannot determine an IPBL using statistical analysis. Nor can the IPBL be set at levels with which the Discharger can demonstrate compliance, since the SIP does not provide ML's for Dioxin TEQ. If a ML is agreed upon by the Board and the Discharger, and in consultation with the State Water Resource Control Board's Quality Assuarance Program (as specified in Section 2.4.3 of the SIP), or if additional data enables Board staff to establish performance-based limits, this Order shall be reopened to include interim limits for dioxin TEQ.

Whole Effluent Acute Toxicity

52. This Order includes effluent limitations for whole-effluent acute toxicity. They are based on the Basin Plan's narrative objective for toxicity, requiring that all waters shall be maintained free of toxic substances in concentrations that are lethal to or produce other detrimental responses in aquatic organisms. The three-sample median and single value limitations specified in this Order are consistent with the previous Order and are based on the Basin Plan (Table 4-4, pg. 4-70). Compliance evaluation is based on 96-hour static bioassays, using the latest EPA protocols specified in 40 CFR 136.

53. The previous Order specified acute toxicity testing requirements and limitations, which required testing of two species, stickleback and fathead minnow. During the period 1998 through 2003, the Discharger has not violated its single sample survival limitation of at least 70 percent, nor its three-sample median survival limitation of at least 90 percent. The previous Order included a limit, with quarterly testing required. Because the discharge has demonstrated low risk for acute toxicity, the testing frequency in this Order is reduced to once a year, as allowed by the Basin Plan. Since the stickleback test cannot be performed using the latest EPA protocols (4th and 5th Edition methods), this Order requires the use of rainbow trout instead of stickleback. As provided in the Basin Plan and as allowed in this Order, the Executive Officer may consider allowing compliance monitoring with only one fish species, either fathead minnow or rainbow trout, if the Discharger runs concurrent tests, which may be conducted as static renewal tests, to determine the most sensitive species.

54. Some dischargers have identified several practical and technical issues that need to be resolved before implementing the 5th Edition method. The primary unresolved issue is the use of younger, possibly more sensitive fish, which may necessitate a reevaluation of Order limits. SWRCB staff recommended to the Boards that new or renewed permit holders be allowed a time period in which laboratories can become proficient in conducting the new tests. Because this Order reduces the frequency of bioassays from quarterly to annual, the Discharger should have adequate time before the first bioassay is required under the reissued NPDES Order, to implement the new test method.

Requirement for Monitoring of Pollutants in Effluent and Receiving Water to Implement New Statewide Regulations and Policy

55. *SIP- Required Priority Pollutant Monitoring.* The SIP states that each Board shall require major and minor POTWs and industrial dischargers in its region to conduct effluent monitoring for the priority pollutants and 2,3,7,8-TCDD congeners whether or not an effluent limitation is required.

56. On August 6, 2001, the Board sent a letter (hereinafter referred to as the Board's August 6, 2001 Letter) to all permitted dischargers pursuant to Section 13267 of the California Water Code requiring submittal of effluent and receiving water data on priority pollutants and other toxic pollutants. This formal request for technical information addresses the insufficient effluent and ambient background data.

57. Pursuant to the Board's August 6, 2001 Letter from Board Staff, the Discharger submitted workplans and sampling results for characterizing the levels of selected constituents in the effluent and ambient receiving water. The Discharger submitted the sampling results to the Board on May 13, 2003, as an interim report.

58. *Monitoring Requirements (Self-Monitoring Program).* The Self-Monitoring Program (SMP) requires monitoring at the outfall for conventional, non-conventional, and toxic pollutants, and acute toxicity. This Order requires monitoring once every two months for lead and zinc to demonstrate compliance with final effluent limitations. This Order also requires monitoring once every two months for copper, nickel, selenium, and cyanide to demonstrate compliance with interim effluent limitations. Furthermore, this Order requires monitoring once every five years for dieldrin and 4,4'-DDE to determine compliance with interim effluent limitations, and once every five years for dioxins and furans. The required monitoring frequency for these organic pollutants is lower than for the metals, because, unlike results for the metals, their effluent concentration measurements have never exceeded their respective WQC. As discussed

in the Whole Effluent Acute Toxicity finding above, this Order decreases the testing frequency for acute toxicity from quarterly to annual, because the Discharger has never had a violation and there is a low potential for the discharge to exhibit toxicity based on its flow and complexity. This Order retains the prior permit's monthly testing frequency for TSS, and Oil and Grease. This Order retains the prior permit's daily testing frequency for pH and temperature. In lieu of near field discharge specific ambient monitoring, it is acceptable for the Discharger to participate in collaborative receiving water monitoring with other dischargers under the RMP.

Optional Studies

59. *Optional Mass Offset.* This Order contains requirements to prevent further degradation of the impaired waterbody. Such requirements include the adoption of interim mass limitations that are based on treatment plant performance, provisions for aggressive source control, feasibility studies for additional wastewater reclamation uses, and treatment plant optimization. After implementing these efforts, the Discharger may find that further net reductions of the total mass loadings of the 303(d)-listed pollutants to the receiving water can only be achieved through a mass offset program. This Order includes an optional provision for a mass offset program.

60. *Copper and Nickel Translator Studies.* The Basin Plan does not establish saltwater WQOs for copper. Therefore, the CTR WQC for copper, 3.1 µg/L dissolved, is the applicable standard. Since NPDES permit limitations must be expressed as a total recoverable metal value, a translator is required to convert the dissolved objective into a total recoverable objective. Per Appendix 3 of the SIP, the default translator used in this Order is 0.83, which converts the 3.1 µg/L dissolved criterion to 3.7 µg/L total criterion. A provision for an optional copper translator study is included in this Order to encourage the Discharger to develop a local translator value for copper in place of the default translator value of 0.83 established in the SIP. Based on a similar rationale, a provision for an optional nickel translator study is included in this Order to encourage the Discharger to develop a local translator value for nickel.

Other Discharge Characteristics and Order Conditions

Removal of Best Management Practices (BMP) Program

61. This Order does not require the Discharger to maintain a BMP program, as required in the prior Order. Based on 40 CFR 125 Subpart K, the Board may consider on a case-by-case basis whether a BMP program is required. In accordance with considerations listed in 40 CFR 125.103, A BMP program is not required because the Discharger has no history of spills or leaks, and the Storm Water Pollution Prevention Plan (Provision 10 of this Order) contains similar best management practices which sufficiently minimize the threat of spills to the Carquinez Strait. If the Discharger experiences problems with handling and storing any toxic materials, the Board may reinstate the requirement for a BMP program during the term of this Order, or during the next reissuance.

NPDES Permit and CEQA

62. This Order serves as an NPDES Permit, adoption of which is exempt from the provisions of Chapter 3 (commencing with Section 21100) of Division 13 of the Public Resources Code

(California Environmental Quality Act - CEQA) pursuant to Section 13389 of the California Water Code.

Notification

63. The Discharger and interested agencies and persons have been notified of the Board's intent to reissue requirements for the existing discharge and have been provided an opportunity to submit their written views and recommendations. Board staff prepared a Response to Comments, which are hereby incorporated by reference as part of this Order.

Public Hearing

64. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED, pursuant to the provisions of Division 7 of the California Water Code, regulations, and plans and policies adopted thereunder, and to the provisions of the Clean Water Act and regulations and guidelines adopted thereunder, that Crockett Cogeneration, LLP (the Discharger) shall comply with the following:

A. DISCHARGE PROHIBITIONS

1. Discharge of treated wastewater at a location or in a manner different from that described in this Order is prohibited.

2. Discharge of Waste 001 at any point where it does not receive an initial dilution of at least 10:1 is prohibited.

3. Discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid is prohibited.

4. Average monthly discharge of Waste 001 shall not exceed a flow limitation of 500,400 gallons per day.

B. EFFLUENT LIMITATIONS

Compliance with the following Waste 001 effluent limitations shall be determined by samples collected at Station E-001, as defined in Part B of the Self-Monitoring Program.

Conventional Pollutants

1. Waste 001 shall not exceed the following limitations:

Table 3. Effluent Limitations for Conventional Constituents

Constituent	Units	Monthly Average	Daily Maximum
i. Total Suspended Solids (TSS)	mg/L	30	45
ii. Oil & Grease	mg/L	10	20

2. pH: The pH of Waste 001 shall not exceed 9.0 nor be less than 6.0

   If the Discharger monitors pH continuously, the Discharger shall be in compliance with the pH limitation provided that both of the following conditions are satisfied: (i) The total time during which the pH values are outside the required range of pH values shall not exceed 7 hours and 26 minutes in any calendar month; and (ii) No individual excursion from the range of pH values shall exceed 60 minutes.

3. The maximum temperature of Waste 001 shall not exceed the natural receiving water temperature by more than 20 degrees Fahrenheit.

Toxic Pollutants

Whole Effluent Acute Toxicity

4. Whole Effluent Acute Toxicity: Representative samples of Waste 001 shall meet the following limits for acute toxicity. Compliance with these limits shall be achieved in accordance with Provision D.4 of this Order:

   a. The survival of bioassay test organisms in 96-hour bioassays of undiluted effluent shall be be:
      (1) A three-sample median value of not less than 90 percent survival; and
      (2) A single value of not less than 70 percent survival.

   b. These acute toxicity limits are further defined as follows:
      (1) **3-sample median limit:** Any bioassay test showing survival of 90 percent or greater is not a violation of this limit. A bioassay test showing survival of less than 90 percent represents a violation of this effluent limit, if one of the past two or fewer bioassay tests also show less than 90 percent survival.
      (2) **1-sample limit:** A bioassay test showing survival of less than 70 percent represents a violation of this effluent limit.

Toxic Substances

5. Waste 001 shall not exceed the following limitations:

Table 4. Toxic Substances

Constituent		Units	Maximum Daily	Average Monthly	Interim Daily Maximum	Notes
CTR No.	Name					
6	Copper	µg/l			252	(1)(2)
7	Lead	µg/l	40	80		(1)
9	Nickel	µg/l			367	(1)(3)
10	Selenium	µg/l			51	(1)(4)
13	Zinc	µg/l	840	330		(1)
14	Cyanide	µg/l			265	(1)(5)
109	4,4'-DDE	µg/l			0.05	(1)(6)
111	Dieldrin	µg/l			0.01	(1)(6)

Footnotes to Table 4:

(1.) a. All analyses shall be performed using current U.S. EPA methods, or equivalent methods approved in writing by the Executive Officer. The Board will find the Discharger in violation of the limitation if the discharge concentration exceeds the effluent limitation and the reported ML for the analysis for that constituent as specified in the Self-Monitoring Program.

b. Limitations apply to the average concentration of all samples collected during the averaging period (Daily = 24-hour period; Monthly = calendar month).

(2.) Copper: The interim limitation for copper shall remain in effect until July 31, 2009, or until the Board amends the limitation based on SSOs for copper. However, during the next permit revision, the Board may re-evaluate the interim limitation and compliance schedule.

(3.) Nickel: The interim limitation for nickel shall remain in effect until March 31, 2010, or until the Board amends the limitation based on SSOs for nickel. However, during the next permit reissuance, the Board may reevaluate the interim nickel limitation and compliance schedule.

(4.) Selenium: The interim limitation for selenium shall remain in effect until July 31, 2009 or until the Board amends the limitation based on the WLA in the TMDL. However, during the next permit revision, or based on additional data, the Board may re-evaluate the interim limitations and compliance schedules

(5.) Cyanide: Compliance may be demonstrated by measurement of weak acid dissociable cyanide. The interim limitation shall remain in effect until July 31, 2009, or until the Board amends the limitation based on SSOs for cyanide. However, during the next permit revision, the Board may re-evaluate the interim limitation and compliance schedule.

(6.) Dieldrin, and 4,4'-DDE: The interim limitation for dieldrin and 4,4'-DDE shall remain in effect until July 31, 2009, or until the Board amends the limitation based on the WLA in the TMDLs. However, during the next permit revision, or based on additional data, the Board may re-evaluate the interim limitations and compliance schedules.

C. RECEIVING WATER LIMITATIONS

1. The discharge of waste shall not cause the following conditions to exist in waters of the State at any place:

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

   b. Bottom deposits or aquatic growths to the extent that such deposits or growths cause nuisance or adversely affect beneficial uses;

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

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

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

2. The discharge of waste shall not cause the following limitations to be exceeded in waters of the State at any one place within 1 foot of the water surface:

   a. Dissolved Oxygen: 7.0 mg/L, minimum

      The median dissolved oxygen concentration for any three consecutive months shall not be less than 80% of the dissolved oxygen content at saturation. When natural factors cause concentrations less than that specified above, then the discharge shall not cause further reduction in ambient dissolved oxygen concentrations.

   b. Dissolved Sulfide: 0.1 mg/L, maximum

   c. pH: Variation from normal ambient pH by more than 0.5 pH units.

   d. Un-ionized Ammonia: 0.025 mg/L as N, annual median; and 0.16 mg/L as N, maximum.

   e. Nutrients: Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.

3. Elevated temperature waste discharges either individually or combined with other discharges shall not create a zone, defined by water temperature of more than 1°F above natural receiving water temperature, which exceeds 25 percent of the cross-sectional area of Carquinez Straits at any point.

4. No discharge shall cause a surface water temperature rise greater than 4°F above the natural temperature of the receiving waters at any time or place.

5. The discharge shall not cause a violation of any particular water quality standard for receiving waters adopted by the Board or the State Board as required by the Clean Water Act and regulations adopted thereunder. 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 this Order in accordance with such more stringent standards.

D. PROVISIONS

Order Compliance and Rescission of Previous Waste Discharge Requirements

1. The Discharger shall comply with all sections of this Order beginning on the effective date of this Order. Requirements prescribed by this Order supersede the requirements prescribed by Order No. 98-100. Order No. 98-100 is hereby rescinded upon the effective date of this Order.

Special Studies

Effluent Characterization for Selected Constituents

2. Within one year prior to the expiration date of this Order, the Discharger shall measure once and evaluate the constituents listed in Enclosure A of the Board's August 6, 2001 Letter, for Waste 001. Compliance with this requirement shall be achieved in accordance with the specifications stated in the Board's August 6, 2001 Letter under Effluent Monitoring for minor Dischargers. A final report that presents all the data shall be submitted to the Board no later that 180 days prior to the Order expiration date (the same schedule is also specified in Board's August 6, 2001 Letter). This final report shall be submitted with the application for permit reissuance.

Ambient Background Receiving Water Study

3. The Discharger shall participate in collecting background ambient receiving water data with other Dischargers by formally joining the RMP by no later than May 1, 2005. This information is required to perform RPAs and to calculate effluent limitations, and to demonstrate the Discharger's support for the TMDL programs which will provide it future waste load allocations for some WQBELs it currently cannot feasibly comply with. The data on the conventional water quality parameters (pH, salinity, and hardness) shall also be sufficient to characterize these parameters in the ambient receiving water at a point after the discharge has mixed with the receiving waters.

Whole Effluent Acute Toxicity Requirements

4. Compliance with acute toxicity requirements of this Order shall be achieved in accordance with the following:

    a. Compliance with the acute toxicity effluent limitations of this Order shall be evaluated by measuring survival of test organisms exposed to 96-hour continuous flow-through bioassays, or static renewal bioassays.

b. Test organisms shall be fathead minnows and rainbow trout unless specified otherwise in writing by the Executive Officer.

c. All bioassays shall be performed according to the most up-to-date protocols in 40 CFR Part 136, currently in "Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms,"5th Edition, with exceptions if granted to the Discharger by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP).

Compliance Schedule Requirements

5. For copper, nickel, selenium, cyanide, 4,4'-DDE, Dieldrin, and DioxinTEQ, the Discharger shall implement the appropriate compliance schedule studies proposed in their Discharger Feasibility Study (February 3, 2004), and report their findings in their Annual Reports, as required in Section F.5 of the Self-Monitoring Program, Part A.

Optional Studies

Mass Offset

6. The Discharger may submit to the Board for approval a mass offset plan to reduce 303(d)-listed pollutants to the same watershed or drainage basin. The Board may modify this Order to allow an approved mass offset program.

Copper and Nickel Translator Study and Schedule

7. In order to develop information that may be used to establish water-quality-based effluent limitations based on dissolved criteria for copper and nickel, the Discharger may conduct a translator study. If the Discharger chooses to proceed with the study, which may be conducted in cooperation with other Dischargers, the work shall be performed in accordance with the following tasks:

   a. Copper and Nickel Translator Study Plan. If submitted, the study plan shall be acceptable to the Executive Officer and shall outline data collection for establishment of copper and nickel translators, as discussed in the findings.

   b. After Executive Officer approval, the study plan may be implemented. If submitted, the study plan shall provide for development of translators in accordance with the State Board's SIP, U.S. EPA guidelines, California Department of Fish and Game approval, and any relevant portions of the Basin Plan, as amended.

   c. Copper and Nickel Translator Final Report: If the Discharger conducts a translator study, it will use field sampling data approximate to the discharge point and in the vicinity of the discharge point, or as otherwise provided for in the approved workplan, and will submit a final report, acceptable to the Executive Officer, documenting the results of the copper and nickel translator study.

Facilities Status Reports and Order Administration

8. Operations and Maintenance Manual, Review and Status Reports

    a. The Discharger shall maintain an Operations and Maintenance Manual (O & M Manual) as described in the findings of this Order for the Discharger's wastewater facilities. The O & M Manual shall be maintained in useable condition, and available for reference and use by all applicable personnel.

    b. The Discharger shall regularly review, and revise or update as necessary, the O & M Manual(s) in order for the document(s) to remain useful and relevant to current equipment and operation practices. Reviews shall be conducted annually, and revisions or updates shall be completed as necessary. For any significant changes in treatment facility equipment or operation practices, applicable revisions shall be completed within 90 days of completion of such changes.

    c. Annually, the Discharger shall submit to the Board a report describing the current status of its O & M Manual review and updating. This report shall include an estimated time schedule for completion of any revisions determined necessary, a description of any completed revisions, or a statement that no revisions are needed and the last year it updated its O&M Manual. This report shall be submitted in accordance with the Annual Status Report Provision below.

9. Contingency Plan, Review and Status Reports

    a. The Discharger shall maintain a Contingency Plan as required by Board Resolution 74-10 (available online - see Standard Language And Other References Available Online, below), and as prudent in accordance with current municipal facility emergency planning. The discharge of pollutants in violation of this Order where the Discharger has failed to develop and/or adequately implement a 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.

    b. The Discharger shall regularly review, and update as necessary, the Contingency Plan in order for the plan to remain useful and relevant to current equipment and operation practices. Reviews shall be conducted annually, and updates shall be completed as necessary.

    c. Annually, the Discharger shall submit to the Board a report describing the current status of its Contingency Plan review and update. This report shall include a description or copy of any completed revisions, or a statement that no changes are needed and the last year it updated its plan. This report shall be submitted in accordance with the Annual Status Report Provision below.

10. Storm Water Pollution Prevention Plan (SWPPP).

    a. The Dischargers shall maintain a Storm Water Pollution Prevention Plan (SWPPP), which complies with the requirements contained in the attached Standard Provisions.

    b. The Discharger shall regularly review, and update as necessary, the SWPPP, in order for the plan to remain useful and relevant

    c. Annually, the Discharger shall submit to the Board a report describing the current status of its SWPPP review and update. This report shall include a description or copy of any completed

revisions, or a statement that no changes are needed and the last year it updated its SWPPP. This report shall be submitted in accordance with the Annual Status Report Provision below.

11. Annual Status Reports

The annual reports identified in Provisions 8c, 9c, and 10c above, shall be submitted to the Board by June 30 of each year. Modification of report submittal dates may be authorized, in writing, by the Executive Officer.

Self-Monitoring Program

12. The Discharger shall comply with the Self-Monitoring Program (SMP) for this Order as adopted by the Board. The SMPs may be amended by the Executive Officer pursuant to U.S. EPA regulation 40 CFR122.62, 122.63, and 124.5.

Standard Provisions and Reporting Requirements

13. The Discharger shall comply with all applicable items of the attached Standard Provisions and Reporting Requirements for NPDES Surface Water Discharge Permits, August 1993 (the Standard Provisions), or any amendments thereafter. Where provisions or reporting requirements specified in this Order are different from equivalent or related provisions or reporting requirements given in the Standard Provisions, the specifications of this Order shall apply.

Change in Control or Ownership

14. 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 the Board.

15. To assume responsibility for and operations under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order (see Standard Provisions & Reporting Requirements, August 1993, Section E.4.). Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code.

Order Reopener

16. The Board may modify or reopen this Order and Permit prior to its expiration date in any of the following circumstances:

    a. If present or future investigations demonstrate that the discharge(s) governed by this Order and Permit will, or cease to have, a Reasonable Potential to cause or contribute to adverse impacts on water quality and/or beneficial uses of the receiving waters;

    b. New or revised WQOs come into effect for the San Francisco Bay estuary and contiguous water bodies (whether statewide, regional, or site-specific). In such cases, effluent limitations in this Order will be modified as necessary to reflect updated WQOs. Adoption of effluent limitations contained in this Order and Permit is not intended to restrict in any way future modifications based on legally adopted WQOs or as otherwise permitted under Federal regulations governing NPDES permit modifications;

c. If translator or other water quality studies provide a basis for determining that a permit condition(s) should be modified;

d. An administrative or judicial decision on a separate NPDES permit or WDR that address requirements similar to this discharge; and

e. As authorized by law.

The Discharger may request Order modification based on b, c, d, and e, above. The Discharger shall include in any such request an antidegradation and antibacksliding analysis.

NPDES Permit

17. This Order shall serve as a National Pollutant Discharge Elimination System (NPDES) permit pursuant to Section 402 of the Clean Water Act or amendments thereto, and shall become effective on August 1, 2004, provided the U.S. EPA Regional Administrator has no objection. If the Regional Administrator objects to its issuance, the permit shall not become effective until such objection is withdrawn.

Order Expiration and Reapplication

18. This Order expires June 30, 2009.

19. In accordance with Title 23, Chapter 3, Subchapter 9 of the California Administrative Code, the Discharger must file a report of waste discharge no later than 180 days before the expiration date of this Order as application for reissue of this Order and waste discharge requirements. The application shall be accompanied by a summary of all available water quality data including conventional pollutant data from no less than the most recent three years, and of toxic pollutant data no less than from the most recent five years, in the discharge and receiving water. (See Provisions D.2 and D.3)

I, Bruce H. Wolfe, 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 May 19, 2004.

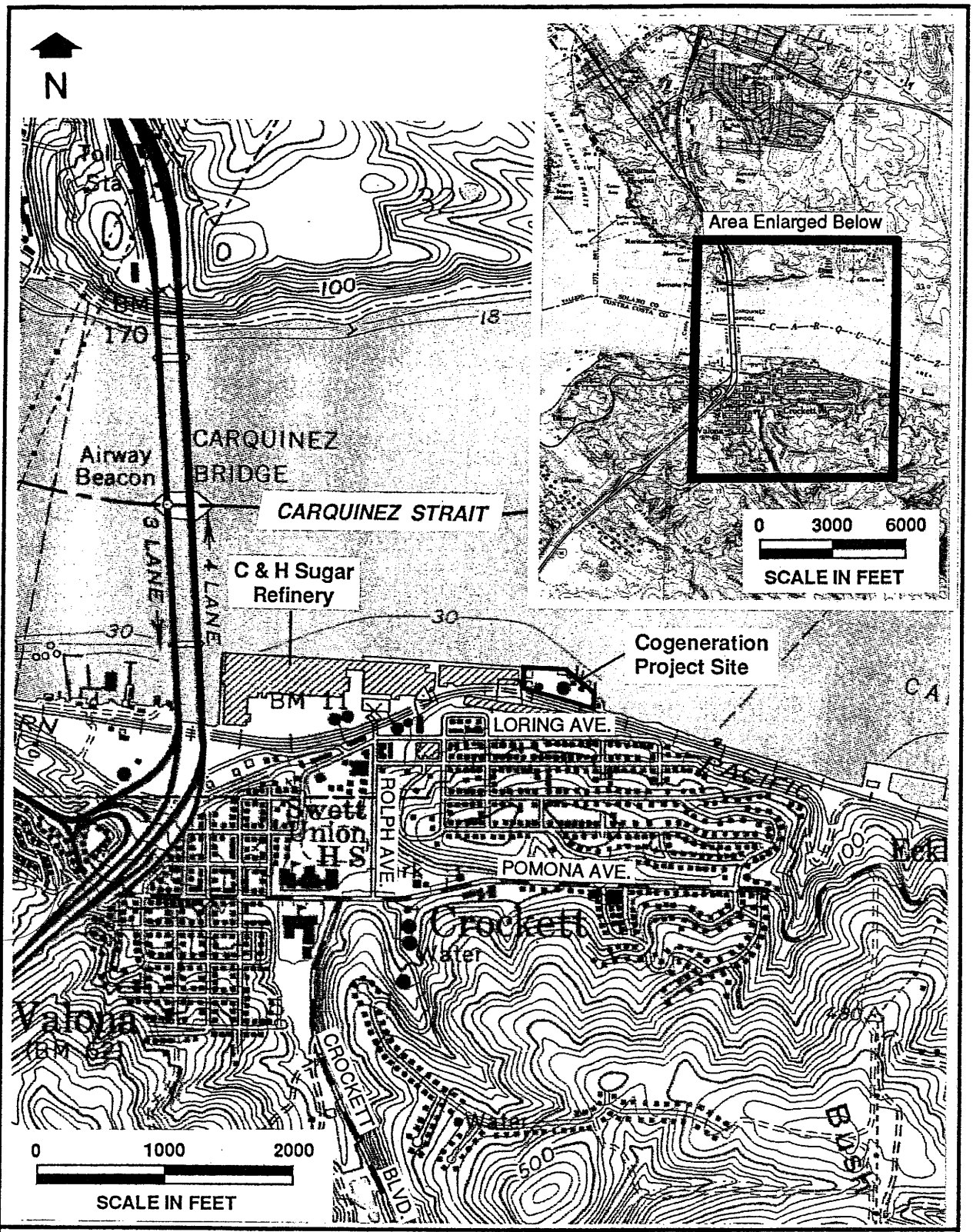
Bruce H. Wolfe,
Executive Officer

Attachments

A. Discharge Facility Location Map
B. Discharge Facility Treatment Process Diagram
C. Self-Monitoring Program (SMP), Part B
D. Fact Sheet
E. The following documents are part of this Order, but are not physically attached due their large volume. They are available on the internet at www.swrcb.ca.gov/rwqcb2/Download.htm:
   - Self Monitoring Program, Part A (August 1993)
   - Standard Provisions and Reporting Requirements (August 1993)
   - Board Resolution No. 74-10
   - August 6, 2001 Regional Board staff letter, "Requirement for Monitoring of Pollutants in Effluent and Receiving Water to Implement New Statewide Regulations and Policy"

Attachment A.

Discharge Facility Location Map



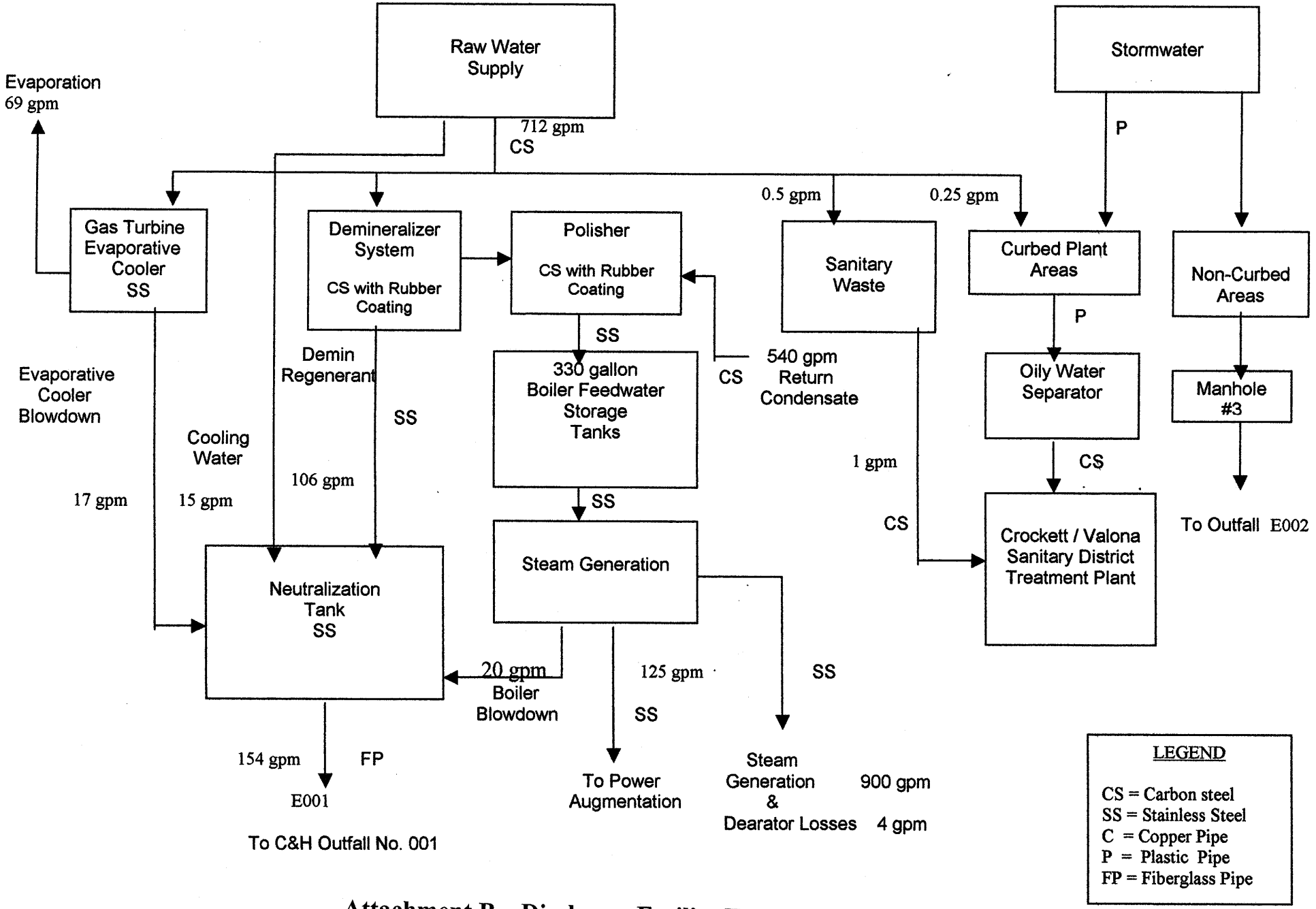
Attachment A. Discharge Facility Location Map

SOURCE: USGS 7.5 Minute Topographic Map, Benicia, CA Quadrangle

Attachment B.

Discharge Facility Treatment Process Diagram

WATER PROCESS FLOW DIAGRAM



Attachment B. Discharge Facility Treatment Process Diagram

Attachment C.

Self-Monitoring Program, Part B

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM

FOR

CROCKETT COGENERATION, a California Limited Partnership

And

PACIFIC CROCKETT ENERGY, INC., its General Partner

CROCKETT, CONTRA COSTA COUNTY

NPDES PERMIT NO. CA0029904

ORDER NO. R2-2004-0026

Consists of:

Part A, Adopted August 1993

And

Part B, Adopted May 19, 2004.

Effective: August 1, 2004

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I. Station Descriptions

NOTE: A sketch showing the locations of all sampling and observation stations shall be included in the Annual Report, and in the monthly report if stations change.

Station	Description
A. EFFLUENT	
E-001	Located at any point in the Waste 001 outfall between Junction with C&H outfall and the point at which all waste tributaries to that outfall are present.
E-002	Located at any point in the Waste 002 outfall between the discharge point and the point at which all uncontaminated storm water tributaries to that outfall are present.
B. RECEIVING WATER	
C-10	At a point in Carquinez Straits, located in the boil caused by C&H Waste 001.
C-RE	At a point in Carquinez Straits, located at the edge of the C&H wharf on its easterly end.
C-RW	At a point in Carquinez Straits, located at the edge of the C&H wharf on its westerly end.

II. Schedule Of Sampling, Analyses And Observations

The schedule of sampling, analysis and observation shall be that given in Table 1 below.

Table 1. Schedule Of Sampling, Analyses And Observations

SAMPLING STATION		E-001		E-002	C-10	C-RE	C-RW
TYPE OF SAMPLE	Notes	G [1]	C-24 [1] [2]	G [1]	G [1]	G [1]	G [1]
Flow Rate (gpd)	[3]		Cont/D				
Oil and Grease (mg/L & kg/d)	[4] [5]	M		E			
Total Suspended Solids (mg/L)		M					
Acute Toxicity (% survival)	[6]	Y					
pH (s.u.)	[10]	D		E		Q	Q
Temperature (°F)	[7] [11]	D				D	Q
Copper (µg/L)		1/2M					
Lead (µg/L)		1/2M					
Nickel (µg/L)		1/2M					
Selenium (µg/L)		1/2M					
Zinc (µg/L)		1/2M					
Cyanide (µg/L)	[8]	1/2M					
4,4'-DDE (µg/L)		1/5Y					
Dieldrin (µg/L)		1/5Y					
2,3,7,8-TCDD and congeners (µg/L)	[9]	1/5Y					
Standard Observations				E	Q	Q	Q

LEGEND FOR TABLE 1

Types of Samples: C-24 = composite sample, 24 hours (includes continuous sampling, such as for flows) Cont.= continuous sampling G= grab sample Parameter and Unit Abbreviations: TSS = Total Suspended Solids gpd = gallons per day mg/L = milligrams per liter µg/L= micrograms per liter pg/L = picograms per liter	Frequency of Sampling: E = Each occurrence D = Once each day Cont. = continuous monitoring Cont/D = continuous monitoring & daily reporting M = once each month W = once each week Q = once each calendar quarter (with at least two-month intervals) Y = once each calendar year 1/2M = once every two month (with at least one-month intervals) 1/5Y = once every five years within 6 months before the due date for the application for permit reissuance 2/Y = Two times a year; one in wet season, one in dry season

FOOTNOTES FOR TABLE 1

[1] Indicates sampling is required during the entire year. The Discharger shall use approved USEPA Methods with the lowest Minimum Levels specified in the SIP and described in footnote 1 of effluent limitations B.7, and in the August 6, 2001, letter.

[2] Composite sampling: 24-hour composites may be made up of discrete grabs collected over the course of a day and volumetrically or mathematically flow-weighted. Samples for cyanide, and organic toxic pollutants, must be made up of discrete grabs, and analyzed separately. Samples for inorganic pollutants may be combined prior to analysis. If only one grab sample will be collected, it should be collected during periods of maximum peak flows. Samples shall be taken on random days.

[3] Flow Monitoring: Effluent shall be measured continuously at Outfall E-001, and recorded and reported daily

[4] Oil & Grease Monitoring: Because of the batch discharge characteristic, the Discharger should collect a grab sample in a glass container during the sampling day. Each glass container used for sample collection or mixing shall be thoroughly cleaned with solvent rinsing as soon as possible after use, and the solvent rinsing shall be added to the composite waste water sample for extraction and analysis.

[5] Grab Samples shall be collected coincident with composite samples collected for the analysis of regulated parameters.

[6] Acute Toxicity: If specific identifiable substances in the discharge can be demonstrated by the discharger as being rapidly rendered harmless upon discharge to the receiving water, compliance with the acute toxicity limit may be determined after the test samples are adjusted to remove the influence of those substances. Written approval from the Executive Officer must be obtained to authorize such an adjustment. An example is pH adjustment to control the formation of unionized ammonia. In this example, the Discharger must first demonstrate that ammonia is the cause of the observed toxicity using phase 3 (confirmation) toxicity identification evaluations. The Discharge must then show that based on the conditions in the receiving water, the ammonia that is in the discharge does not cause any violation of the un-ionized ammonia receiving water limits outside the zone of initial dilution.

Bioassays: Effluent used for fish bioassays must be dechlorinated prior to testing. Monitoring of the bioassay water shall include, on a daily basis, the following parameters: pH, dissolved oxygen, ammonia nitrogen, and temperature. These results shall be reported. If a violation of acute toxicity requirements occurs, a new bioassay test shall be started as soon as practicable and testing should continue back to back until compliance is demonstrated.

[7] Simultaneous temperature readings shall be measured at at one foot below the receiving water surface from locations C-RE and C-RW. If simultaneous temperature measurements are not feasible, the time duration between the two temperature measurements should be kept to a minimum.

[8] The Discharger may, at their option, analyze for cyanide as Weak Acid Dissociable Cyanide using protocols specified in Standard Method Part 4500-CN-I, USEPA Method OI 1677, or equivalent alternatives in latest edition. Alternative methods of analysis must be approved by the Executive Officer.

[9] Chlorinated Dibenzodioxins and Chlorinated Dibenzofurans shall be analyzed using the latest version of USEPA Method 1613. Alternative methods of analysis must be approved by the Executive Officer. The analysis shall be capable of achieving one half the EPA method 1613 MLs.

[10] Daily minimum and maximum for pH shall be reported.

[11] The difference between the temperature measurement at E-001 and C-RE shall also be reported, for assessing compliance with the temperature limitation, specified in effluent limitation 3.

Table 2. Minimum Levels

For compliance monitoring, analyses shall be conducted using the lowest commercially available and reasonably achievable detection levels. The objective is to provide quantification of constituents sufficient to allow evaluation of observed concentrations with respect to the Minimum Levels given below. All Minimum Levels are expressed as µg/L approximately equal to parts per billion (ppb).

CTR #	Constituent [a]	Types of Analytical Methods [b]						
		GC	GCMS	Color	GFAA	ICPMS	SPGFAA	CVAF
6.	Copper					0.5	2	
7.	Lead					0.5		
9.	Nickel				5	1	5	
10.	Selenium				5	2	5	
13.	Zinc				20	1	10	
14.	Cyanide			5				
109.	4,4'-DDE	0.05						
111.	Dieldrin	0.01						
16.	2,3,7,8-TCDD[c]							

Footnotes to Table 2 of Self-Monitoring Program:

[a] According to the SIP, method-specific factors (MSFs) can be applied. In such cases, this additional factor must be applied in the computation of the reporting limit. Application of such factors will alter the reported ML (as described in section 2.4.1). Dischargers are to instruct laboratories to establish calibration standards so that the ML value is the lowest calibration standard. At no time is the Discharger to use analytical data derived from the extrapolation beyond the lowest point of the calibration curve.

[b] Laboratory techniques are defined as follows:

GC = Gas Chromatography;
GCMS = Gas Chromatography/Mass Spectrometry;
Color = Colorimetric;
GFAA = Graphite Furnace Atomic Absorption;
ICPMS = Inductively Coupled Plasma/Mass Spectrometry;
SPGFAA = Stabilized Platform Graphite Furnace Atomic Absorption (i.e. EPA 200.9); and
CVAF = Cold Vapor Atomic Fluorescence.

[c] The SIP does not contain a ML for this constituent. Chlorinated Dibenzodioxins and Chlorinated Dibenzofurans shall be analyzed using the latest version of U.S. EPA Method 1613. Alternative methods of analysis must be approved by the Executive Officer. The analysis shall be capable of achieving one half the EPA method 1613 MLs.

III. Specifications for Sampling and Analysis

Sampling, analyses and observations, and recording and reporting of results shall be conducted in accordance with the schedule given in Table 1 of this SMP, and in accordance with the following specifications, as well as all other applicable requirements given in this SMP. All analyses shall be conducted using analytical methods that are commercially and reasonably available, and that provide quantification of sampling parameters and constituents sufficient to evaluate compliance with applicable effluent limits.

IV. Recording Requirements

A. General Recording Requirements are described in Section E of Part A of the Self-Monitoring Program.

B. Any bypass, overflow, or significant non-compliance incident shall be recorded according to Sections E.1. and E.2. of Part A of the Self-Monitoring Program.

V. Reporting Requirements

A. General Reporting Requirements are described in Section E of the Board's *Standard Provisions and Reporting Requirements for NPDES Surface Water Discharge Permits*, dated August 1993, and Part A of the Self-Monitoring Program.

B. Modifications to Self-Monitoring Program, Part A:

1. If any discrepancies exist between Part A and Part B of the SMP, Part B prevails.

2. Section C.5. is satisfied by participation in the Regional Monitoring Program.

3. Modify Section F.1 (first paragraph) as follows:

Spill Reports

A report shall be made of any spill of oil or other hazardous material. The spill shall be reported by telephone as soon as possible and no later than 24 hours following occurrence or discharger's knowledge of occurrence. Spills shall be reported by telephone as follows:

During weekdays, during office hours of 8 am to 5 pm, to Ray Balcom at the San Francisco Regional Water Quality Control Board: Current telephone number: (510) 622 – 2312, (510) 622-2460 (FAX).

During non-office hours, to the State Office of Emergency Services:
Current telephone number: (800) 852 - 7550.

A report shall be submitted to the Board within five (5) working days following telephone notification, unless directed otherwise by Board staff. A report submitted by facsimile transmission is acceptable for this reporting. The written report shall contain information relative to: . . .

4. Modify Section F.2 (first paragraph) as follows:

Reports of Plant Bypass, Treatment Unit Bypass and Permit Violation

The following requirements apply to all treatment plant bypasses and significant non-compliance occurrences, except for bypasses under the conditions contained in 40 CFR Part 122.41 (m)(4) as stated in Standard Provision A.13. In the event the Discharger violates or threatens to violate the conditions of the waste discharge requirements and prohibitions or intends to experience a plant bypass or treatment unit bypass due to: . . .

5. Modify Section F.4 (first paragraph) as follows:

Self-Monitoring Reports

For each quarter, a self-monitoring report (SMR) shall be submitted to the Board in accordance with the requirements listed in Self-Monitoring Program, Part A. The purpose of the report is to document treatment performance, effluent quality and compliance with waste discharge requirements prescribed by this Order, as demonstrated by the monitoring program data and the Discharger's operation practices. The report shall be submitted to the Board on a quarterly basis, **by the first day of the second month after the quarter, on February 1, May 1, August 1, and November 1...**

[And add at the end of Section F.4 the following:]

g. The Discharger has the option to submit all monitoring results in an electronic reporting format approved by the Executive Officer. If so, the discharger shall submit SMRs electronically in the format approved by the Executive Officer in a letter dated Decmeber 17, 1999, Official Implemntation of Electronic Reporting System (ERS). The ERS format includes, but is not limited to, a transmittal letter, summary of violation details and corrective actions, and transmittal receipt. If there are any discrepancies between the ERS requirements and the "hard copy" requirements listed in the SMP, then the approved ERS requirements supercede.

6. Add at the end of Section F.5, Annual Reporting, the following:

d. A plan view drawing or map showing the Dischargers' facility, flow routing and sampling and observation station locations.

VI. Selected Constituents Monitoring

A. Effluent monitoring shall include evaluation for all constituents listed in Table 1 by sampling and analysis of final effluent.

B. Analyses shall be conducted using the lowest commercially available and reasonably achievable detection levels. The objective is to provide quantification of constituents sufficient to allow evaluation of observed concentrations with respect to respective water quality objectives.

VII. Monitoring Methods And Minimum Detection Levels

The Discharger may use the methods listed in Table 2, above, or alternate test procedures that have been approved by the U.S. EPA Regional Administrator pursuant to 40 CFR 136.4 and 40 CFR 136.5 (revised as of May 14, 1999).

VIII. Self-Monitoring Program Certification

I, Bruce H. Wolfe, Executive Officer, hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedure set forth in this Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in Board Order No. R2-2004-0026.

2. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the Discharger, and revisions will be ordered by the Executive Officer.

3. Is effective as of August 1, 2004.

Bruce H. Wolfe
Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION
1515 CLAY STREET, SUITE 1400
OAKLAND, CA 94612
(510) 622 – 2300 Fax: (510) 622 - 2460

FACT SHEET

for

NPDES PERMIT and WASTE DISCHARGE REQUIREMENTS for

CROCKETT COGENERATION, a California Limited Partnership

and

PACIFIC CROCKETT ENERGY, INC., its General Partner

CROCKETT, CONTRA COSTA COUNTY

NPDES Permit No. CA0029904

ORDER NO. R2-2004-0026

PUBLIC NOTICE:

Written Comments

- Interested persons are invited to submit written comments concerning this draft Order.
- Comments must be submitted to the Regional Board no later than 5:00 p.m. on March 26, 2004.
- Send comments to the Attention of Dan Leva.

Public Hearing

- The draft Order will be considered for adoption by the Board at a public hearing during the Board's regular monthly meeting at: Elihu Harris State Office Building, 1515 Clay Street, Oakland, CA; 1st floor Auditorium.
- This meeting will be held on: May 19, 2004, starting at 9:00 am.

Additional Information

- For additional information about this matter, interested persons should contact Regional Board staff member: Mr. Dan Leva, Phone: (510) 622-2415; email: dkl@rb2.swrcb.ca.gov

This Fact Sheet contains information regarding an amendment of waste discharge requirements and National Pollutant Discharge Elimination System (NPDES) permit for the Crockett Cogeneration, LLP industrial wastewater discharges. The Fact Sheet describes the factual, legal, and methodological basis for the sections addressed in the proposed Order and provides supporting documentation to explain the rationale and assumptions used in deriving the effluent limitations. It supplements information found in the findings of this Order.

I. INTRODUCTION

Crockett Cogeneration, a California Limited Partnership, and Pacific Crockett Energy, Inc., its General Partner (both hereinafter the Discharger), has applied to the Board for reissuance of waste discharge requirements and a permit to discharge treated wastewater to waters of the State and the United States under the National Pollutant Discharge Elimination System (NPDES).

Since May 1995, the Discharger has operated a natural gas-fired electric cogeneration plant, located at 550 Loring Avenue, Crockett. It generates electricity for Pacific Gas and Electric Company with a design net electrical output of 240 Megawatts. Some heat from its turbines, is recovered to produce

425 psig steam at a maximum rate of 400,000 lbs/hr for a neighboring sugar refinery, owned by California and Hawaiian Sugar Company (C&H). Attachment A of this Order shows the location of the facility.

The Discharger directs its industrial effluent to a deep water outfall pipe owned and operated by C&H. The combined effluent from the Discharger and C&H are discharged to Carquinez Straits, a portion of an enclosed bay and a water of United States and the State. The Discharger's average daily discharge rate from 2000 to 2002 was 243,000 gallons per day (gpd). The permitted flow allowed by this Order is a monthly average of 500,400 gpd.

II. TREATMENT PROCESS DESCRIPTION

The Discharger's treatment process is described in Findings 3 through 5 of this Order.

III. RECEIVING WATERS

Beneficial Uses

The beneficial uses of the receiving water are described in Finding 12 of this Order.

Basin Plan and CTR Receiving Water Salinity Policy

The Basin Plan's and CTR's methods of classifying the salinity characteristics (i.e., freshwater, saltwater, estuarine) of the receiving water, are described in Findings 15 and 16 of this Order.

Receiving Water Salinity Classificaiton

The receiving water for the subject discharge is Carquinez Straits and is characterized by the RMP station nearest to the discharge location, Davis Point. It is classified as saltwater by the Basin Plan, since it is estimated through interpolation to be greater than 5 ppt at least 76.6 percent of the time. The receiving water is esturine by the CTR, since it is not fresh water (greater than 4.1 ppt 87 percent of time), nor is it salt water (greater than 9.9 ppt less than 52.2 percent of time). The statistical values are derived from 23 measurements at Davis Point from March 1993 through August 2001, as shown in Table A below. Pursuant to the Basin Plan, the Reasonable Potential Analysis (RPA) and effluent limitations in this Order are based on the more stringent of the Basin Plan and CTR objectives/criteria.

Table A. Salinity Measurements at Davis Point

Station	Date	Salinity (by SCT) (o/oo)	Rank	Percentile
Davis Point	1/27/97	0	1	4.3%
Davis Point	2/2/98	0.6	2	8.7%
Davis Point	4/19/95	4.2	3	13.0%
Davis Point	2/12/96	4.5	4	17.4%
Davis Point	4/14/98	4.7	5	21.7%
Davis Point	2/8/99	5.5	6	26.1%
Davis Point	4/22/96	8	7	30.4%
Davis Point	3/4/93	8.4	8	34.8%
Davis Point	5/26/93	8.9	9	39.1%
Davis Point	2/13/95	9	10	43.5%
Davis Point	2/7/00	9.9	11	47.8%
Davis Point	4/19/99	12.5	12	52.2%

Davis Point	7/27/98	13.8	13	56.5%
Davis Point	7/23/96	14.8	14	60.9%
Davis Point	8/21/95	16.3	15	65.2%
Davis Point	2/8/94	18.5	16	69.6%
Davis Point	4/26/94	19.7	17	73.9%
Davis Point	9/15/93	20	18	78.3%
Davis Point	8/4/97	20	19	82.6%
Davis Point	7/17/00	20.7	20	87.0%
Davis Point	8/22/94	22.5	21	91.3%
Davis Point	8/6/01	23.1	22	95.7%
Davis Point	7/19/99	30	23	100.0%

Receiving Water Hardness

Some WQOs/WQC are hardness dependent. In determining the WQOs/WQC for this Order, the Board used a hardness of 48 mg/L. This is the lowest of the 12 measurements taken from April 1995 through August 2001, at the RMP Davis Point sampling station, as shown in Table B below. Due to the few number of measurements, the lowest value was selected because it is more protective of the environment.

Table B. Salinity Measurements at Davis Point

Station	Date	Cruise	Hardness (mg/L)
Davis Point	4/19/95	1995-04	630
Davis Point	2/12/96	1996-02	780
Davis Point	**1/27/97**	**1997-01**	**48**
Davis Point	2/2/98	1998-01	194
Davis Point	4/14/98	1998-04	828
Davis Point	2/8/99	1999-02	1080
Davis Point	4/19/99	1999-04	2100
Davis Point	7/19/99	1999-07	3640
Davis Point	2/7/00	2000-02	1780
Davis Point	7/17/00	2000-07	3700
Davis Point	2/12/01	2001-02	3550
Davis Point	8/6/01	2001-08	4200

IV. GENERAL RATIONALE AND REGULATORY BASES

Water quality objectives (WQOs), water quality criteria (WQC), effluent limitations, and calculations contained in this Order are based on:

- Sections 301 through 305, and 307 of the Federal *Water Pollution Control Act*, and amendments thereto, as applicable;

- The Regional Board's June 21, 1995 *Water Quality Control Plan San Francisco Bay Basin (Region 2)* (the Basin Plan);

- The State Board's March 2, 2000 *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (the State Implementation Plan or SIP), and as subsequently approved by the Office of Administrative Law and the USEPA;

- USEPA's May 18, 2000 *Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California* (the California Toxics Rule – the CTR);

- USEPA's National Toxics Rule as promulgated [Federal Register Volume 57, 22 December 1992, page 60848] and subsequently amended (the NTR);

- USEPA's *Quality Criteria for Water* [EPA 440/5-86-001, 1986], and subsequent amendments, (the USEPA Gold Book);

- applicable Federal Regulations [40 CFR Parts 122 and 131];

- 40 CFR Part 131.36(b) and amended [Federal Register Volume 60, Number 86, 4 May 1995, pages 22229-22237];

- USEPA's December 10, 1998 *National Recommended Water Quality Criteria* compilation [Federal Register Vol. 63, No. 237, pp. 68354-68364];

- USEPA's December 27, 2002 *Revision of National Recommended Water Quality Criteria* compilation [Federal Register Vol. 67, No. 249, pp. 79091-79095]; and

- Regional Board staff's Best Professional Judgment (BPJ), as defined by:

  - the Basin Plan

  - USEPA Region 9 February 1994 *Guidance For NPDES Permit Issuance*;

  - USEPA's March 1991 *Technical Support Document for Water Quality-Based Toxics Control* (the TSD);

  - USEPA's October 1, 1993 *Policy and Technical Guidance on Interpretation and Implementation of Aquatic Life Metals Criteria*;

  - USEPA's July 1994 *Whole Effluent Toxicity (WET) Control Policy*;

  - USEPA's August 14, 1995 *National Policy Regarding Whole Effluent Toxicity Enforcement*;

  - USEPA's April 10, 1996 *Clarifications Regarding Flexibility in 40 CFR Part 136 Whole Effluent Toxicity (WET) Test Methods*;

  - USEPA Regions 9 & 10's May 31, 1996 *Guidance for Implementing Whole Effluent Toxicity Programs* Final;

  - USEPA's February 19, 1997 *Draft Whole Effluent Toxicity (WET) Implementation Strategy*.

V. SPECIFIC RATIONALE

Several specific factors affecting the development of limitations and requirements in the proposed Order are discussed as follows:

A. Recent Plant Performance

Section 402(o) of CWA and 40 CFR § 122.44(l) require that water quality-based effluent limitations (**WQBELs**) in re-issued permits be at least as stringent as in the previous Order. The SIP specifies that interim effluent limitations, if required, must be based on current treatment facility performance or on previous Order limitations whichever is more stringent (unless anti-backsliding requirements are met). In determining what constitutes "recent plant performance," best professional judgment (**BPJ**) was used. Effluent monitoring data collected from June 2000 through July 2003 are considered representative of recent plant performance.

B. Impaired Water Bodies in 303(d) List

On June 6, 2003, the U.S. EPA approved a revised list of impaired water bodies prepared by the State (hereinafter referred to as the 2003 303(d) list), prepared pursuant to provisions of Section 303(d) of the federal Clean Water Act requiring identification of specific water bodies where it is expected that water quality standards will not be met after implementation of technology-based effluent limitations on point sources. The pollutants impairing Carquinez Strait include chlordane, DDT, diazinon, dieldrin, dioxin and furan compounds, mercury, nickel, total PCBs, PCBs (dioxin like), and selenium. Carquinez Strait is also impaired by exotic species.

The SIP requires final effluent limitations for all 303(d)-listed pollutants to be based on total maximum daily loads (**TMDLs**) and wasteload allocation (**WLA**) results. The SIP and federal regulations also require that final concentration limitations be included for all pollutants with Reasonable Potential. The SIP requires that where the Discharger has demonstrated infeasibility to meet the final limitations, interim concentration limitations be established in the Order with a compliance schedule in effect until final effluent limitations are adopted. The SIP also requires the inclusion of appropriate provisions for waste minimization and source control.

C. Basis for Prohibitions

1. Prohibition A.1 (no discharges other than as described in the permit): This prohibition is based on the California Water Code that requires filing of a report of waste discharge before a permit to discharge can be granted.

2. Prohibitions A.2 (10:1 dilution): Based on the Basin Plan, this permit grants a 10:1 dilution credit for toxic pollutants. Any discharge that achieves less than this could harm beneficial uses, and should thus be prohibited.

3. Prohibition A.3 (no discharge of polychorinated biphenyl compounds): This prohibition is based on the previous Order and a prohibition for Best Practicable Control Technology, for Steam Electric Power Generating Point Sources, contained in 40 CFR Part 423.12(b)(3).

4. Prohibition A.4 (flow limit): This prohibition is based on the reliable treatment capacity of the plant. Exceedence of the treatment plant's flow design capacity may result in lowering the reliability of compliance with water quality requirements, unless the Discharger demonstrates otherwise through an antidegradation study. This prohibition is based on 40 CFR 122.41(l).

D. Basis for Effluent Limitations

1. Effluent Limitations B.1 (TSS, Oil and Grease): Finding 20 of this Order describes the basis for the technology-based limitations for TSS, and Oil and Grease.

2. Effluent Limitation B.2 (pH): Finding 20 of this Order describes the basis for the technology-based limitation for pH.

3. Effluent Limitation B.3 (Temperature): Finding 19 of this Order describes the basis for the temperature effluent limitation.

4. Effluent Limitation B.4 (Whole Effluent Acute Toxicity): The Basin Plan specifies a narrative objective for toxicity, requiring that all waters shall be maintained free of toxic substances in concentrations that are lethal to or produce other detrimental response on aquatic organisms. Detrimental response includes but is not limited to decreased growth rate, decreased reproductive success of resident or indicator species, and/or significant alternations in population, community ecology, or receiving water biota. These effluent toxicity limitations are necessary to ensure that this objective is protected. Findings 52 through 54 of this Order further describe the basis for the whole effluent acute toxicity limitations.

5. Effluent Limitation B.5 (Toxic Substances):

a. **Reasonable Potential Analysis (RPA)**

Code of Federal Regulations Title 40, Part 122.44(d)(1)(i) (40 CFR 122.44(d)(1)(i)) specifies that permits must include WQBELs for all pollutants "which the Director determines are or may be discharged at a level which will cause, have reasonable potential to cause, or contribute to an excursion above any State water quality standard" (have Reasonable Potential). The RPA methodology, which follows SIP procedures, is described in Findings 34 through 35 of this Order. The RPA results are described in Findings 36 through 43.

The RPA and effluent limitations are based on effluent data and receiving water data. The effluent concentration measurements used in this analysis are taken from the Discharger's Self-Monitoring Reports, and from their interim report submitted to the Board on May 13, 2003, in reponse to the Board's August 6, 2001 Letter (see Finding 56 of this Order). They are from samples collected by the Discharger between June 2000 through July 2003 for metals, and between March 2002 through July 2003 for certain organic priority pollutants.

The receiving water concentration data at the Yerba Buena Island station is based on two primary sources, as described in Finding 22 of this Order: the Regional Monitoring Program (RMP), and the *BACWA San Francisco Bay Ambient Water Monitoring Interim Report (May 16, 2003)*. The RMP measurements are from 1993 through 2001. The BACWA measurements (from 2002 through 2003) supplement the RMP data for those priority pollutants not measured or adequately measured by the RMP.

RPA determination: The RPA results are shown below in Table C and Attachment 1 of this Fact Sheet. The pollutants that exhibit Reasonable Potential are copper, lead, nickel, selenium, zinc, cyanide, 4,4'-DDE, dieldrin, and dioxin and furans.

Table C. Summary of Reasonable Potential Results

# in CTR	PRIORITY POLLUTANTS	MEC or Minimum DL[1] (µg/L)	Governing WQO/WQC (µg/L)	Maximum Background (µg/L)	RPA Results[2]
1	Antimony	**1**	4300	**1**	No
2	Arsenic	**11**	36	**11**	No
3	Beryllium	0.06	No Criteria	0.06	Uo
4	Cadmium	**0.1**	9.3	**0.1**	No
5a	Chromium (III)	**1.3**	113.4671795	**1.3**	No
5b	Chromium (VI)	**43**	50	**43**	No
6	Copper	**26**	3.7	**26**	**Yes**
7	Lead	**29**	5.6	**29**	**Yes**
8	Mercury	**0.022**	0.025	**0.022**	No
9	Nickel	**67**	7.1	**67**	**Yes**
10	Selenium	**8**	5	**8**	**Yes**
11	Silver	**0.248**	2.3	**0.248**	No
12	Thallium	**0.1**	6.3	**0.1**	No
13	Zinc	**120**	58	**120**	**Yes**
14	Cyanide	**50**	1	**50**	**Yes**
15	Asbestos	**0.1**	No Criteria	**0.1**	Uo
16	2,3,7,8 TCDD (Dioxin TEQ)	0.000000637	0.000000014	0.000000637	**Yes**
17	Acrolein	1	780	1	No
18	Acrylonitrile	1	0.66	1	No
19	Benzene	0.27	71	0.27	No
20	Bromoform	0.1	360	0.1	No
21	Carbon Tetrachloride	0.42	4.4	0.42	No
22	Chlorobenzene	0.19	21000	0.19	No
23	Chlorodibromomethane	**1.8**	34	**1.8**	No
24	Chloroethane	0.34	No Criteria	0.34	Uo
25	2-Chloroethylvinyl ether	0.31	No Criteria	0.31	Uo
26	Chloroform	**20**	No Criteria	**20**	Uo
27	Dichlorobromomethane	**6.1**	46	**6.1**	No
28	1,1-Dichloroethane	0.28	No Criteria	0.28	Uo
29	1,2-Dichloroethane	0.18	99	0.18	No
30	1,1-Dichloroethylene	0.37	3.2	0.37	No
31	1,2-Dichloropropane	0.2	39	0.2	No
32	1,3-Dichloropropylene	0.2	1700	0.2	No
33	Ethylbenzene	0.3	29000	0.3	No
34	Methyl Bromide	0.42	4000	0.42	No
35	Methyl Chloride	0.36	No Criteria	0.36	Uo
36	Methylene Chloride	0.38	1600	0.38	No
37	1,1,2,2-Tetrachloroethane	0.3	11	0.3	No
38	Tetrachloroethylene	0.32	8.85	0.32	No
39	Toluene	0.25	200000	0.25	No
40	1,2-Trans-Dichloroethylene	0.3	140000	0.3	No
41	1,1,1-Trichloroethane	0.35	No Criteria	0.35	Uo
42	1,1,2-Trichloroethane	0.27	42	0.27	No
43	Trichloroethylene	0.29	81	0.29	No
44	Vinyl Chloride	0.34	525	0.34	No
45	2-Chlorophenol	0.4	400	0.4	No
46	2,4-Dichlorophenol	0.3	790	0.3	No

# in CTR	PRIORITY POLLUTANTS	MEC or Minimum DL[1] (µg/L)	Governing WQO/WQC (µg/L)	Maximum Background (µg/L)	RPA Results[2]
47	2,4-Dimethylphenol	**700**	2300	**700**	No
48	2-Methyl- 4,6-Dinitrophenol	0.4	765	0.4	No
49	2,4-Dinitrophenol	0.3	14000	0.3	No
50	2-Nitrophenol	0.3	No Criteria	0.3	Uo
51	4-Nitrophenol	0.2	No Criteria	0.2	Uo
52	3-Methyl 4-Chlorophenol	0.3	No Criteria	0.3	Uo
53	Pentachlorophenol	0.4	7.9	0.4	No
54	Phenol	**2100**	4600000	**2100**	No
55	2,4,6-Trichlorophenol	0.2	6.5	0.2	No
56	Acenaphthene	0.17	2700	0.17	No
57	Acenaphthylene	0.03	No Criteria	0.03	Uo
58	Anthracene	0.16	110000	0.16	No
59	Benzidine	0.3	0.00054	0.3	No
60	Benzo(a)Anthracene	0.12	0.049	0.12	No
61	Benzo(a)Pyrene	0.09	0.049	0.09	No
62	Benzo(b)Fluoranthene	0.11	0.049	0.11	No
63	Benzo(ghi)Perylene	0.06	No Criteria	0.06	Uo
64	Benzo(k)Fluoranthene	0.16	0.049	0.16	No
65	Bis(2-Chloroethoxy)Methane	0.3	No Criteria	0.3	Uo
66	Bis(2-Chloroethyl)Ether	0.3	1.4	0.3	No
67	Bis(2-Chloroisopropyl)Ether	0.6	170000	0.6	No
68	Bis(2-Ethylhexyl)Phthalate	0.3	5.9	0.3	No
69	4-Bromophenyl Phenyl Ether	0.4	No Criteria	0.4	Uo
70	Butylbenzyl Phthalate	0.4	5200	0.4	No
71	2-Chloronaphthalene	0.3	4300	0.3	No
72	4-Chlorophenyl Phenyl Ether	0.4	No Criteria	0.4	Uo
73	Chrysene	0.14	0.049	0.14	No
74	Dibenzo(a,h)Anthracene	0.04	0.049	0.04	No
75	1,2-Dichlorobenzene	0.12	17000	0.12	No
76	1,3-Dichlorobenzene	0.16	2600	0.16	No
77	1,4-Dichlorobenzene	0.12	2600	0.12	No
78	3,3 Dichlorobenzidine	0.3	0.077	0.3	No
79	Diethyl Phthalate	0.4	120000	0.4	No
80	Dimethyl Phthalate	0.4	2900000	0.4	No
81	Di-n-Butyl Phthalate	0.4	12000	0.4	No
82	2,4-Dinitrotoluene	0.3	9.1	0.3	No
83	2,6-Dinitrotoluene	0.3	No Criteria	0.3	Uo
84	Di-n-Octyl Phthalate	0.4	No Criteria	0.4	Uo
85	1,2-Diphenylhydrazine	0.3	0.54	0.3	No
86	Fluoranthene	0.03	370	0.03	No
87	Fluorene	0.02	14000	0.02	No
88	Hexachlorobenzene	0.4	0.00077	0.4	No
89	Hexachlorobutadiene	0.2	50	0.2	No
90	Hexachlorocyclopentadiene	0.1	17000	0.1	No
91	Hexachloroethane	0.2	8.9	0.2	No
92	Indeno(1,2,3-cd)Pyrene	0.04	0.049	0.04	No
93	Isophorone	0.3	600	0.3	No

# in CTR	PRIORITY POLLUTANTS	MEC or Minimum DL[1] (µg/L)	Governing WQO/WQC (µg/L)	Maximum Background (µg/L)	RPA Results[2]
94	Naphthalene	0.05	No Criteria	0.05	Uo
95	Nitrobenzene	0.3	1900	0.3	No
96	N-Nitrosodimethylamine	0.4	8.1	0.4	No
97	N-Nitrosodi-n-Propylamine	0.3	1.4	0.3	No
98	N-Nitrosodiphenylamine	0.4	16	0.4	No
99	Phenanthrene	0.03	No Criteria	0.03	Uo
100	Pyrene	0.03	11000	0.03	No
101	1,2,4-Trichlorobenzene	0.3	No Criteria	0.3	Uo
102	Aldrin	0.003	0.00014	0.003	No
103	alpha-BHC	0.002	0.013	0.002	No
104	beta-BHC	0.001	0.046	0.001	No
105	gamma-BHC	0.001	0.063	0.001	No
106	delta-BHC	0.001	No Criteria	0.001	Uo
107	Chlordane	0.005	0.00059	0.005	No
108	4,4'-DDT	0.001	0.00059	0.001	No
109	4,4'-DDE (linked to DDT)*	0.001	0.00059	0.001	**Yes**
110	4,4'-DDD	0.001	0.00084	0.001	No
111	Dieldrin	0.002	0.00014	0.002	**Yes**
112	alpha-Endosulfan	0.002	0.0087	0.002	No
113	beta-Endolsulfan	0.001	0.0087	0.001	No
114	Endosulfan Sulfate	0.001	240	0.001	No
115	Endrin	0.002	0.0023	0.002	No
116	Endrin Aldehyde	0.002	0.81	0.002	No
117	Heptachlor	0.003	0.00021	0.003	No
118	Heptachlor Epoxide	0.002	0.00011	0.002	No
119-125	PCBs sum	0.2	0.00017	0.2	No

1) Maximum Effluent Concentration (MEC) in bold is the actual detected MEC, otherwise the MEC shown is the minimum detection level.
NA = Not Available (there is not monitoring data for this constituent).

2) RP =Yes, if either MEC or Background > WQO/WQC.
RP = No, if both MEC or background < WQO/WQC or all effluent concentrations non-detect and background <WQO/WQC or no background available.
RP = Uo (undetermined if no objective promulgated).
RP = CD (Cannot determine due to lack of data)

b. **Dilution**

The previous Order suggested the outfall may achieve a dilution of 30:1. However, the Discharger has not provided any documentation with its application to substantiate this. The Board believes a conservative 10:1 dilution credit for discharges of non-bioaccumulative pollutants to Carquinez Strait is necessary for protection of beneficial uses. The basis for limiting the dilution credit is based on SIP provisions in Section 1.4.2. The following outlines the basis for derivation of the dilution credit:

i). Due to the complex hydrology of the Delta, a mixing zone cannot be accurately established.
ii). Previous dilution studies do not fully account for the cumulative effects of other wastewater discharges to the system.

iii). The SIP allows limiting a mixing zone and dilution credit for persistent pollutants (e.g., copper, lead, and nickel).

The main justification for using a 10:1 dilution credit is uncertainty in accurately determining ambient background and uncertainty in accurately determining the mixing zone in a complex estuarine system with multiple wastewater discharges.

i). **Complex Estuarine System Necessitates Far-Field Background** - The SIP allows background to be determined on a discharge-by-discharge or water body-by-water body basis (SIP section 1.4.3). Consistent with the SIP, Board staff has chosen to use a water body-by-water body basis because of the uncertainties inherent in accurately characterizing ambient background in a complex estuarine system on a discharge-by-discharge basis.

With this in mind, the Yerba Buena Island Station fits the guidance for ambient background in the SIP compared to other stations in the Regional Monitoring Program. The SIP states that background data are applicable if they are "representative of the ambient receiving water column that will mix with the discharge." Board Staff believe that data from these stations are representative of water that will mix with the discharge from Outfall 001. Although these stations are located near the Golden Gate, they would represent the typical water flushing in and out in the Bay Area each tidal cycle. For most of the Bay Area, the waters represented by these stations make up a large part of the receiving water that will mix with the discharge.

ii). **Uncertainties Prevent Accurate Mixing Zones in Complex Estuarine Systems** - There are uncertainties in accurately determining the mixing zones for each discharge. The models that have been used by dischargers to predict dilution have not considered the three-dimensional nature of the currents in the estuary resulting from the interaction of tidal flushes and seasonal fresh water outflows. Salt water is heavier than fresh water. Colder salt water from the ocean flushes in twice a day generally under the warmer fresh rivers waters that flows out annually. When these waters mix and interact, complex circulation patterns occur due to the different densities of these waters. These complex patterns occur throughout the estuary but are most prevalent in the San Pablo Bay, Carquinez Strait, and Suisun Bay areas. The locations change depending on the strength of each tide and the variable rate of delta outflow. Additionally, sediment loads to the Bay from the Central Valley also change on a longer-term basis. These changes can result in changes to the depths of different parts of the Bay making some areas more shallow and/or other areas more deep. These changes affect flow patterns that in turn can affect the initial dilution achieved by a discharger's diffuser.

iii). **Dye studies do not account for cumulative effects from other discharges** - The tracer and dye studies conducted are often not long enough in duration to fully assess the long residence time of a portion of the discharge that is not flushed out of the system. In other words, some of the discharge, albeit a small portion, makes up part of the dilution water. So unless the dye studies are of long enough duration, the diluting effect on the dye measures only the initial dilution with "clean" dilution water rather than the actual dilution with "clean" dilution water plus some amount of original discharge that resides in the system. Furthermore, both models and dye studies that have been conducted have not considered the effects of discharges from other nearby discharge sources, nor the cumulative effect of discharges from over 20 other major dischargers to San Francisco Bay system. While it can be argued the effects from other discharges are accounted for by factoring in the local background concentration in calculating the limitations, accurate characterization of local

background levels are also subject to uncertainties resulting from the interaction of tidal flushing and seasonal fresh water outflows described above.

iv). **Mixing Zone Is Further Limited for Persistent Pollutants** - Discharges to the Bay Area waters are not completely-mixed discharges as defined by the SIP. Thus, the dilution credit should be determined using site-specific information for incompletely-mixed discharges. The SIP in section 1.4.2.2 specifies that the Regional Board "significantly limit a mixing zone and dilution credit as necessary... For example, in determining the extent of ... a mixing zone or dilution credit, the RWQCB shall consider the presence of pollutants in the discharge that are ... persistent." The SIP defines persistent pollutants to be "substances for which degradation or decomposition in the environment is nonexistent or very slow." The pollutants at issue here are persistent pollutants (e.g., copper, lead, and nickel). The dilution studies that estimate actual dilution do not address the effects of these persistent pollutants in the Bay environment, such as their long-term effects on sediment concentrations."

c. **Final Water Quality-Based Effluent Limitations**

The final WQBELs were developed for the toxic and priority pollutants that were determined to have Reasonable Potential to cause or contribute to exceedences of the WQOs or WQC. Final effluent limitations were calculated based on appropriate WQOs /WQC and the appropriate procedures specified in Section 1.4 of the SIP. This is described further in Finding 21 of this Order.

The WQBEL calculations are described in detail in Attachment 2 of this Fact Sheet. It describes the WQO/WQC, dilution credits, background concentrations, coefficient of variations, and other parameters that must be considered when deriving WQBELs. The lowest WQO/ WQC used for each of the nine pollutant with Reasonable Potential, and the final WQBELs, are indicated in Table D below.

Table D. WQO/WQC and WQBELs for Pollutants with RP

Pollutant	Lowest Criteria (µg/L)	Basis of Lowest WQO/WQC Used in RP	AMEL (µg/L)	MDEL (µg/L)
1) Copper	3.73	CTR – Chronic Salt Water	13	25
2) Lead	5.6	Basin Plan – 4-Day Salt Water	40	80
3) Nickel	7.1	Basin Plan – 24-Hour Salt Water	31	62
4) Selenium	5.0	NTR – Chronic Fresh Water	4.1	8.2
5) Zinc	58.	Basin Plan – 24-Hour Salt Water	330	840
6) Cyanide	1.0	CTR – Acute or Chronic Salt Water	3.2	6.4
7) Dioxin TEQ (2,3,7,8 TCDD)	0.000000014	CTR – Human Health for Consumption of Organisms Only	1.4×10^{-08}	2.8×10^{-08}
8) 4,4'-DDE	0.00059	CTR – Human Health for Consumption of Organisms Only	0.00059	0.0012
9) Dieldrin	0.00014	CTR – Human Health for Consumption of Organisms Only	0.00014	0.00028

d. **Feasibility Evaluation and Determination of Interim Limits**

The SIP and the Basin Plan authorize compliance schedules in a permit if an existing discharger cannot comply immediately with a new and more stringent effluent limitation. The requirements the Discharger must satistify to receive a compliance schedule are described in Findings 29, 30 and 32 of this Order.

On February 3, 2004, the Discharger submitted a feasibility study (hereinafter referred to as the *Discharger Feasibility Study*) asserting it is infeasible to immediately comply with the final WQBELs calculated according to SIP Section 1.4 for copper, nickel, selenium, cyanide, 4,4'-DDE, dieldrin, and dioxin TEQ. The Discharger Feasibility Study addresses the requirements in Section 2.1 of the SIP. Board staff conducted its own statistical analysis of recent effluent performance data for these pollutants, to evaluate whether the Discharger had a significant probability to not comply with the final WQBELs, and therefore need an interim limit and compliance schedule. The Board staff's methodology and analysis is presented in a separate report, *Infeasibility Evaluation and Calculation of Performance Based Effluent Limitations*, (hereinafter referred to as *Board Feasibility Study*) and is presented in Attachment 3 of this Fact Sheet.

For those WQBELs which Board staff concluded it is infeasible for the Discharger to immediately comply with, and for which the Discharger satisfied the requirements in Section 2.1 of the SIP, the Board provides interim limits with compliance schedules. This is described in Findings 44 through 51 of this Order, and in the Board Feasibility Study. The Board Feasibility Study also calculates the 99.87th percentiles used to define interim performance based effluent limits (IPBELs), where required. The results are summarized in Table E below.

Table E. Summary of Feasibility Determinations and Interim Limits*

Pollutant	Mean / LTA	95th / AMEL	99th / MDEL	Feasible to comply?	IPBEL	Comment
1) Copper		28 > 13	85 > 25	No	251.6	
2) Lead	0.72 < 26	7.2 < 40	21 < 80	Yes		
3) Nickel			107 > 62	No	366.9	
4) Selenium		11 > 4.1	23 > 8.2	No	50.5	
5) Zinc	23 < 196	126 < 390	820 < 990	Yes		
6) Cyanide		21 > 3.2	74 > 6.4	No	19.2	
7) Dioxin TEQ (2,3,7,8 TCDD)		0.000000014	0.000000028	No	To be determined	Unable at this time to determine PBEL
8) 4,4'-DDE		0.00059	0.00118	No	0.05	PBEL = ML, since minimum effluent MDL > WQO
9) Dieldrin		0.00014	0.00028	No	0.01	PBEL = ML, since minimum effluent MDL > WQO

** All units are in micrograms per liter*

E. Basis for Receiving Water Limitations

1. Receiving water limitations C.1 and C.2 (conditions to be avoided): These limitations are based on the narrative/numerical objectives contained in Chapter 3 of the Basin Plan, pages 3-2 – 3-5.

2. Receiving water limitation C.3 and C.4 (compliance with State Law): These receiving water limitations are based on the Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California, adopted by the State Board on September 18, 1975. Finding 19 describes how the plan is applied to the Discharger.

3. Receiving water limitation C.5 (compliance with State Law): This requirement is in the previous Order, requires compliance with Federal and State law, and is self-explanatory.

F. Basis for Self-Monitoring Requirements

The SMP includes monitoring of Waste 001 for conventional, non-conventional, and toxic pollutants, and acute toxicity. The basis for the required monitoring frequency is described in Finding 58 of this Order.

G. Basis for Provisions

i) Provisions D.1. (Order Compliance and Rescission of Previous Order): Time of compliance is based on 40 CFR 122. The basis of this Order superceding and rescinding the previous Order is 40 CFR 122.46.

ii) Provision D.2 (Effluent Characterization Study): This provision is based on the Basin Plan and the SIP.

iii) Provision D.3 (Ambient Background Receiving Water Study): This provision is based on the Basin Plan and the SIP.

iv) Provision D.4 (Whole Effluent Acute Toxicity): This provision establishes conditions by which compliance with Order effluent limitations for acute toxicity will be demonstrated. Under this Order, the Discharger is required to use the most up-to-date protocols in 40 CFR Part 136, currently in "Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms,"5th Edition.

v) Provision D.5 (Compliance Schedule Requirements): This provision is based on requirements specified in Section 2.1 of the SIP and Chapter 4 of the Basin Plan.

vi) Provision D.6 (Optional Mass Offset): This provision is provided to encourage the Discharger to further implement aggressive reduction of mass loads to Carquinez Strait. This is further discussed in Finding 59 of this Order.

vii) Provision D.7 (Copper and Nickel Translator Study and Schedule): Finding 60 of this Order describes the basis for providing copper and nickel translator studies.

viii) Provision D.8 (Operations and Maintenance Manual and Reliability Report), D.10 (Storm Water Pollution Prevention Plan), and D.11 (Annual Status Reports): These provisions are

based on the Basin Plan, the requirements of 40 CFR 122, and the previous Order. D.9 (Contingency Plan Update) is based on the requirements stipulated in Board Resolution No. 74-10.

ix) Provision D.12 (Self-Monitoring Program): The Discharger is required to conduct monitoring of the permitted discharges in order to evaluate compliance with Order conditions. Monitoring requirements are contained in the Self Monitoring Program (SMP) of the Order. This provision requires compliance with the SMP, and is based on 40 CFR 122.44(i), 122.62, 122.63 and 124.5. The SMP is a standard requirement in almost all NPDES permits issued by the Board, including this Order. It contains definitions of terms, specifies general sampling and analytical protocols, and sets out requirements for reporting of spills, violations, and routine monitoring data in accordance with NPDES regulations, the California Water Code, and Board's policies. The SMP also contains a sampling program specific for the facility. It defines the sampling stations and frequency, the pollutants to be monitored, and additional reporting requirements. Pollutants to be monitored include all parameters for which effluent limitations are specified. Monitoring for additional constituents, for which no effluent limitations are established, is also required to provide data for future completion of RPAs for them.

x) Provision D.13 (Standard Provisions and Reporting Requirements): The purpose of this provision is require compliance with the standard provisions and reporting requirements given in this Board's document titled *Standard Provisions and Reporting Requirements for NPDES Surface Water Discharge Permits, August 1993* (the Standard Provisions), or any amendments thereafter. That document is incorporated in the Order as an attachment to it. Where provisions or reporting requirements specified in the Order are different from equivalent or related provisions or reporting requirements given in the Standard Provisions, the Order specifications shall apply. The standard provisions and reporting requirements given in the above document are based on various state and federal regulations with specific references cited therein.

xi) Provisions D.14 and D.15 (Change in Control or Ownership): This provision is based on 40 CFR 122.61.

xii) Provision D.16 (Order Reopener): This provision is based on 40 CFR 123.

xiii) Provision D.17 (NPDES Permit /USEPA concurrence): This provision is based on 40 CFR 123.

xiv) Provisions D.18 and D.19 (Order Expiration and Reapplication): This provision is based on 40 CFR 122.46(a).

VI. WASTE DISCHARGE REQUIREMENT APPEALS

Any person may petition the State Water Resources Control Board to review the decision of the Board regarding the Waste Discharge Requirements. A petition must be made within 30 days of the Board public hearing.

VII. ATTACHMENTS

Attachment 1: RPA Results for Priority Pollutants
Attachment 2: Calculation of Final WQBELs
Attachment 3: Infeasibility Determination and Calculation of Performance Based Effluent Limits

Attachment 1.

RPA Results for Priority Pollutants

Attachment 1 (Fact Sheet)
Reasonable Potential Analysis

Crockett Cogeneration, LLP
NPDES Permit No. CA0029904
Order No. R2-2004-0026

Beginning			Step 2	Step 3					Step 4	Step 2	Step 3		Step 5		Step 6	Steps 7 & 8	Final Result	
CTR No.	Constituent name	C (µg/L) Lowest (most stringent) Criteria (Enter "No Criteria" for no criteria)	Effluent Data Available (Y/N)?	Are all data points non-detects (Y/N)?	If all data points ND Enter the min detection limit (MDL) (ug/L)	Enter the pollutant effluent detected max conc (ug/L)	If all data points are ND and MinDL>C, interim monitoring is required	Maximum Pollutant Concentration from the effluent (MEC) (ug/L) (MEC= deleted max value; if all ND & MDL<C then MEC = MDL)	MEC vs. C 1. If MEC> or =C, effluent limitation is required; 2. If MEC<C, go to Step 5	B Available (Y/N)?	Are all B data points non-detects (Y/N)?	If all data points ND Enter the min detection limit (MDL) (ug/L)	Enter the pollutant B detected max conc (ug/L)	If all B is ND, is MDL>C?	B vs. C If B>C, effluent limitation is required	7) Review other information in the SIP page 4. If info is unavailable or insufficient: 8) the RWQCB shall establish interim monitoring requirements	RPA Result	Reason
1	Antimony	4300	Y	N		1		1	MEC<C, go to Step 5	Y	N		1.8		B<C, Step 7		No	MEC<C & B<C
2	Arsenic [b]	36	Y	N		11		11	MEC<C, go to Step 5	Y	N		2.46		B<C, Step 7		No	MEC<C & B<C
3	Beryllium	No Criteria	Y	Y	0.06		No Criteria	No Criteria	No Criteria	Y	N		0.215		No Criteria	No Criteria	Uo	No Criteria
4	Cadmium [b]	9.3	Y	N		0.1		0.1	MEC<C, go to Step 5	Y	N		0.1268		B<C, Step 7		No	MEC<C & B<C
5a	Chromium (III)	113.4671795	Y	N		1.3		1.3	MEC<C, go to Step 5	N					No detected value of B, Step 7		No	Ud;MEC<C & B is ND
5b	Chromium (VI) [b]	50	Y	N		43		43	MEC<C, go to Step 5	Y	N		4.4		B<C, Step 7		No	MEC<C & B<C
6	Copper [c]	3.7	Y	N		26		26	MEC>=C, Effluent Limits Required	Y	N		2.45		B<C, Step 7		Yes	MEC>C
7	Lead [b]	5.6	Y	N		29		29	MEC>=C, Effluent Limits Required	Y	N		0.8		B<C, Step 7		Yes	MEC>C
8	Mercury (303d listed) [b]	0.025	Y	N		0.022		0.022	MEC<C, go to Step 5	Y	N		0.0086		B<C, Step 7		No	MEC<C & B<C
9	Nickel [b]	7.1	Y	N		67		67	MEC>=C, Effluent Limits Required	Y	N		3.7		B<C, Step 7		Yes	MEC>C
10	Selenium (303d listed) [b]	5	Y	N		8		8	MEC>=C, Effluent Limits Required	Y	N		0.39		B<C, Step 7		Yes	MEC>C
11	Silver [b]	2.3	Y	N		0.248		0.248	MEC<C, go to Step 5	Y	N		0.0516		B<C, Step 7		No	MEC<C & B<C
12	Thallium	6.3	Y	N		0.1		0.1	MEC<C, go to Step 5	Y	N		0.21		B<C, Step 7		No	MEC<C & B<C
13	Zinc [b]	58	Y	N		120		120	MEC>=C, Effluent Limits Required	Y	N		4.4		B<C, Step 7		Yes	MEC>C
14	Cyanide [b]	1	Y	N		50		50	MEC>=C, Effluent Limits Required	Y	Y	0.4		N	No detected value of B, Step 7		Yes	MEC>C
15	Asbestos	No Criteria	N				No Criteria	No Criteria	No Criteria	N					No Criteria	No Criteria	Uo	No Criteria
16	2,3,7,8 TCDD (303d) (dioxin TE	0.000000014	Y	Y	[illegible]		All ND, MinDL>C, Go to Step 5, & IM			Y	N		0.000000071		B>C, Effluent Limit Required		Yes	B>C
17	Acrolein	780	Y	Y	1		All ND, MDL<C, MEC=MDL	1	MEC<C, go to Step 5	Y	Y	0.5		N	No detected value of B, Step 7		No	Ud;MEC<C & B is ND
18	Acrylonitrile	0.66	Y	Y			All ND, MinDL>C, Go to Step 5, & IM			Y	N		0.03		B<C, Step 7		No	UD; effluent data ND, MDL>C & B<C
19	Benzene	71	Y	Y	0.27		All ND, MDL<C, MEC=MDL	0.27	MEC<C, go to Step 5	Y	Y	0.05		N	No detected value of B, Step 7		No	Ud;MEC<C & B is ND
20	Bromoform	360	Y	Y	0.1		All ND, MDL<C, MEC=MDL	0.1	MEC<C, go to Step 5	Y	Y	0.5		N	No detected value of B, Step 7		No	Ud;MEC<C & B is ND
21	Carbon Tetrachloride	4.4	Y	Y	0.42		All ND, MDL<C, MEC=MDL	0.42	MEC<C, go to Step 5	Y	N		0.06		B<C, Step 7		No	MEC<C & B<C
22	Chlorobenzene	21000	Y	Y	0.19		All ND, MDL<C, MEC=MDL	0.19	MEC<C, go to Step 5	Y	Y	0.5		N	No detected value of B, Step 7		No	Ud;MEC<C & B is ND
23	Chlorodibromomethane	34	Y	N		1.8		1.8	MEC<C, go to Step 5	Y	Y	0.05		N	No detected value of B, Step 7		No	Ud;MEC<C & B is ND
24	Chloroethane	No Criteria	Y	Y	0.34		No Criteria	No Criteria	No Criteria	Y	Y	0.5		N	No Criteria	No Criteria	Uo	No Criteria
25	2-Chloroethylvinyl ether	No Criteria	Y	Y	0.31		No Criteria	No Criteria	No Criteria	Y	Y	0.5		N	No Criteria	No Criteria	Uo	No Criteria
26	Chloroform	No Criteria	Y	N		20	No Criteria	No Criteria	No Criteria	Y	Y	0.5		N	No Criteria	No Criteria	Uo	No Criteria
27	Dichlorobromomethane	46	Y	N		6.1		6.1	MEC<C, go to Step 5	Y	Y	0.05		N	No detected value of B, Step 7		No	Ud;MEC<C & B is ND
28	1,1-Dichloroethane	No Criteria	Y	Y	0.28		No Criteria	No Criteria	No Criteria	Y	Y	0.05		N	No Criteria	No Criteria	Uo	No Criteria
29	1,2-Dichloroethane	99	Y	Y	0.18		All ND, MDL<C, MEC=MDL	0.18	MEC<C, go to Step 5	Y	N		0.04		B<C, Step 7		No	MEC<C & B<C
30	1,1-Dichloroethylene	3.2	Y	Y	0.37		All ND, MDL<C, MEC=MDL	0.37	MEC<C, go to Step 5	Y	Y	0.5		N	No detected value of B, Step 7		No	Ud;MEC<C & B is ND
31	1,2-Dichloropropane	39	Y	Y	0.2		All ND, MDL<C, MEC=MDL	0.2	MEC<C, go to Step 5	Y	Y	0.05		N	No detected value of B, Step 7		No	Ud;MEC<C & B is ND
32	1,3-Dichloropropylene	1700	Y	Y	0.2		All ND, MDL<C, MEC=MDL	0.2	MEC<C, go to Step 5	Y	Y	0.2		N	No detected value of B, Step 7		No	Ud;MEC<C & B is ND
33	Ethylbenzene	29000	Y	Y	0.3		All ND, MDL<C, MEC=MDL	0.3	MEC<C, go to Step 5	Y	Y	0.5		N	No detected value of B, Step 7		No	Ud;MEC<C & B is ND
34	Methyl Bromide	4000	Y	Y	0.42		All ND, MDL<C, MEC=MDL	0.42	MEC<C, go to Step 5	Y	Y	0.5		N	No detected value of B, Step 7		No	Ud;MEC<C & B is ND
35	Methyl Chloride	No Criteria	Y	Y	0.36		No Criteria	No Criteria	No Criteria	Y	Y	0.5		N	No Criteria	No Criteria	Uo	No Criteria
36	Methylene Chloride	1600	Y	Y	0.38		All ND, MDL<C, MEC=MDL	0.38	MEC<C, go to Step 5	Y	N		0.5		B<C, Step 7		No	MEC<C & B<C
37	1,1,2,2-Tetrachloroethane	11	Y	Y	0.3		All ND, MDL<C, MEC=MDL	0.3	MEC<C, go to Step 5	Y	Y	0.05		N	No detected value of B, Step 7		No	Ud;MEC<C & B is ND
38	Tetrachloroethylene	8.85	Y	Y	0.32		All ND, MDL<C, MEC=MDL	0.32	MEC<C, go to Step 5	Y	Y	0.05		N	No detected value of B, Step 7		No	Ud;MEC<C & B is ND
39	Toluene	200000	Y	Y	0.25		All ND, MDL<C, MEC=MDL	0.25	MEC<C, go to Step 5	Y	Y	0.3		N	No detected value of B, Step 7		No	Ud;MEC<C & B is ND
40	1,2-Trans-Dichloroethylene	140000	Y	Y	0.3		All ND, MDL<C, MEC=MDL	0.3	MEC<C, go to Step 5	Y	Y	0.5		N	No detected value of B, Step 7		No	Ud;MEC<C & B is ND
41	1,1,1-Trichloroethane	No Criteria	Y	Y	0.35		No Criteria	No Criteria	No Criteria	Y	Y	0.5		N	No Criteria	No Criteria	Uo	No Criteria
42	1,1,2-Trichloroethane	42	Y	Y	0.27		All ND, MDL<C, MEC=MDL	0.27	MEC<C, go to Step 5	Y	Y	0.05		N	No detected value of B, Step 7		No	Ud;MEC<C & B is ND
43	Trichloroethylene	81	Y	Y	0.29		All ND, MDL<C, MEC=MDL	0.29	MEC<C, go to Step 5	Y	Y	0.5		N	No detected value of B, Step 7		No	Ud;MEC<C & B is ND
44	Vinyl Chloride	525	Y	Y	0.34		All ND, MDL<C, MEC=MDL	0.34	MEC<C, go to Step 5	Y	Y	0.5		N	No detected value of B, Step 7		No	Ud;MEC<C & B is ND
45	2-Chlorophenol	400	Y	Y	0.4		All ND, MDL<C, MEC=MDL	0.4	MEC<C, go to Step 5	Y	Y	1.2		N	No detected value of B, Step 7		No	Ud;MEC<C & B is ND
46	2,4-Dichlorophenol	790	Y	Y	0.3		All ND, MDL<C, MEC=MDL	0.3	MEC<C, go to Step 5	Y	Y	1.3		N	No detected value of B, Step 7		No	Ud;MEC<C & B is ND
47	2,4-Dimethylphenol	2300	Y	N		700		700	MEC<C, go to Step 5	Y	Y	1.3		N	No detected value of B, Step 7		No	Ud;MEC<C & B is ND
48	2-Methyl- 4,6-Dinitrophenol	765	Y	Y	0.4		All ND, MDL<C, MEC=MDL	0.4	MEC<C, go to Step 5	Y	Y	1.2		N	No detected value of B, Step 7		No	Ud;MEC<C & B is ND
49	2,4-Dinitrophenol	14000	Y	Y	0.3		All ND, MDL<C, MEC=MDL	0.3	MEC<C, go to Step 5	Y	Y	0.7		N	No detected value of B, Step 7		No	Ud;MEC<C & B is ND
50	2-Nitrophenol	No Criteria	Y	Y	0.3		No Criteria	No Criteria	No Criteria	Y	Y	1.3		N	No Criteria	No Criteria	Uo	No Criteria
51	4-Nitrophenol	No Criteria	Y	Y	0.2		No Criteria	No Criteria	No Criteria	Y	Y	1.6		N	No Criteria	No Criteria	Uo	No Criteria
52	3-Methyl 4-Chlorophenol	No Criteria	Y	Y	0.3		No Criteria	No Criteria	No Criteria	Y	Y	1.1		N	No Criteria	No Criteria	Uo	No Criteria
53	Pentachlorophenol	7.9	Y	Y	0.4		All ND, MDL<C, MEC=MDL	0.4	MEC<C, go to Step 5	Y	Y	1		N	No detected value of B, Step 7		No	Ud;MEC<C & B is ND
54	Phenol	4600000	Y	N		2100		2100	MEC<C, go to Step 5	Y	Y	1.3		N	No detected value of B, Step 7		No	Ud;MEC<C & B is ND
55	2,4,6-Trichlorophenol	6.5	Y	Y	0.2		All ND, MDL<C, MEC=MDL	0.2	MEC<C, go to Step 5	Y	Y	1.3		N	No detected value of B, Step 7		No	Ud;MEC<C & B is ND
56	Acenaphthene	2700	Y	Y	0.17		All ND, MDL<C, MEC=MDL	0.17	MEC<C, go to Step 5	Y	N		0.0015		B<C, Step 7		No	MEC<C & B<C
57	Acenaphthylene	No Criteria	Y	Y	0.03		No Criteria	No Criteria	No Criteria	Y	N		0.00053		No Criteria	No Criteria	Uo	No Criteria
58	Anthracene	110000	Y	Y	0.16		All ND, MDL<C, MEC=MDL	0.16	MEC<C, go to Step 5	Y	N		0.0005		B<C, Step 7		No	MEC<C & B<C
59	Benzidine	0.00054	Y	Y	[illegible]		All ND, MinDL>C, Go to Step 5, & IM			Y	Y	[illegible]	[illegible]	Y	No detected value of B, Step 7		No	UD; effluent data and B are ND
60	Benzo(a)Anthracene	0.049	Y	Y	[illegible]		All ND, MinDL>C, Go to Step 5, & IM			Y	N		0.0053		B<C, Step 7		No	UD; effluent data ND, MDL>C & B<C
61	Benzo(a)Pyrene	0.049	Y	Y	[illegible]		All ND, MinDL>C, Go to Step 5, & IM			Y	N		0.00029		B<C, Step 7		No	UD; effluent data ND, MDL>C & B<C
62	Benzo(b)Fluoranthene	0.049	Y	Y	[illegible]		All ND, MinDL>C, Go to Step 5, & IM			Y	N		0.0046		B<C, Step 7		No	UD; effluent data ND, MDL>C & B<C
63	Benzo(ghi)Perylene	No Criteria	Y	Y	0.06		No Criteria	No Criteria	No Criteria	Y	N		0.0027		No Criteria	No Criteria	Uo	No Criteria
64	Benzo(k)Fluoranthene	0.049	Y	Y	[illegible]		All ND, MinDL>C, Go to Step 5, & IM			Y	N		0.0015		B<C, Step 7		No	UD; effluent data ND, MDL>C & B<C
65	Bis(2-Chloroethoxy)Methane	No Criteria	Y	Y	0.3		No Criteria	No Criteria	No Criteria	Y	Y	0.3		N	No Criteria	No Criteria	Uo	No Criteria
66	Bis(2-Chloroethyl)Ether	1.4	Y	Y	0.3		All ND, MDL<C, MEC=MDL	0.3	MEC<C, go to Step 5	Y	Y	0.3		N	No detected value of B, Step 7		No	Ud;MEC<C & B is ND
67	Bis(2-Chloroisopropyl)Ether	170000	Y	Y	0.6		All ND, MDL<C, MEC=MDL	0.6	MEC<C, go to Step 5	Y	Y	0.6		N	No detected value of B, Step 7		No	Ud;MEC<C & B is ND
68	Bis(2-Ethylhexyl)Phthalate	5.9	Y	Y	0.3		All ND, MDL<C, MEC=MDL	0.3	MEC<C, go to Step 5	Y	Y	0.5		N	No detected value of B, Step 7		No	Ud;MEC<C & B is ND
69	4-Bromophenyl Phenyl Ether	No Criteria	Y	Y	0.4		No Criteria	No Criteria	No Criteria	Y	Y	0.23		N	No Criteria	No Criteria	Uo	No Criteria
70	Butylbenzyl Phthalate	5200	Y	Y	0.4		All ND, MDL<C, MEC=MDL	0.4	MEC<C, go to Step 5	Y	Y	0.52		N	No detected value of B, Step 7		No	Ud;MEC<C & B is ND
71	2-Chloronaphthalene	4300	Y	Y	0.3		All ND, MDL<C, MEC=MDL	0.3	MEC<C, go to Step 5	Y	Y	0.3		N	No detected value of B, Step 7		No	Ud;MEC<C & B is ND
72	4-Chlorophenyl Phenyl Ether	No Criteria	Y	Y	0.4		No Criteria	No Criteria	No Criteria	Y	Y	0.3		N	No Criteria	No Criteria	Uo	No Criteria
73	Chrysene	0.049	Y	Y	[illegible]		All ND, MinDL>C, Go to Step 5, & IM			Y	N		0.0024		B<C, Step 7		No	UD; effluent data ND, MDL>C & B<C
74	Dibenzo(a,h)Anthracene	0.049	Y	Y	0.04		All ND, MDL<C, MEC=MDL	0.04	MEC<C, go to Step 5	Y	N		0.00064		B<C, Step 7		No	MEC<C & B<C
75	1,2-Dichlorobenzene	17000	Y	Y	0.12		All ND, MDL<C, MEC=MDL	0.12	MEC<C, go to Step 5	Y	Y	0.3		N	No detected value of B, Step 7		No	Ud;MEC<C & B is ND
76	1,3-Dichlorobenzene	2600	Y	Y	0.16		All ND, MDL<C, MEC=MDL	0.16	MEC<C, go to Step 5	Y	Y	0.3		N	No detected value of B, Step 7		No	Ud;MEC<C & B is ND
77	1,4-Dichlorobenzene	2600	Y	Y	0.12		All ND, MDL<C, MEC=MDL	0.12	MEC<C, go to Step 5	Y	Y	0.3		N	No detected value of B, Step 7		No	Ud;MEC<C & B is ND
78	3,3 Dichlorobenzidine	0.077	Y	Y	[illegible]		All ND, MinDL>C, Go to Step 5, & IM			Y	Y	0.001		N	No detected value of B, Step 7		No	UD; effluent data and B are ND
79	Diethyl Phthalate	120000	Y	Y	0.4		All ND, MDL<C, MEC=MDL	0.4	MEC<C, go to Step 5	Y	Y	0.24		N	No detected value of B, Step 7		No	Ud;MEC<C & B is ND
80	Dimethyl Phthalate	2900000	Y	Y	0.4		All ND, MDL<C, MEC=MDL	0.4	MEC<C, go to Step 5	Y	Y	0.24		N	No detected value of B, Step 7		No	Ud;MEC<C & B is ND
81	Di-n-Butyl Phthalate	12000	Y	Y	0.4		All ND, MDL<C, MEC=MDL	0.4	MEC<C, go to Step 5	Y	Y	0.5		N	No detected value of B, Step 7		No	Ud;MEC<C & B is ND
82	2,4-Dinitrotoluene	9.1	Y	Y	0.3		All ND, MDL<C, MEC=MDL	0.3	MEC<C, go to Step 5	Y	Y	0.27		N	No detected value of B, Step 7		No	Ud;MEC<C & B is ND

Attachment 1 (Fact Sheet)
Reasonable Potential Analysis

Crockett Cogeneration, LLP
NPDES Permit No. CA0029904
Order No. R2-2004-0026

Beginning			Step 2	Step 3					Step 4	Step 2	Step 3	Step 5			Step 6		Steps 7 & 8	Final Result	
CTR No.	Constituent name	C (µg/L) Lowest, most stringent) Criteria (Enter "No Criteria" for no criteria)	Effluent Data Available (Y/N)?	Are all data points non-detects (Y/N)?	If all data points ND Enter the min detection limit (MDL) (ug/L)	Enter the pollutant effluent detected max conc (ug/L)	If all data points are ND and MinDL>C, interim monitoring is required	Maximum Pollutant Concentration from the effluent (MEC) (ug/L) (MEC= detected max value; if all ND & MDL<C then MEC = MDL)	MEC vs. C 1. If MEC> or =C, effluent limitation is required; 2. If MEC<C, go to Step 5	B Available (Y/N)?	Are all B data points non-detects (Y/N)?	If all data points ND Enter the min detection limit (MDL) (ug/L)	Enter the pollutant B detected max conc (ug/L)	If all B is ND, is MDL>C?	B vs. C If B>C, effluent limitation is required		7) Review other information in the SIP page 4. If info is unavailable or insufficient; 8) the RWQCB shall establish interim monitoring requirements	RPA Result	Reason
83	2,6-Dinitrotoluene	No Criteria	Y	Y	0.3		No Criteria	No Criteria	No Criteria	Y	Y	0.29		N	No Criteria		No Criteria	Uo	**No Criteria**
84	Di-n-Octyl Phthalate	No Criteria	Y	Y	0.4		No Criteria	No Criteria	No Criteria	Y	Y	0.38		N	No Criteria		No Criteria	Uo	**No Criteria**
85	1,2-Diphenylhydrazine	0.54	Y	Y	0.3		All ND, MDL<C, MEC=MDL	0.3	MEC<C, go to Step 5	Y	N		0.0037		B<C, Step 7			No	**MEC<C & B<C**
86	Fluoranthene	370	Y	Y	0.03		All ND, MDL<C, MEC=MDL	0.03	MEC<C, go to Step 5	Y	N		0.011		B<C, Step 7			No	**MEC<C & B<C**
87	Fluorene	14000	Y	Y	0.02		All ND, MDL<C, MEC=MDL	0.02	MEC<C, go to Step 5	Y	N		0.00208		B<C, Step 7			No	**MEC<C & B<C**
88	Hexachlorobenzene	0.00077	Y	Y	0.4		All ND, MinDL>C, Go to Step 5, & IM			Y	N		0.0000202		B<C, Step 7			No	**UD; effluent data ND, MDL>C & B<C**
89	Hexachlorobutadiene	50	Y	Y	0.2		All ND, MDL<C, MEC=MDL	0.2	MEC<C, go to Step 5	Y	Y	0.3		N	No detected value of B, Step 7			No	**Ud;MEC<C & B is ND**
90	Hexachlorocyclopentadiene	17000	Y	Y	0.1		All ND, MDL<C, MEC=MDL	0.1	MEC<C, go to Step 5	Y	Y	0.31		N	No detected value of B, Step 7			No	**Ud;MEC<C & B is ND**
91	Hexachloroethane	8.9	Y	Y	0.2		All ND, MDL<C, MEC=MDL	0.2	MEC<C, go to Step 5	Y	Y	0.2		N	No detected value of B, Step 7			No	**Ud;MEC<C & B is ND**
92	Indeno(1,2,3-cd)Pyrene	0.049	Y	Y	0.04		All ND, MDL<C, MEC=MDL	0.04	MEC<C, go to Step 5	Y	N		0.004		B<C, Step 7			No	**MEC<C & B<C**
93	Isophorone	600	Y	Y	0.3		All ND, MDL<C, MEC=MDL	0.3	MEC<C, go to Step 5	Y	Y	0.3		N	No detected value of B, Step 7			No	**Ud;MEC<C & B is ND**
94	Naphthalene	No Criteria	Y	Y	0.05		No Criteria	No Criteria	No Criteria	Y	N		0.0023		No Criteria		No Criteria	Uo	**No Criteria**
95	Nitrobenzene	1900	Y	Y	0.3		All ND, MDL<C, MEC=MDL	0.3	MEC<C, go to Step 5	Y	Y	0.25		N	No detected value of B, Step 7			No	**Ud;MEC<C & B is ND**
96	N-Nitrosodimethylamine	8.1	Y	Y	0.4		All ND, MDL<C, MEC=MDL	0.4	MEC<C, go to Step 5	Y	Y	0.3		N	No detected value of B, Step 7			No	**Ud;MEC<C & B is ND**
97	N-Nitrosodi-n-Propylamine	1.4	Y	Y	0.3		All ND, MDL<C, MEC=MDL	0.3	MEC<C, go to Step 5	Y	Y	0.001		N	No detected value of B, Step 7			No	**Ud;MEC<C & B is ND**
98	N-Nitrosodiphenylamine	16	Y	Y	0.4		All ND, MDL<C, MEC=MDL	0.4	MEC<C, go to Step 5	Y	Y	0.001		N	No detected value of B, Step 7			No	**Ud;MEC<C & B is ND**
99	Phenanthrene	No Criteria	Y	Y	0.03		No Criteria	No Criteria	No Criteria	Y	N		0.0061		No Criteria		No Criteria	Uo	**No Criteria**
100	Pyrene	11000	Y	Y	0.03		All ND, MDL<C, MEC=MDL	0.03	MEC<C, go to Step 5	Y	N		0.0051		B<C, Step 7			No	**MEC<C & B<C**
101	1,2,4-Trichlorobenzene	No Criteria	Y	Y	0.3		No Criteria	No Criteria	No Criteria	Y	Y	0.3		N	No Criteria		No Criteria	Uo	**No Criteria**
102	Aldrin	0.00014	Y	Y	0.053		All ND, MinDL>C, Go to Step 5, & IM			Y	Y			Y	No detected value of B, Step 7			No	**UD; effluent data and B are ND**
103	alpha-BHC	0.013	Y	Y	0.002		All ND, MDL<C, MEC=MDL	0.002	MEC<C, go to Step 5	Y	N		0.000496		B<C, Step 7			No	**MEC<C & B<C**
104	beta-BHC	0.046	Y	Y	0.001		All ND, MDL<C, MEC=MDL	0.001	MEC<C, go to Step 5	Y	N		0.000413		B<C, Step 7			No	**MEC<C & B<C**
105	gamma-BHC	0.063	Y	Y	0.001		All ND, MDL<C, MEC=MDL	0.001	MEC<C, go to Step 5	Y	N		0.0007034		B<C, Step 7			No	**MEC<C & B<C**
106	delta-BHC	No Criteria	Y	Y	0.001		No Criteria	No Criteria	No Criteria	Y	N		0.000042		No Criteria		No Criteria	Uo	**No Criteria**
107	Chlordane (303d listed)	0.00059	Y	Y	0.005		All ND, MinDL>C, Go to Step 5, & IM			Y	N		0.00018		B<C, Step 7			No	**UD; effluent data ND, MDL>C & B<C**
108	4,4'-DDT (303d listed)	0.00059	Y	Y	0.001		All ND, MinDL>C, Go to Step 5, & IM			Y	N		0.000066		B<C, Step 7			No	**UD; effluent data ND, MDL>C & B<C**
109	4,4'-DDE (linked to Sum DDT)	0.00059	Y	Y	0.001		All ND, MinDL>C, Go to Step 5, & IM			Y	N		0.000593		B>C, Effluent Limit Required			Yes	**B>C**
110	4,4'-DDD	0.00084	Y	Y	0.001		All ND, MinDL>C, Go to Step 5, & IM			Y	N		0.000313		B<C, Step 7			No	**UD; effluent data ND, MDL>C & B<C**
111	Dieldrin (303d listed)	0.00014	Y	Y	0.002		All ND, MinDL>C, Go to Step 5, & IM			Y	N		0.000264		B>C, Effluent Limit Required			Yes	**B>C**
112	alpha-Endosulfan	0.0087	Y	Y	0.002		All ND, MDL<C, MEC=MDL	0.002	MEC<C, go to Step 5	Y	N		0.000031		B<C, Step 7			No	**MEC<C & B<C**
113	beta-Endosulfan	0.0087	Y	Y	0.001		All ND, MDL<C, MEC=MDL	0.001	MEC<C, go to Step 5	Y	N		0.000069		B<C, Step 7			No	**MEC<C & B<C**
114	Endosulfan Sulfate	240	Y	Y	0.001		All ND, MDL<C, MEC=MDL	0.001	MEC<C, go to Step 5	Y	N		0.0000819		B<C, Step 7			No	**MEC<C & B<C**
115	Endrin	0.0023	Y	Y	0.002		All ND, MDL<C, MEC=MDL	0.002	MEC<C, go to Step 5	Y	N		0.000036		B<C, Step 7			No	**MEC<C & B<C**
116	Endrin Aldehyde	0.81	Y	Y	0.002		All ND, MDL<C, MEC=MDL	0.002	MEC<C, go to Step 5	Y	Y	0.002		N	No detected value of B, Step 7			No	**Ud;MEC<C & B is ND**
117	Heptachlor	0.00021	Y	Y	0.001		All ND, MinDL>C, Go to Step 5, & IM			Y	N		0.000019		B<C, Step 7			No	**UD; effluent data ND, MDL>C & B<C**
118	Heptachlor Epoxide	0.00011	Y	Y	0.001		All ND, MinDL>C, Go to Step 5, & IM			Y	N		0.000094		B<C, Step 7			No	**UD; effluent data ND, MDL>C & B<C**
119-125	**PCBs sum (2)**	0.00017	Y	Y	0.5		All ND, MinDL>C, Go to Step 5, & IM			N					No detected value of B, Step 7			No	**MDL>C & No B**
126	Toxaphene	0.0002	Y	Y	0		All ND, MDL<C, MEC=MDL	0	MEC<C, go to Step 5	Y	Y			Y	No detected value of B, Step 7			No	**Ud;MEC<C & B is ND**
688-73-3	Tributylin	0.01	N				No effluent data			Y	Y	0.001		N	No detected value of B, Step 7			No	**Ud, no effluent data & B is ND**
130498-29-2	Sum PAHs	15	Y	Y	0		All ND, MDL<C, MEC=MDL	0	MEC<C, go to Step 5	Y	N		0.052		B<C, Step 7			No	**MEC<C & B<C**

a. The most stringent of salt and fresh water criteria were selected for this analysis.
b. According to Table 1 of Section (b)(1) of CTR (40CFR 131.38), those criteria should use Basin Plan objectives; criteria for Se and CN are specified by the NTR.
c. Criteria for copper is taken from CTR. CTR criteria for copper is expressed as dissolved metals. The copper criter in the table is adjusted by dividing a factor of 0.83 to convert the dissovled to total metal concetration.
The freshwater criteria for Selenium is taken from NTR.
d. Acronyms in the "Final Result" column Ud: Cannot determine reasonable potential due to the absence of data, or because Minimum DL is greater than water quality objective or CTR criteria
IM: Interim monitoring is required

Attachment 2.

Calculation of Final WQBELs

Attachment 2 (Fact Sheet)
Effluent Limitation Calculations

PRIORITY POLLUTANTS	Copper	Lead	Nickel	Selenium	Zinc	Cyanide	2,3,7,8 TCDD TEQ	4,4'-DDE	Dieldrin
Basis and Criteria type	CTR - SW	BP SW (4-d, 1-hr avg)	BP SW (24-hr, inst. Max)	NTR Fresh (chronic)	BP SW (24-hr, inst. Max)	CTR - SW	CTR HH	CTR HH	CTR HH
Lowest WQO	3.73	5.60	7.1	5.0	58.0	1.0	0.000000014	0.00059	0.00014
Translators									
Dilution Factor (D) (if applicable)	9	9	9	0	9	9	0	0	0
no. of samples per month	4	4	4	4	4	4	4	4	4
Aquatic life criteria analysis required? (Y/N)	Y	Y	Y	Y	Y	Y	N	N	N
HH criteria analysis required? (Y/N)	N	N	Y	N	N	Y	Y	Y	Y
Applicable Acute WQO	5.78	140	140.0	20.0	170.0	1.0			
Applicable Chronic WQO	3.73	5.6	7.1	5	58	1			
HH criteria			4,600			220,000	0.000000014	0.00059	0.00014
Background (max conc for Aquatic Life calc)	2.45	0.8	3.7	0.39	4.4	0.4	0.000000071	0.00069	0.000264
Background (avg conc for HH calc)			2.29				0.000000032	0.00012	0.00008
Is the pollutant Bioaccumulative(Y/N)? (e.g., Hg)	N	N	N	Y	N	N	Y	Y	Y
ECA acute	35.75	1392.8	1366.7	20	1660.4	6.4			
ECA chronic	15.25	48.8	37.7	5	540.4	6.4			
ECA HH			45,979			220,000	0.000000014	0.00059	0.00014
No. of data points <10 or at least 80% of data reported non detect? (Y/N)	Y	Y	Y	Y	N	Y	Y	Y	Y
avg of data points					23.293				
SD					24.130				
CV calculated					1.04		N/A	N/A	N/A
CV (Selected) - Final	0.600	0.600	0.600	0.60	1.04	0.60	0.60	0.60	0.60
ECA acute mult99	0.32	0.32	0.32	0.32	0.20	0.32			
ECA chronic mult99	0.53	0.53	0.53	0.53	0.36	0.53			
LTA acute	11.48	447.20	438.82	6.42	328.09	2.05			
LTA chronic	8.04	25.74	19.88	2.64	195.82	3.38			
minimum of LTAs	8.04	25.74	19.88	2.64	195.82	2.05			
AMEL mult95	1.55	1.55	1.55	1.55	1.98	1.55	1.55	1.55	1.55
MDEL mult99	3.11	3.11	3.11	3.11	5.06	3.11	3.11	3.11	3.11
AMEL (aq life)	12.49	39.96	30.87	4.09	387.73	3.19			
MDEL(aq life)	25.05	80.16	61.93	8.21	991.01	6.40			
MDEL/AMEL Multiplier	2.01	2.01	2.01	2.01	2.56	2.01	2.01	2.01	2.01
AMEL (human hlth)			45979			220000	0.000000014	0.00059	0.00014
MDEL (human hlth)			92243			441362	0.000000028	0.00118	0.00028
minimum of AMEL for Aq. life vs HH	12.49	39.96	30.87	4.09	387.73	3.19	0.000000014	0.00059	0.00014
minimum of MDEL for Aq. Life vs HH	25.05	80.16	61.93	8.21	991.01	6.40	0.000000028	0.0012	0.00028
Current limit in permit (30-d avg)	N/A	N/A	N/A	N/A	**330**	N/A	N/A	N/A	N/A
Current limits in permit (daily)	N/A	N/A	N/A	N/A	**840**	N/A	N/A	N/A	N/A
Final limit - Calculated AMEL	12.49	39.96	30.87	4.09	330	3.19	0.000000014	0.00059	0.00014
Final limit - Calculated MDEL	25.1	80.2	61.93	8.2	840	6.4	0.000000028	0.00118	0.00028
Max Effl Conc (MEC)	26.0	29.0	67.0	8.0	120.0	50.0	<0.000000637	<0.06	<0.06
Feasible to comply?	**NO**	**YES**	**NO**	**NO**	**YES**	**NO**	**NO**	**NO**	**NO**
Interim Limits	251.6		366.9	50.5		264.8	To Be Determined	0.05	0.01

Attachment 3.

Infeasibility Evaluation and Calculation of Performance Based Effluent Limits

Infeasibility Evaluation and Calculation of Performance Based Effluent Limits – Crockett Cogeneration, LP

A. INTRODUCTION

This report documents the infeasibility analysis and performance based effluent limits (PBELs) calculations the Water Board staff has conducted for reissuance of Crockett Cogeneration's NPDES permit (No. CA0029904). The analysis is based on evaluating the frequency distribution of Crockett Cogeneration's last three years of effluent data (June 2000 to July 2003), including non-detect measurements. The statistical software MiniTab (and macro MDLNORM by Dr. Hesel) was used to determine statistical results.

Nine pollutants are analyzed here because they demonstrate reasonable potential (RP), as discussed in a separate analysis (see the RPA spreadsheet, "CrockettCo_RPA.xls"). RP was triggerred either because the maximum effluent concentration (MEC) exceeded the minimum water quality objective (WQO), or the maximum background concentration exceeded the maximum background concentration (B):

Constituent	WQO/WQC (µg/L)	BASIS[1]	MEC (µg/L)	Maximum Ambient Background Conc. (µg/L)	Reason for Reasonable Potential
1) Copper	3.74	CTR	26	2.45	MEC>C
2) Lead	5.6	BP	29	0.8	MEC>C
3) Nickel	7.1	BP	67	3.7	MEC>C
4) Selenium	5	CTR	8	0.39	MEC>C
5) Zinc	58	BP	120	4.4	MEC>C
6) Cyanide	1	CTR	14	<0.4	MEC>C
7) 4,4'-DDE	0.00000014	CTR	<0.637	0.000000071	B>C
8) Dioxin-TEQ (2,3,7,8 TCDD)	0.00059	CTR	<0.001	0.000693	B>C
9) Dieldrin	0.00014	CTR	<0.002	0.000264	B>C

1. CTR = California Toxic Rule; BP = Basin Plan

B. METHOD

The four steps used in the infeasibility analyses and PBEL calculations are described below:

1. **Which frequency distribution model does effluent data most accurately follow—Normal or Log-Normal?**

   The best distribution was evaluated by considering the following criteria, and using best judgement:
   a) Which AD (Anderson Darling coefficient) is lowest? (< 1.01?)
   b) Which P-value is greatest ? (> 0.05?)
   c) Which symmetry plot best follows a straight line?

   If there are not enough measurements to make an accurate evaluation, based on best professional judement, a log-normal distribution is assumed because this is consistent with distributions for most pollutants, and because log-normal distributions are less likely than normal distributions to under-estimate PBEL's.

2. **Determine Mean, 95th and 99th Percentile of Effluent Data**

   a) For Normal Distribution:
      95th Percentile = Mean + 1.645 * SD (where SD is Standard Deviation)
      99th Percentile = Mean + 2.326 * SD
   b) For Log-Normal Distribution:
      95th Percentile = exp (Transformed_Mean + 1.6545 Transformed_SD)
      99th Percentile = exp (Transformed_Mean + 2.326 * Transformed_SD)

3. **Is it feasible for discharger to comply with Average Monthly Effluent Limit (AMEL) and Maximum Daily Effluent Limit (MDEL)?**

   If any one or more of the following three conditions exist, then infeasibility is concluded:
   a) 95th Percentile > AMEL
   b) 99th Percentile > MDEL
   c) Mean of Non-Transformed Data > Long Term Average (LTA)

   (Mean of non-transformed data is compared to LTA, since it is the best estimate of a true average. Converting the transformed mean back to the original scale will not accurately estimate the true average, because of transformation bias.)

4. **Determine Performance Based Effluent Limits (PBELs) if enough data**

   If infeasibility is concluded, set PBEL to the 99.87th Percentile of effluent data:
   a) For normal distribution:
      PBEL = Mean + 3 * SD
   b) For log-normal distirubtion:
      PBEL = exp(Transformed_Mean + 3 * Transformed_SD)

C. SUMMARY

The following table summarizes the feasibility determinations and PBELs for each pollutant (all units in micrograms per liter). For seven of the nine pollutants, it was found there is a significant statistical likelihood the Discharger will not be able to immediately comply with the final water quality based effluent limitations (WQBELs), based on recent plant performance, or due to uncertainty associated with the large magnitude of the available method detection limits (MDLs). For lead and zinc, there is a high statistical likelihood the Discharger can comply with the final WQBELs. Section D below describes the results of the analyses for each pollutant in greater detail. (The WQBELs (Average Monthly Efflunet Limits (AMELs) and Maximum Dailiy Effluent Limits (MDELs)), are calculated in the RPA spreadsheet.)

Pollutant	Mean / LTA	95th / AMEL	99th / MDEL	Feasible to comply?	PBEL	Comment
1) Copper		28 > 13	85 > 25	No	251.6	
2) Lead	0.72 < 26	7.2 < 40	21 < 80	Yes		
3) Nickel			107 > 62	No	366.9	
4) Selenium		11 > 4.1	23 > 8.2	No	50.5	
5) Zinc	23 < 196	126 < 390	820 < 990	Yes		
6) Cyanide		21 > 3.2	74 > 6.4	No	19.2	
7) Dioxin TEQ (2,3,7,8 TCDD)		0.000000014	0.000000028	No	To be determined	Unable at this time to determine PBEL
8) 4,4'-DDE		0.00059	0.00118	No	0.05	PBEL = ML, since minimum effluent MDL > WQO
9) Dieldrin		0.00014	0.00028	No	0.01	PBEL = ML, since minimum effluent MDL > WQO

D. RESULTS

(1) COPPER

Log-Normal Distribution is best model (AD=1.435; P-value=0.320)
Transformed_Mean = 0.686
Transformed_SD = 1.614
95^{th} = exp(0.686 + 1.645 * 1.614) = 28.2 > AMEL(12.5)
99^{th} = exp(0.686 + 2.326 * 1.614) = 84.8 > MDEL(25.1)

Infeasibility Concluded Since:
95^{th} > AMEL therefore Infeasible to Comply
99^{th} > MDEL therefore Infeasible to Comply

PBEL = exp(0.686 + 3 * 1.614) = 251.6

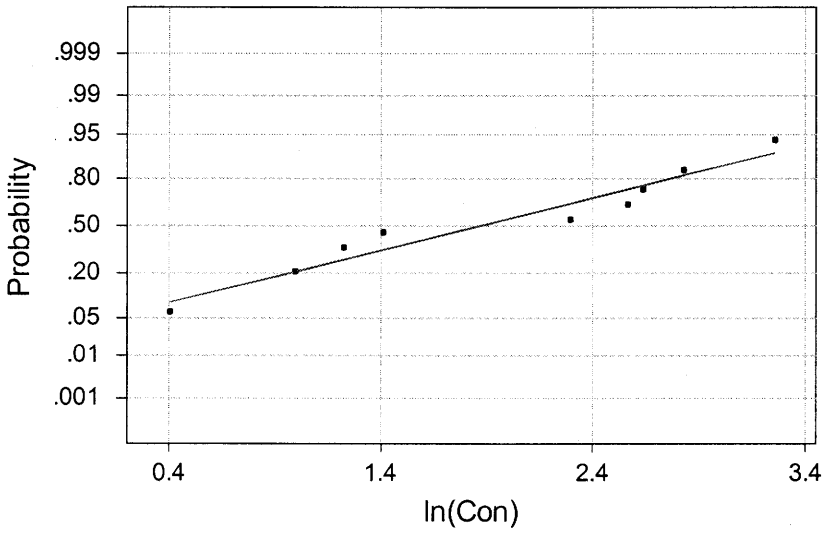
MINITAB Results
Descriptive Statistics: ESTIMATE

Variable	N	Mean	Median	TrMean	StDev	SE Mean
ESTIMATE	18	0.686	0.699	0.706	1.614	0.380

Variable	Minimum	Maximum	Q1	Q3
ESTIMATE	-2.207	3.258	-0.584	2.361

Name	Date	Concentration (µg/L)	MDL (µg/L)	ln(Con)	ln(MDL)
Copper	6/1/00	ND	5		1.609
Copper	7/1/00	ND	5		1.609
Copper	10/1/00	ND	5		1.609
Copper	1/1/01	ND	5		1.609
Copper	4/1/01	ND	5		1.609
Copper	6/1/01	13		2.565	
Copper	8/1/01	ND	5		1.609
Copper	12/1/01	ND	5		1.609
Copper	1/1/02	ND	5		1.609
Copper	03/14/02	9.9		2.293	
Copper	04/18/02	17		2.833	
Copper	08/12/02	2.7		0.993	
Copper	11/20/02	1.5		0.405	
Copper	02/04/03	3.4		1.224	
Copper	03/05/03	26		3.258	
Copper	05/08/03	14		2.639	
Copper	06/17/03	4.1		1.411	
Copper	07/30/03	2.7		0.993	

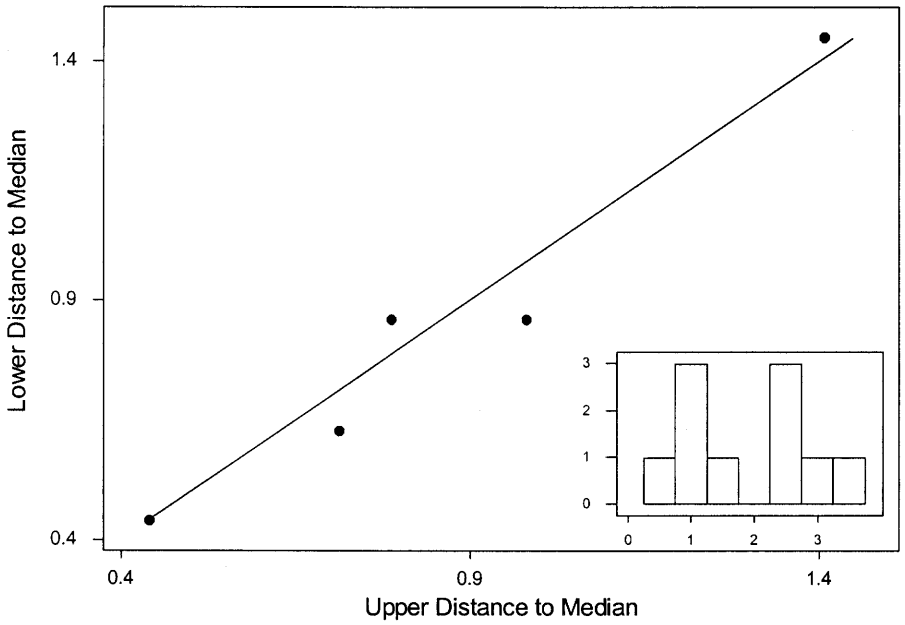
Normality Test on Ln(Detected Cu)



Average: 1.8614
StDev: 0.967182
N: 10

Anderson-Darling Normality Test
A-Squared: 0.385
P-Value: 0.320

Symmetry Plot for ln(Con)



(2) LEAD

Log-Normal Distribution Best (AD=1.635; P-value=0.114)
Transformed_Mean = -0.569
Transformed_SD = 1.546
95^{th} = exp(-0.569 + 1.645 * 1.546) = 7.2 < AMEL(40.0)
99^{th} = exp(-0.569 + 2.326 * 1.546) = 20.6 < MDEL(80.2)
Mean of Untransformed Data = 0.72 < LTA(25.7)

Feasibility Concluded Since:
95^{th} < AMEL therefore Feasible to Comply
99^{th} < MDEL therefore Feasible to Comply
Mean < LTA therefore Feasible to Comply

(PBEL = exp(-0.569 + 3 * 1.546) = 251.6)

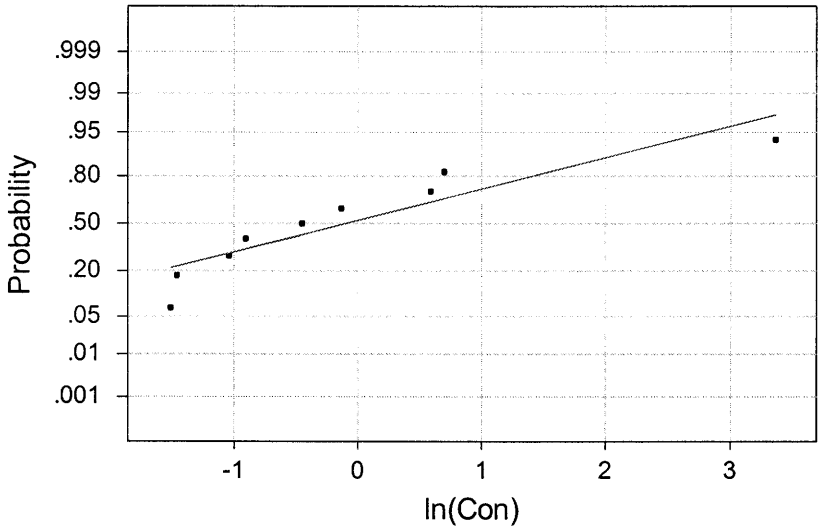
Descriptive Statistics: ESTIMATE

Variable	N	Mean	Median	TrMean	StDev	SE Mean
ESTIMATE	18	-0.569	-0.696	-0.638	1.546	0.364

Variable	Minimum	Maximum	Q1	Q3
ESTIMATE	-3.390	3.367	-1.481	0.522

Name	Date	Concentration (µg/L)	MDL (µg/L)	ln(Con)	ln(MDL)
Lead	06/01/00	ND	5		1.609
Lead	07/01/00	ND	5		1.609
Lead	10/01/00	ND	5		1.609
Lead	01/01/01	29		3.367	
Lead	04/01/01	ND	5		1.609
Lead	06/01/01	ND	5		1.609
Lead	08/01/01	ND	5		1.609
Lead	12/01/01	ND	5		1.609
Lead	01/01/02	ND	5		1.609
Lead	03/14/02	0.87		-0.139	
Lead	04/18/02	ND	0.02		-3.912
Lead	08/12/02	0.35		-1.050	
Lead	11/20/02	0.63		-0.462	
Lead	02/04/03	0.4		-0.916	
Lead	03/05/03	0.22		-1.514	
Lead	05/08/03	2		0.693	
Lead	06/17/03	1.8		0.588	
Lead	07/30/03	0.23		-1.470	

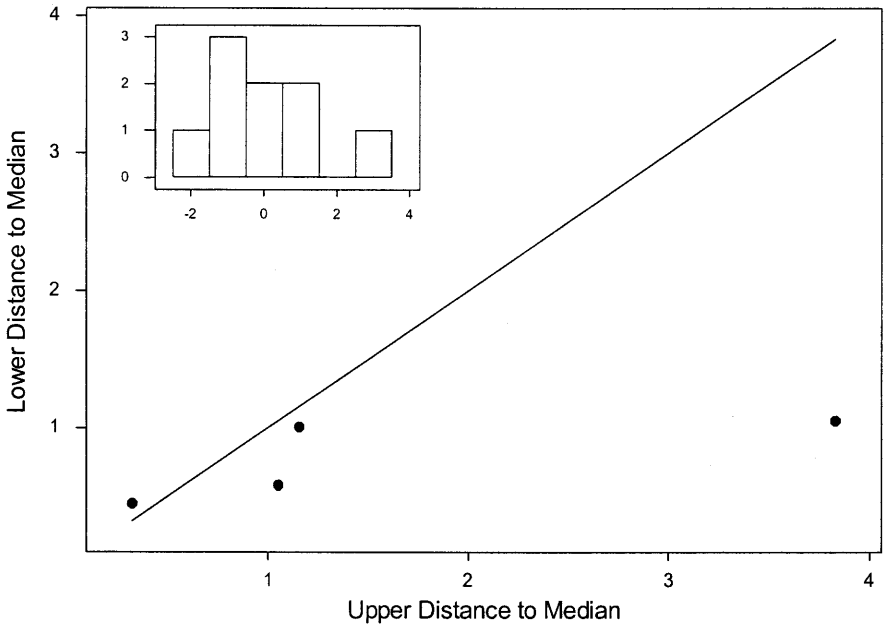
Normality Test on Ln(Detected Lead)



Average: -0.100333
StDev: 1.52887
N: 9

Anderson-Darling Normality Test
A-Squared: 0.547
P-Value: 0.114

Symmetry Plot for ln(Con)



(3) NICKEL

Log-Normal Distribution Best (AD=1.32; P-value=0.311)
Transformed_Mean = 0.427
Transformed_SD = 1.826
95^{th} = exp(0.427 + 1.645 * 1.826) = 30.9 > AMEL(30.87)
99^{th} = exp(0.427 + 2.326 * 1.826) = 107.2 > MDEL(61.9)

Infeasibility Concluded Since:
95^{th} > AMEL therefore Infeasible to Comply
99^{th} > MDEL therefore Infeasible to Comply

PBEL = exp(0.427 + 3 * 1.826) = 366.9

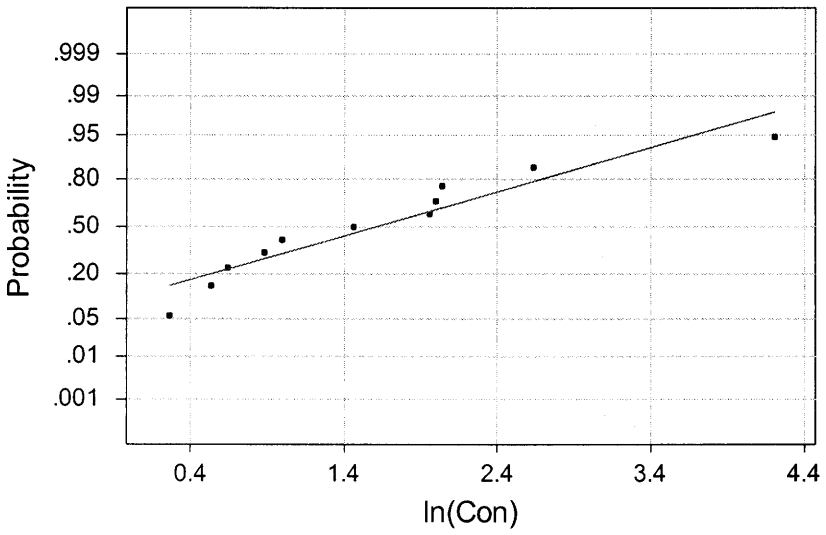
Descriptive Statistics: ESTIMATE

Variable	N	Mean	Median	TrMean	StDev	SE Mean
ESTIMATE	18	0.427	0.587	0.396	1.826	0.430

Variable	Minimum	Maximum	Q1	Q3
ESTIMATE	-2.860	4.205	-1.031	1.970

Name	Date	Concentration (µg/L)	MDL (µg/L)	ln(Con)	ln(MDL)
Nickel	06/01/00	ND	5		1.609
Nickel	07/01/00	14		2.639	
Nickel	10/01/00	67		4.205	
Nickel	01/01/01	ND	5		1.609
Nickel	04/01/01	ND	5		1.609
Nickel	06/01/01	ND	5		1.609
Nickel	08/01/01	ND	5		1.609
Nickel	12/01/01	ND	5		1.609
Nickel	01/01/02	ND	5		1.609
Nickel	03/14/02	2.7		0.993	
Nickel	04/18/02	7.1		1.960	
Nickel	08/12/02	2.4		0.875	
Nickel	11/20/02	1.3		0.262	
Nickel	02/04/03	4.3		1.459	
Nickel	03/05/03	7.7		2.041	
Nickel	05/08/03	7.4		2.001	
Nickel	06/17/03	1.7		0.531	
Nickel	07/30/03	1.9		0.642	

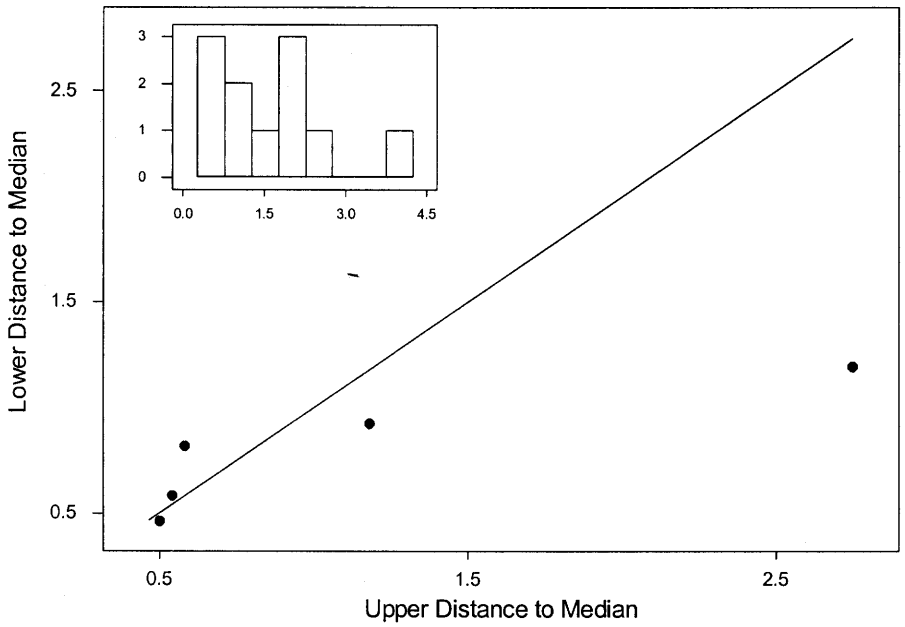
Normality Test on Ln(Detected Nickel)



Average: 1.60073
StDev: 1.14521
N: 11

Anderson-Darling Normality Test
A-Squared: 0.394
P-Value: 0.311

Symmetry Plot for Ln(Detected Nickel)



(4) SELENIUM

Log-Normal Distribution Assumed (AD=2.72; P-value=0.301)
(only four detects—will assume selenium is consistent with most other pollutants in being log-normally distributed)
Transformed_Mean = 0.504
Transformed_SD = 1.139
95^{th} = exp(0.504 + 1.645 * 1.139) = 10.8 > AMEL(4.1)
99^{th} = exp(0.504 + 2.326 * 1.139) = 23.4 > MDEL(8.2)

Infeasibility Concluded Since:
95^{th} > AMEL therefore Infeasible to Comply
99^{th} > MDEL therefore Infeasible to Comply

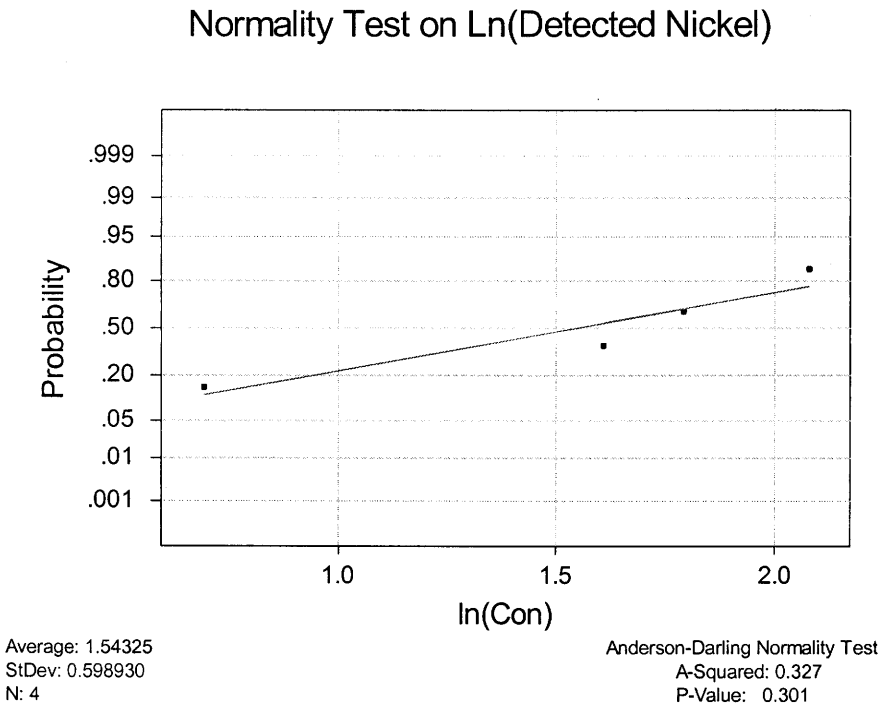
PBEL = exp(0.504 + 3 * 1.139) = 50.5

Descriptive Statistics: ESTIMATE

Variable	N	Mean	Median	TrMean	StDev	SE Mean
ESTIMATE	9	0.504	0.381	0.504	1.139	0.380

Variable	Minimum	Maximum	Q1	Q3
ESTIMATE	-1.195	2.079	-0.450	1.701

Name	Date	Concentration (µg/L)	MDL (µg/L)	ln(Con)	ln(MDL)
Selenium	03/14/02	2		0.693	
Selenium	04/18/02	6		1.792	
Selenium	08/12/02	ND	0.5		-0.693
Selenium	11/20/02	ND	0.5		-0.693
Selenium	02/04/03	ND	0.5		-0.693
Selenium	03/05/03	5		1.609	
Selenium	05/08/03	8		2.079	
Selenium	06/17/03	ND	0.5		-0.693
Selenium	07/30/03	ND	0.5		-0.693



(Not enough data for symmetry plot)

(5) ZINC

-1/2 Power-Normal Distribution Best (AD=0.65; P-value=0.686)
(-1/2 power distribution fit better than log-normal distribution)
Transformed_Mean = 0.2196
Transformed_SD = 0.0794
95^{th} = $(0.2196 - 1.645 * 0.0794)^{-2}$ = 126.3 < AMEL(388)
99^{th} = $(0.2196 - 2.326 * 0.0794)^{-2}$ = 820.3 < MDEL(991)
Mean of untransformed data = 23.3 < LTA(195.8)

Feasibility Concluded Since:
95^{th} < AMEL therefore Feasible to Comply
99^{th} < MDEL therefore Feasible to Comply
Mean < LTA therefore Feasible to Comply

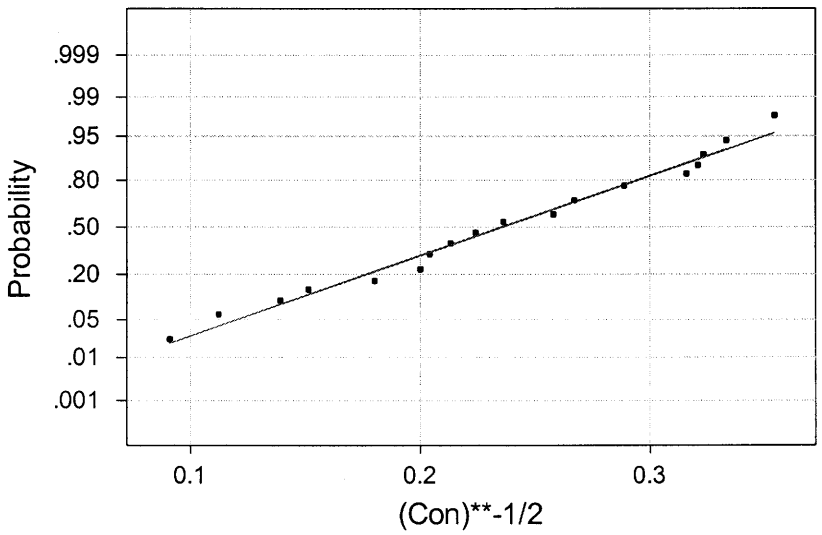
Descriptive Statistics: ESTIMATE

Variable	N	Mean	Median	TrMean	StDev	SE Mean
ESTIMATE	30	0.2196	0.2240	0.2216	0.0794	0.0145

Variable	Minimum	Maximum	Q1	Q3
ESTIMATE	0.0567	0.3540	0.1727	0.2725

Name	Date	Concentration (µg/L)	MDL (µg/L)	ln(Con)	ln(MDL)	$Con^{-1/2}$	$MDL^{-1/2}$
Zinc	06/01/00	12		2.485		0.289	
Zinc	07/01/00	22		3.091		0.213	
Zinc	08/01/00	20		2.996		0.224	
Zinc	09/01/00	14		2.639		0.267	
Zinc	10/01/00	15		2.708		0.258	
Zinc	11/01/00	24		3.178		0.204	
Zinc	12/01/00	ND	5		1.609		0.447
Zinc	01/01/01	9.7		2.272		0.321	
Zinc	02/01/01	80		4.382		0.112	
Zinc	03/01/01	24		3.178		0.204	
Zinc	04/01/01	12		2.485		0.289	
Zinc	05/01/01	20		2.996		0.224	
Zinc	06/01/01	14		2.639		0.267	
Zinc	07/01/01	44		3.784		0.151	
Zinc	08/01/01	ND	5		1.609		0.447
Zinc	09/01/01	9.6		2.262		0.323	
Zinc	10/01/01	8		2.079		0.354	
Zinc	11/01/01	18		2.890		0.236	
Zinc	12/01/01	20		2.996		0.224	
Zinc	01/01/02	10		2.303		0.316	
Zinc	02/01/02	ND	5		1.609		0.447
Zinc	03/14/02	25		3.219		0.200	
Zinc	04/18/02	24		3.178		0.204	
Zinc	08/12/02	9		2.197		0.333	
Zinc	11/20/02	15		2.708		0.258	
Zinc	02/04/03	52		3.951		0.139	
Zinc	03/05/03	25		3.219		0.200	
Zinc	05/08/03	31		3.434		0.180	
Zinc	06/17/03	120		4.787		0.091	
Zinc	07/30/03	14		2.639		0.267	

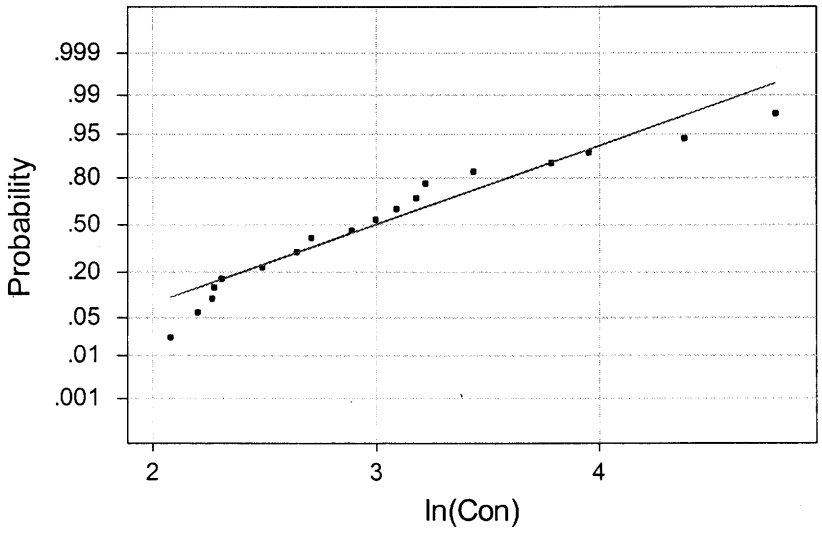
Normality Test on (Detected Zinc)**-1/2



Average: 0.235111
StDev: 0.0670163
N: 27

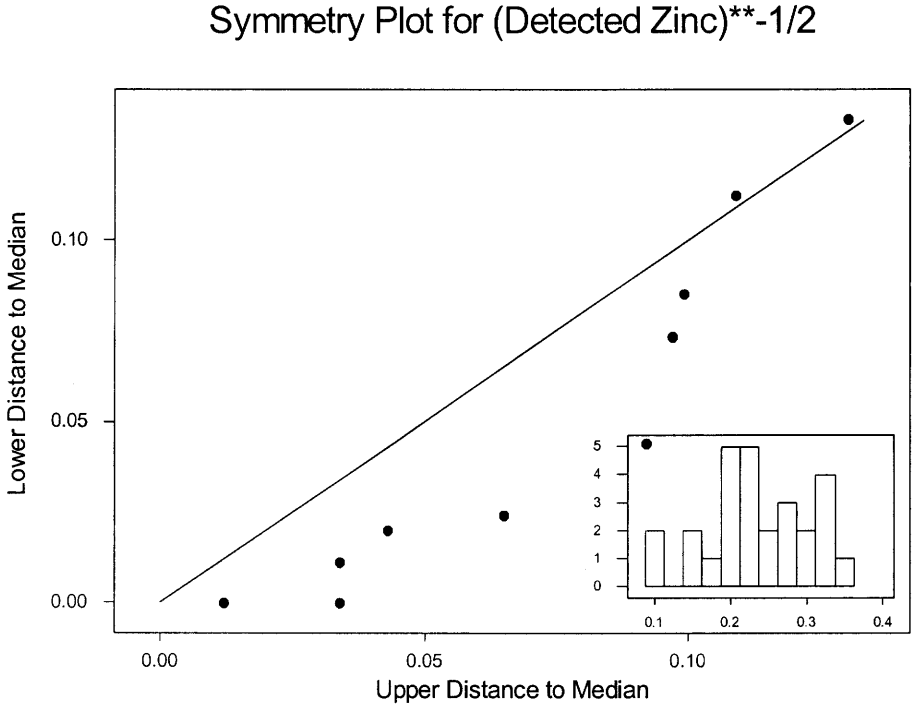
Anderson-Darling Normality Test
A-Squared: 0.259
P-Value: 0.686

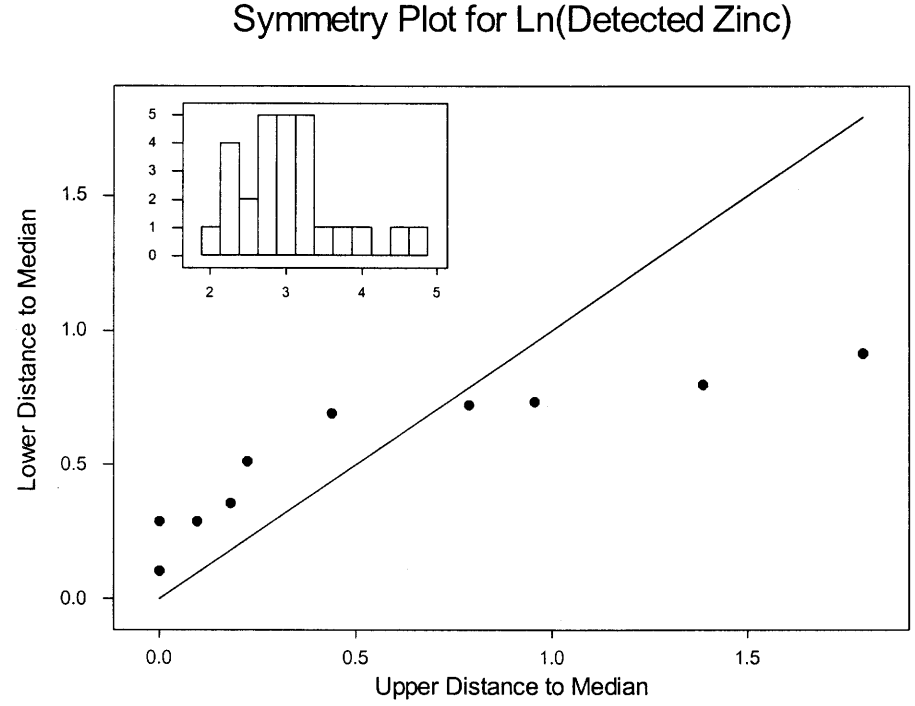
Normality Test on ln(Detected Zinc)



Average: 2.98870
StDev: 0.655277
N: 27

Anderson-Darling Normality Test
A-Squared: 0.687
P-Value: 0.065


Symmetry Plot for (Detected Zinc)**-1/2
Lower Distance to Median
0.00
0.05
0.10
0.00
0.05
0.10
Upper Distance to Median
0
1
2
3
4
5
0.1
0.2
0.3
0.4


Symmetry Plot for Ln(Detected Zinc)
Lower Distance to Median
0.0
0.5
1.0
1.5
0.0
0.5
1.0
1.5
Upper Distance to Median
0
1
2
3
4
5
2
3
4
5

(6) Cyanide

Log-Normal Distribution Best (AD=2.311; P-value=0.033)
(It is unclear which distribution is best. Assume log-normal based on symmetry plot)
Mean = -0.088
SD = 1.889
95th = exp(-0.088 + 1.645 * 1.889) = 20.5 > AMEL(3.2)
99th = exp(-0.088 + 2.326 * 1.889) = 74.1 > MDEL(6.4)

Infeasibility Concluded Since:
95th > AMEL therefore Infeasible to Comply
99th > MDEL therefore Infeasible to Comply

PBEL = exp(-0.088 + 3 * 1.889) = 19.2

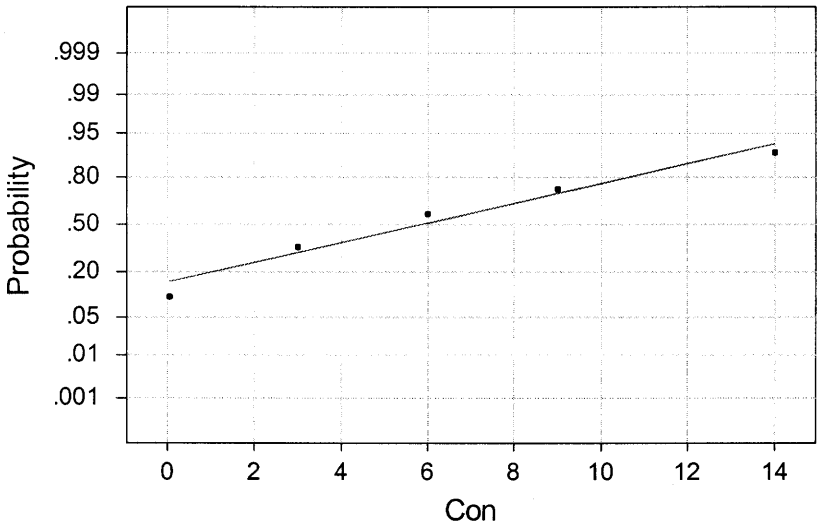
Descriptive Statistics: ESTIMATE

Variable	N	Mean	Median	TrMean	StDev	SE Mean
ESTIMATE	16	-0.088	0.252	-0.075	1.889	0.472

Variable	Minimum	Maximum	Q1	Q3
ESTIMATE	-2.996	2.639	-1.880	1.619

Name	Date	Concentration (µg/L)	MDL (µg/L)	ln(Con)	ln(MDL)
Cyanide	06/01/00	ND	10		2.303
Cyanide	07/01/00	ND	10		2.303
Cyanide	10/01/00	ND	10		2.303
Cyanide	01/01/01	ND	10		2.303
Cyanide	04/01/01	ND	10		2.303
Cyanide	06/01/01	ND	10		2.303
Cyanide	08/01/01	ND	10		2.303
Cyanide	12/01/01	ND	10		2.303
Cyanide	01/01/02	0.05		-2.996	
Cyanide	08/12/02	3		1.099	
Cyanide	11/20/02	ND	0.9		-0.105
Cyanide	02/04/03	9		2.197	
Cyanide	03/05/03	3		1.099	
Cyanide	05/08/03	14		2.639	
Cyanide	06/17/03	6		1.792	
Cyanide	07/30/03	ND	0.9		-0.105

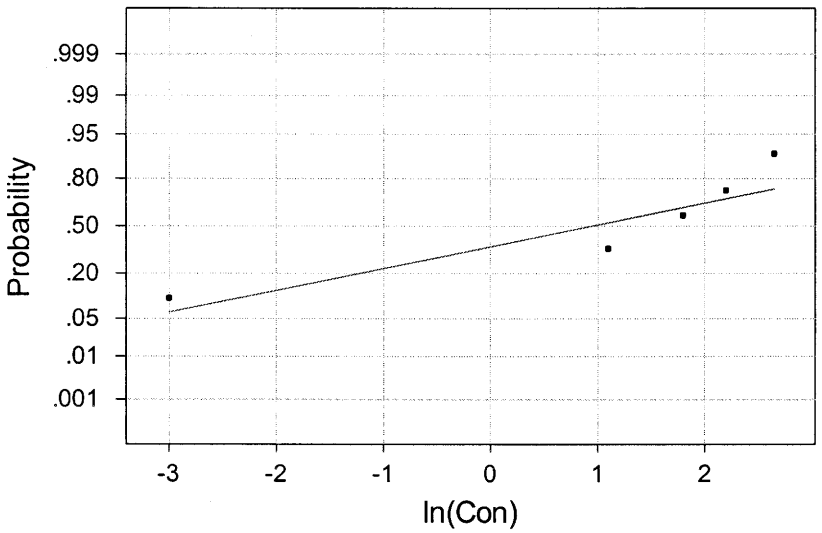
Normality Test on (Detected Cyanide)



Average: 5.84167
StDev: 5.02498
N: 6

Anderson-Darling Normality Test
A-Squared: 0.253
P-Value: 0.581

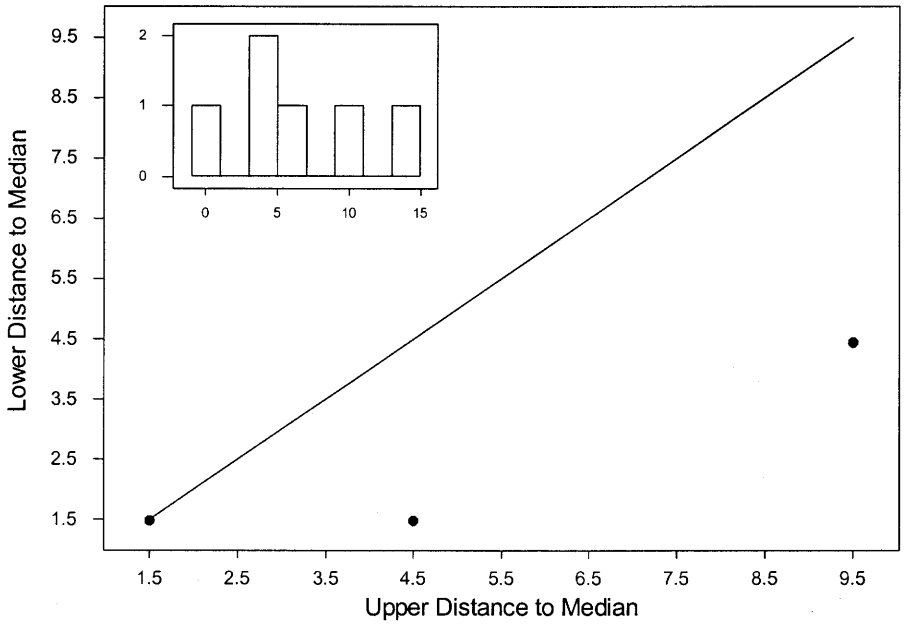
Normality Test on ln(Detected Cyanide)



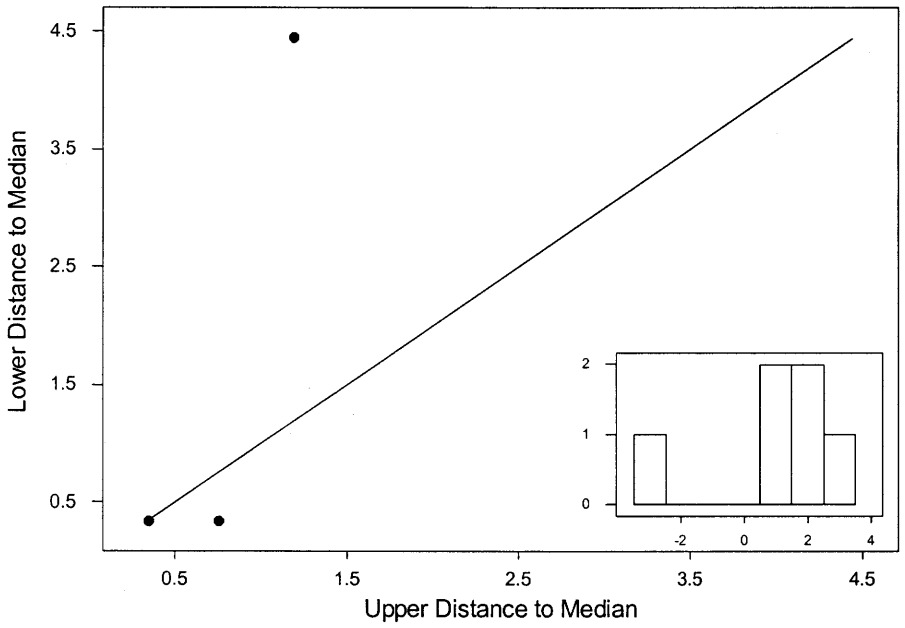
Average: 0.971667
StDev: 2.03613
N: 6

Anderson-Darling Normality Test
A-Squared: 0.698
P-Value: 0.033

Symmetry Plot for (Detected Cyanide)



Symmetry Plot for ln(Detected Cyanide)



(7) Dioxin-TEQ (2,3,7,8 TCDD)

Because all dioxin and furan effluent measurements are non-detects and the detection limits are above the WQBELs, the Board cannot determine whether it is feasibile for the Discharger to immediately comply with the WQBELs. Therefore, consistent with a 2002 court ruling, the Board concludes infeasibility.

At this time an interim limit cannot be determined for dioxin TEQ since neither a previous permit limit exists, nor is there enough information to determine an interim limit based on current treatment facility performance. Because the monitoring data consists of all non-detect values, the Board cannot determine an IPBL with a meaningful statistical analysis. Nor can the IPBEL be based at levels which the Discharger can demonstrate compliance, since the SIP does not provide ML's for Dioxin TEQ. If a ML is agreed upon by the Board and the Discharger, and in consultation with the State Water Resource Control Board's Quality Assuarance Program, as specified in Section 2.4.3 of the SIP, or if additional data enables Board staff to establish performance-based limits, a new interim limit for dioxin TEQ may be calculated.

(8) 4,4'-DDE, and (9) Dieldrin

Because all 4,4'-DDE and dieldrin effluent measurements are non-detects and the detection limits are above the WQBELs, the Board cannot determine whether it is feasibile for the Discharger to immediately comply with the WQBELs. Therefore, consistent with a 2002 court ruling, the Board concludes infeasibility.

Because the previous permit does not include a limitation for 4,4'-DDE or for dieldrin, the interim limit must be set to the IPBL. Because the monitoring data consisted of all non-detect values, the Board cannot determine an IPBL with a meaningful statistical analysis, but must base it at levels which the Discharger can demonstrate compliance. In accordance with compliance determination rules specified in Section 2.4.5 of the SIP, the interim limitations are therefore set at the MLs listed in Appendix 4 of the SIP as follows: 4,4'-DDE is 0.05 µg/L, and dieldrin is 0.01 µg/L.

Attachment E.

Documents Available On-line:

www.swrcb.ca.gov/rwqcb2/Download.htm:

Self Monitoring Program, Part A (August 1993)
Standard Provisions and Reporting Requirements (August 1993)
Board Resolution No. 74-10
August 6, 2001 Regional Board staff letter