STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

STAFF REPORT FOR REGULAR MEETING OF JULY 9, 1999

June 16, 1999

ITEM NO.: 8

SUBJECT **Reissuance of Waste Discharge Requirements, National Pollutant Discharge Elimination System Permit No. CA 0048143, for the City of Santa Barbara's El Estero Wastewater Treatment Plant, Santa Barbara County -- Order No. 99-40**

KEY INFORMATION

Location:	City of Santa Barbara
Waste Type:	Municipal
Design Capacity:	11 million-gallons-per-day (MGD)
Present Flow:	Approximately 8.3 MGD
Treatment:	Activated sludge, chlorination dechlorination.
Disposal:	Discharge to the Pacific Ocean through an 8,720-foot outfall/diffuser system.
Reclamation:	Up to 1.6 MGD reclaimed for landscape irrigation.
Existing Orders:	94-37, NPDES No. CA0048143.

SUMMARY

The City of Santa Barbara (Discharger) discharges treated municipal wastewater through an 8,720-foot outfall/diffuser system to the Pacific Ocean. To determine the optimum level of effluent disinfection, the Discharger has studied the effects of a range of effluent coliform concentrations on shellfish stationed near the point of discharge. The proposed Order specifies new coliform effluent limitations in accordance with the study's findings. When operating, a seawater desalination plant (currently mothballed) would also discharge waste brine into the municipal outfall. Proposed Order No. 99-40 governs both the municipal discharge and the combined flows. The proposed Order specifies appropriate discharge limits and specifications from the 1997 *Water Quality Control Plan - Ocean Waters of California* (Ocean Plan), and requires the Discharger to monitor for potential adverse effects on aquatic life.

BACKGROUND

The Discharger owns and operates the El Estero Wastewater Treatment Plant (El Estero), capable of treating an average flowrate of 11 MGD. The El Estero treatment plant consists of the following processes and operations in sequence:

1. screening and comminution (grinding) to remove sizeable solids,
2. an aerated grit chamber to remove inorganic settleable particles (such as sand) while providing some initial aeration to enhance subsequent biodegradation of organic wastes;
3. primary clarification to settle additional solids from the wastewater;
4. suspended growth biological treatment (activated sludge) tanks in which most of the waste stabilization occurs;
5. secondary clarification to remove biological solids grown in the activated sludge tanks; and
6. chlorination/dechlorination facilities to disinfect the wastewater and remove toxic

chlorine residual before discharging the treated wastewater to the Pacific Ocean.

Up to 1.6 MGD of the wastewater is routed to the tertiary treatment processes for irrigation of the City of Santa Barbara's landscaping. The remainder is discharged to the Pacific Ocean.

Through its Pretreatment Program, the Discharger eliminates excessive discharges of industrial wastes into the sewer system. The program requires industries to reduce pollutants in their discharges to levels that do not upset or interfere with the wastewater plant's biological treatment processes, nor pass through the plant to pollute the Pacific Ocean. Staff inspections have determined that the program complies with all regulatory requirements and is well operated. The Discharger routes all on-site stormwater through the treatment plant and is therefore exempt from the NPDES stormwater program. Since adoption of existing Order No. 94-37, the Discharger has complied with all of the Order's effluent limitations and specifications.

The Discharger continues to implement an effective sewage collection system operation, maintenance and repair program dedicated to reducing sewage overflows and adverse effects on the treatment plant.

DISCUSSION

Coliform Effluent Limitation

The Discharger reduces disease-causing organisms to safe levels in its discharge by adding chlorine disinfectants to the wastewater. The quantity of chlorine needed to comply with 23 MPN total coliform/100 ml. increases logarithmically over that needed to comply with a less-stringent standard, such as, 2,300 MPN. To comply with 23 MPN, the Discharger must maintain a high chlorine residual concentration in the final effluent. A ten mg/l chlorine residual is required to reliably comply with the lower limit while one mg/l is required for the higher limit. Disinfection with chlorine generates disinfection byproducts (byproducts) known to pose a substantial threat to human health and aquatic life. The concentrations of toxic and carcinogenic effluent byproducts increase in direct relationship to the quantity of chlorine added to the wastewater. Therefore, to minimize formation of byproducts without reducing public health protection, an optimum balance should be found between the amount of chlorine added and the safe level of disinfection. (As an added benefit, while complying with a less stringent limit, the Discharger would realize substantial cost savings for its ratepayers.)

The State Department of Health Services, the State Water Resources Control Board, and the United Sates Environmental Protection Agency recognize how a discharge's threat to human health and aquatic life from byproducts increases with chlorine use. The Ocean Plan (p. 6) states: "[w]astes that contain pathogenic organisms or viruses should be discharged a sufficient distance from shellfishing and water-contact sports areas to maintain applicable bacterial standards *without disinfection*. Where an adequate distance cannot be maintained, reliable disinfection in conjunction with a reasonable separation of the discharge point from the area of use must be provided. *Disinfection procedures that do not increase effluent toxicity and that constitute the least environmental and human hazard should be used.*" (Italics added for emphasis.)

Accordingly, in 1979, the Discharger built a 8,720-foot outfall/diffuser system designed to discharge full secondary undisinfected municipal wastewater, sufficiently far from shore and shellfish leases to protect the Ocean's body-contact and shellfish harvesting beneficial uses. Regular Ocean monitoring near the discharge found safe coliform levels. Surf-zone sampling along the shoreline also found safe levels, except when nearby creeks discharged into the Ocean during the rainy season.

In 1986, coliform bacteria levels in violation of State health standards were found in shellfish grown at a new commercial operation approximately three miles west of the outfall. To ensure protection of the public's health from contaminated shellfish and polluted waters, the Board required the Discharger to commence reducing the discharge's coliform concentrations

to the maximum extent feasible for secondary effluent. This effort required an effluent limitation of 23 MPN/100 ml. and the use of about five million pounds (675,000 gallons) per year of sodium hypochlorite solution, or approximately 625,000 pounds per year of pure chlorine. Use of this large amount of chlorine yields a substantial discharge of byproducts to the marine environment, since the treatment plant's dechlorination processes do not remove byproducts.

In 1991, attempting to find an appropriate disinfection level, the Discharger conducted a study (Study I) of the effects of the discharge's coliform on shellfish. Mussels were placed in cages tethered to buoys located within a one-mile radius of the outfall diffuser in the direction the current usually flows (upcoast). Mussels and oysters feed by filtering tiny lifeforms from relatively large volumes of seawater. The filtration process accumulates bacteria in shellfish tissue. Low concentrations of pathogens in the Ocean can lead to high concentrations in shellfish, which is the basis for the low compliance threshold specified in the Ocean Plan to protect the shellfishing beneficial use.

During Study I, sixteen mussel station sampling events of 22 samples each indicated that reducing disinfection such that effluent coliform ranged into the hundreds did not increase mussel fecal coliform concentrations. The study also indicated that other sources of coliform found in the shellfish are likely by documenting the following:

- An inshore to offshore decline in tissue coliform concentrations, indicating the likely contribution of onshore sources;
- Tissue coliform levels likely due to resuspended sediments from dredging or wave action;
- Sporadic elevations due to birds, mammals, boats, or other sources of waste.

However, during Study I, the plant could not control the effluent coliform concentrations to comply with a specific effluent limitation less stringent than 23 MPN; say, at 2,300 MPN. (Since 23 MPN is the lowest standard achievable with secondary effluent, compliance with 23 MPN can be simply achieved by adding excessive quantities of disinfectant.)

During Study I, the wastewater plume's trajectory could not always be accurately monitored, so it was often not known if the wastewater truly contacted the mussel stations just before sampling. Therefore, the Discharger and Board staff agreed to maintain the 23 MPN effluent limitation until additional study could be done. Since the trajectory was known for some of the samples, some of this data was useful in study II (discussed later).

In 1992, the Board conducted a study of the potential non-point sources of coliform pollution in the Santa Barbara Channel. The study found that the creeks contained much higher coliform levels than the nearshore marine waters and likely contributed to coliform in nearshore waters, sediments, and shellfish via rain-induced runoff. A second Board study in 1994 found high coliform concentrations in stream and nearshore sediments, with the dominant species originating from non-point sources.

Second Disinfection Study. In WDRs Order No. 94-37, the Board approved a second disinfection study (Study II) designed to establish a new level of effluent disinfection intermediate between no disinfection (in accordance with the outfall/diffuser system's design) and maximum disinfection to 23 MPN. Study II's goal was to determine if an intermediate level of disinfection is protective of the shellfish harvesting beneficial use. With the shellfishing use protected, the body-contact use is also protected since the shellfishing use standard is substantially more stringent.

Study II's design corrected Study I's deficiencies; namely, effluent coliform levels were maintained between a specified range and the wastewater plume direction of flow was accurately monitored before sampling the shellfish stations. (For a more detailed description of Study II, please see Attachment I to this Fact Sheet).

For Study II the Discharger placed six stations upcoast and five stations downcoast, each station

one-and-one-quarter miles from the discharge. From September 1994 through September 1998, many tissue samples were obtained: approximately 312 from the affected stations and 61 from the control stations. Using common statistical procedures, the coliform concentrations in the mussels affected by the discharge were compared to the concentrations in the controls and to the concentrations in the mussels in the first study when the discharge was disinfected to 23 MPN. With 99 percent confidence, the statistical analyses found no significant difference between the mean coliform concentrations in the mussel tissues samples. Thus, the coliform concentrations in the mussels in the path of the wastewater plume were no different than in the mussels with no plume contact.

Similarly, the mussels in the plume's path when the effluent coliform concentrations were held to concentrations up to 2,300 MPN/100ml did not contain significantly different tissue concentrations from the mussels in the plume's path when the effluent coliform were held to 23 MPN/100ml. Study II demonstrated that a less-disinfected wastewater exhibited no greater potential to contaminate shellfish at the one-and-a-quarter mile distance than the wastewater disinfected to 23 MPN/100ml.

Therefore, mussels and other filter-feeding shellfish outside the State Department of Health Services (State Health) new commercial shellfishing prohibition zone (three-mile radius) around outfall's diffuser would be unaffected by the less-disinfected discharge, with a substantial margin of safety (three miles vs. one and a quarter mile) Study II also provided more data indicating that the contributions of coliform from on-shore are a substantial source of coliform in near-shore marine waters. Accordingly, the proposed Order's Effluent Limitations B.7 and B.8 set the total and fecal coliform effluent limitation at 2,300 MPN/100ml and 460 MPN/100ml respectively as a 30-day median, with a maximum allowable concentration of 16,000 MPN/100 ml and 3,600 MPN/100ml, respectively.

Seawater/Effluent Dilution ratio

To protect the Pacific Ocean's beneficial uses, the proposed Order requires the Discharger to ensure pollutant concentrations do not exceed the water quality objectives specified in the Ocean Plan. To achieve this goal, the Discharger treats the wastewater to reduce pollutants to concentrations less than the Ocean Plan's limits, specified outside a "zone of initial dilution" (dilution zone). The dilution zone is the region adjacent to the diffuser in which the wastewater, due to its greater buoyancy and velocity relative to the surrounding Ocean waters, mixes rapidly with the Ocean waters.

In this case, the wastewater discharges at a relatively high velocity from 60 outfall ports 70 feet below the surface. Computer models developed by the U.S. EPA estimate the seawater-to-effluent dilution ratio achieved during the initial mixing phase in the dilution zone. The minimum initial dilution ratio (dilution ratio) achieved at the dilution zone's boundary determines the maximum pollutant concentrations allowed in the wastewater before its discharge to the Ocean. Based on the results of the computer modeling, the existing Order uses a seawater-to-effluent dilution ratio of 120:1 (44:1 when the desalination plant is operating) to determine limits for the Ocean Plan's Table B constituents in the discharge before it is discharged to the Ocean. The Table B constituents (Approximately 80 in number, include toxic metals, ammonia, and chlorine residual, toxic, carcinogenic and noncarcinogenic synthetic organic compounds, and chronic toxicity). If the waste brine and municipal wastewater flowrates should vary from those employed in the model, the proposed Order requires the Discharger to conduct a study to determine the discharge's actual dilution ratio.

Reasonable potential analysis.

The existing Order specifies effluent limitations for the Table B constituents. Monitoring and Reporting Program (M&RP) No. 94-37 required effluent monitoring for these constituents in 1994, 1996, and 1998. Almost all chemicals were detected at concentrations far lower than the limits specified in the existing.

Characterization of a discharge's ability to pollute receiving waters is an essential step in setting permit limits for specific wastewater constituents and toxicity. Therefore, Federal regulations (40 CFR 122) specify minimum requirements and general types of analyses necessary to establish effluent limitations. Since the permit must set limits for constituents and toxicity where a "reasonable potential" exists to exceed a water quality standard, staff conducted a reasonable potential analysis of the discharge's ability to exceed a water quality standard.

The reasonable potential analysis is a statistical evaluation of constituent and toxicity effluent monitoring data to determine, with a high degree of certainty, the likelihood for a pollutant concentration to exceed a water quality standard. In this case, if several monitoring events have detected the constituent at concentrations less than the limitation, then the constituent's concentration will likely remain less than the standard in the future and there is no need to include an effluent limitation in the proposed Order. This conclusion will hold for as long as other factors, such as wastewater characteristics, remain constant.

The analysis found no reasonable potential for most constituents to exceed Ocean Plan limits. The proposed Order sets no effluent limits for these constituents. To detect unforeseen changes in discharge characteristics, the MRP requires monitoring for all wastewater constituents once during the life of the permit. If monitoring detects a constituent, or if acute or chronic toxicity (Monitored Semi-annually) exceeds Ocean Plan limits, the proposed Monitoring and Reporting Program requires retesting within 24 hours after completing the analysis. As an additional control, the proposed Order requires the Discharger to certify annually that these constituents were not added to the wastewater in the past year, either at the facility or in the Discharger's service area. The Discharger shall determine the basis for the latter certification in accordance with its Pretreatment Program or other means under its control. The Discharger's Pretreatment Program effectively reduces Table B pollutants from industrial sources to levels protective of water quality and public health.

Desalination plant

The Discharger owns a seawater desalination plant, which is currently mothballed. If the Discharger activates the desalination plant, it can discharge waste brine at one of five fixed flowrates: 3.9, 4.1, 9.4, 10 and 12.5 MGD. The brine is almost twice as salty and consequently much denser than seawater. The municipal wastewater flow fluctuates throughout the day, exhibiting the lowest flows in the middle of the night (as low as one MGD) and much higher flows at other times (up to 20 MGD). The brine dominates the combined municipal wastewater and brine discharge when the brine flow exceeds the municipal flow. At that point, the combined discharge is denser than the ambient seawater and falls toward the seafloor, rather than rising toward the surface.

The waste brine's chronic toxicity toward organisms dwelling in and near the seafloor is unknown. Therefore, until the desalination plant can provide waste brine for chronic toxicity testing of these organisms, the proposed Order requires the Discharger to ensure the discharge remains above the seafloor. Effluent limitation B.6 also requires the Discharger to estimate the discharge's buoyancy by means of models and input variables approved by the Executive Officer. Computer modeling has estimated the dilution ratio for the five waste brine discharges, when combined with the minimum municipal discharge to ensure buoyancy, to be 44. Based on this dilution ratio, the Order specifies Ocean Plan Table B limitations for acute and chronic toxicity in Effluent Limitation B.3a and B.3b. To ensure that the dilution ratio is not greater than 44 if the wastewater flowrates differ from those specified in Finding No. 12, Provisions G.4, G.5, and G.6

require the Discharger to determine the actual dilution ratio when discharge from the desalination plant begins.

Wastewater Collection System Reconstruction and Maintenance Program

In 1983, the State Board sponsored an Infiltration/Inflow (I/I) Study of the Discharger's wastewater collection system. The study recommended the Discharger replace or renovate 65,000 feet of sewer pipe, seal joints in 227,000 feet of pipe, and seal 742 manholes subject to surface flooding. In 1988, based on the I/I study's recommendations, the Discharger adopted an improved Wastewater System Reconstruction and Maintenance Program (Program) and increased wastewater rates by 26 percent to fund the increased effort.

According to the Program's specifications, the Discharger implements the following actions:

- Annually replaces or renovates 2.3 miles, or approximately 12,000 feet, of sewer pipe and 50 manholes.
- Identifies and eliminates illegal storm drain connections.
- Upgrades equipment, such as video equipment and pumper trucks.
- Improves operations and control of the system's eleven lift stations. The Program:
  - eliminates unnecessary lift stations, restoring gravity flow;
  - rehabilitates lift stations;
  - uses the computer-controlled Supervisory Control and Data Acquisition System (SCADA), which is tied into a computerized Geographic Information System (GIS), and
  - continues to install emergency generators at lift stations.

The Proposed Order requires the Discharger to summarize Program achievements, including short-term and long-term goals to replace pipelines and lift stations, in the annual report.

Pretreatment Program

The proposed Order includes the Discharger's Pretreatment Program Specifications, mainly requiring compliance with the regulations at 40 CFR 403. The Discharger conducts an exemplary program, which won a national award for excellence in 1995. Board staff conducts biennial inspections and an audit every five years, and has confirmed the program is comprehensive, well-run, and adequately staffed.

Additional Discharge and Receiving Water Limitations

The remaining Effluent Limitations specified in the proposed Order carry over from the existing Order. Item B.1 requires removal efficiencies for suspended solids and biochemical oxygen demand to equal or exceed 85 percent removal. In accordance with federal statute, this item also limits the concentration of carbonaceous biological oxygen demand in the effluent to a monthly average of 25 milligrams per liter (mg/l) and a weekly average of 40 mg/l.

Additional Ocean Plan effluent limitations include:

- suspended solids monthly and weekly average limitations of 30 and 45 mg/l, respectively.
- average monthly and weekly settleable solids of 1 and 1.5 milliliters per liter (ml/l), respectively;
- average monthly and weekly turbidity to 75 and 100 NTU, respectively; and,
- weekly acute toxicity of 1.5 and 2.0 acute toxicity units (TU_a), respectively.

The Proposed Order's Effluent Limitations B.5 implements Ocean Plan requirements that the effluent be free of materials that float or become floatable upon discharge; may form sediments which degrade benthic communities or other aquatic life; accumulate to toxic levels in marine waters, sediments or biota; decrease the natural light to benthic communities and other marine life; or result in aesthetically undesirable discoloration of the Ocean surface.

The proposed Order's Receiving Water Limitation C.1 limits fecal and total bacteria within a zone bounded by the shoreline and the 30-foot depth

contour, within kelp bed areas, and within areas used for body-contact recreation, as follows:

- 30-day log-mean levels for fecal coliform organisms to 200 MPN/100 ml and to 400 MPN/100 ml for 90 percent of the samples over a 60-day period;
- total coliform to 1,000 MPN/100ml for 80 percent of samples taken over a 30-day period and a maximum value of 10,000 MPN/100 ml.

Other limits from the Ocean Plan prohibit the following:

- floating particulates, grease and oil and aesthetically undesirable discoloration to be visible on the Ocean surface,
- significant reduction of the transmittance of natural light outside the dilution zone,
- change in the deposition rate and characteristics of inert solids in sediments so as to degrade benthic communities.

The proposed Order's Provisions rescind the existing Order and require compliance with the proposed MRP. Provision G.3 specifies actions to be taken if monitoring detects excess acute or chronic toxicity in the effluent. These actions include implementation of frequent toxicity testing to confirm the presence of toxicity. If toxicity persists, the Executive Officer may require the Discharger to conduct a toxicity reduction evaluation (TRE) to identify the toxicity's source in accordance with a specified compliance time schedule and the USEPA's Toxicity Reduction Evaluation Procedures.

Monitoring and Reporting Program

To evaluate compliance with receiving water limitations, the proposed Monitoring and Reporting Program (MRP) continues the existing Receiving Water Monitoring Program (Ocean Monitoring Program). The Program sets up five shoreline and eight Ocean stations and requires monitoring of these stations for adverse effects due to the discharge. Since historical Ocean monitoring has found no degradation of benthic resources in the vicinity of the discharge point, the proposed Monitoring Program continues the sampling frequency to once during the life of the permit. (in 2002)

The Ocean Monitoring Program requires:

- Annual outfall inspections by a diver;
- Bottom sediment sampling and analytical procedures for metals and coliform organisms;
- Procedures to evaluate if population changes in the benthic biota are significantly adverse and to provide the chemical analyses of these biota to determine if bioaccumulative substances have significantly increased in concentration.

The proposed Order contains biosolids specifications requiring the Discharger to dispose of biosolids generated by wastewater treatment plant operations in accordance with federal regulations at 40 CFR 503, 258, and 257.

ENVIRONMENTAL SUMMARY

Waste discharge requirements for this discharge are exempt from the provisions of the California Environmental Quality Act (Public Resources Code Section 21000 et seq.) in accordance with Section 13389 of the California Water Code.

COMMENTS

City of Santa Barbara

Although the Discharger provided a number of comments, all were corrections of fact or resulted in minor wording changes.

Environmental Defense Center (EDC)

In its letter, the EDC commends the Board for performing several studies of total and fecal coliform as it relates to plant operations. The letter goes on to agree that the excess use of chlorine disinfectant, while disinfecting the effluent to the maximum extent possible, might also result in the excess generation of harmful disinfection byproducts. However, no test results are available to show the presence of such byproducts in the wastewater or in shellfish.

Other disinfection options exist, and EDC suggests evaluating the use of ozone, ultraviolet light, or facultative wastewater treatment ponds as alternatives. EDC's letter raised an additional

concern regarding the potential for viruses to pass through the treatment plant and pose a health threat to people recreating in the Ocean.

EDC is concerned that inadequate procedures were in place to protect the environment and public health during the eight-hour power failure reported in the Fact Sheet, and recommends that the proposed Order require procedures, such as emergency generators. EDC notes that conversion of the plant to facultative ponds would have avoided this problem. EDC further points out that the Discharger's collection system is old and allows substantial infiltration of shallow groundwater and stormwater into the sewer. EDC recommends that the Board require more of the collection system to be repaired or replaced each year. Additionally, every effort to control raw sewage spills should be made.

EDC recommends that the proposed Order require continuous shoreline monitoring, and intermittent shellfish monitoring such as that conducted in the recent study. EOC prefers to eliminate the discharge of coliform bacteria to the Ocean, possibly by means of the alternative technologies mentioned above.

Staff response: A portion of this Board's mandate, in this instance, is to ensure that the Pacific Ocean's use for shellfish harvesting is protected from contamination by pathogens in the municipal wastewater issuing from the Discharger's outfall. If the ratepayers wish to convert from the existing wastewater treatment and disposal system to a different system, the Discharger could modify the plant and assess substantially higher rates to fund the new works, as long as the Ocean's beneficial uses remain protected. Staff understands that disinfection with ozone/ultraviolet light might be feasible, although costly. However, changing the plant to facultative ponds is likely infeasible and would result in lower discharge quality.

In its Orders regulating the discharge of wastewater to the Ocean, this Board implements the requirements specified in the California Ocean Plan. At this time, the Ocean Plan sets no effluent limitations or other requirements regarding viruses. There are practical problems with obtaining adequate sample volumes and analyzing for viruses. The practice of using coliform bacteria as indicators of the quality of water with regards to public health is well established. The State Water Resources Control Board in Sacramento updates the Ocean Plan every three years. Issues proposed for State Board evaluation during the current review cycle do not include setting limits on viruses in municipal wastewater discharges to the Ocean. Therefore, this Board has no basis to require the Discharger to monitor its effluent for viruses.

During the power outage, the plant's emergency generators operated most plant processes, except for the compressors providing air to the aeration tanks. The reduced air supply resulted in excess solids carrying through to the disinfection chamber, which reduced disinfection efficiency. However, the plant continued to provide substantial treatment and disinfection during the outage. The proposed Order requires the Discharger to notify this Board, the State Department of Health Services, and all mariculture operations - the nearest of which is on an oil extraction platform several miles from the discharge point – if the effluent coliform concentrations exceed the permitted maximum. Staff believes the Discharger has provided adequate procedures to protect the Ocean's beneficial uses during rare power outages of more than two hours.

Staff has reviewed the Discharger's program to maintain, renovate, and repair its collection system. The program, paid for by the ratepayers, replaces two miles of sewer each year, inspects the entire system via video cameras every two years, and requires plumbers to report sewer lateral replacement work to the Discharger. The Discharger recently purchased a new vehicle to improve its ability to remove blockages from the sewer. The Discharger has responded quickly to sewer overflows caused by the recent record rainfalls by rerouting problem pipelines and eliminating a pump station. In fact, the Discharger's program has served as a regionwide model.

State Water Resources Control Board – No response.

U.S. EPA – No response.

U.S. Fish and Wildlife Service – No response.

Santa Barbara County Environmental Health Services – No response

State Department of Fish and Game – No response

Jeff Young - No response

State Department of Health Services (DHS) – On May 25, 1999, DHS notified staff that they propose to submit comments near the end of the month of June.

RECOMMENDATION

Adopt Waste Discharge Requirements Order No. 99-40 (NPDES No. CA0048143), as proposed.

ATTACHMENTS

1. Shellfish Sampling Program, Study II Summary
2. Order No. 99-40 and Monitoring and Reporting Program

ATTACHMENT I

NPDES SHELLFISH SAMPLING PROGRAM
STUDY II SUMMARY

The study is described in detail the Discharger's April 1999 report, NPDES Shellfish Sampling Program: December 1995 through September 1998, prepared by Ecomar, Inc.

The study (Study II) consisted of the following four phases: the Control Phase, and Phases I, II, and III.

Control Phase. As described in the Fact Sheet, to conduct an effective study, the Discharger needed to improve control over its disinfection operations. In contrast to Study I, which was ineffective in this regard, Study II's goal was to restrict effluent coliform concentrations within a range of values to ensure compliance with an effluent limitation as high as a median of 2,300 total coliform/100 ml.

During Study I, the Discharger was unable to accurately control the quantity of disinfectant added to the wastewater in response to the required level of disinfection. The main cause of the lack of control lay in the automatic system used to add the appropriate quantity of disinfectant. Substantial time elapsed while the system sent a wastewater sample through piping to the chlorine analyzer, regulated the valve adding the disinfectant, and added disinfectant to the wastewater. During the response time, wastewater containing high levels of bacteria might pass the disinfectant addition point, threatening excessive numbers of bacteria to the Pacific Ocean. Consequently, to reliably reduce coliform to a median concentration of less than 23 MPN/100ml., the Discharger found it necessary to maintain an unusually high concentration of chlorine residual in the discharge at all times by adding excessive quantities of chlorine disinfectant. Conversely, the control system could not be operated to add less disinfectant to maintain compliance with a less stringent effluent limitation for coliform.

To demonstrate improved control, the Discharger installed a new system that has since become the industry standard. Electrical signals from an oxidation-reduction potential probe inserted directly into the wastewater much more rapidly regulate the addition of disinfectant. Additional baffles built in the serpentine disinfection chamber markedly improve disinfectant mixing with the wastewater, which improves disinfection efficiency. As a result of better control, the Discharger demonstrated its ability to reliably maintain median effluent coliform concentrations at less than 1,400 MPN/100 ml. of effluent. The Control Phase lasted from September 1994 through December 1994.

Sampling program structure. After completing the Control Phase, the Discharger installed seven mussel stations in the predominant current direction (upcoast) from the discharge point and one station downcoast to serve as a control. To confirm that the current carried the wastewater plume from the discharge point to the mussel stations for enough time to accumulate bacteria in the mussel tissue, the Discharger installed a permanent tethered buoy equipped with a drogue free to rotate with the current around the buoy. The drogue's position was observed twice a day from shore to ensure that the current flowed from the outfall to the station arc, and samples were obtained on the day following three or four days of drogue observations.

During each sampling, the water column was monitored at one-meter intervals for depth, temperature, and salinity, from which density was calculated. The density profile demonstrated the location of the thermocline, the interface between dense waters at depth and warmer, less dense waters near the surface.

The plume's trajectory was checked during each sampling event by releasing a single, free drogue into the wastewater plume according to whether a thermocline was present or not: with the thermocline present, the drogue was placed two meters below the thermocline or at mid-depth with no thermocline present. The drogue was visually monitored during the sampling

event. Current meters at the 20-foot and 50-foot depths confirmed the current direction and speed.

Effluent monitoring. Plant operators collected daily effluent samples for total and fecal coliform at the plant's peak loading time, or worst case condition, at approximately 11:00 a.m. On the day before shellfish sampling, four effluent samples were collected between 10:00 a.m. and noon. All effluent samples were analyzed in the treatment plant lab and the San Luis Obispo County Health Department (SLO County Health) lab.

Shellfish sampling.

- During Phase I, effluent total coliform was held to less than a 30-day median of 1,400 MPN/1000 ml. of effluent. Phase I lasted from December, 1995 through July 1996 and eight samples were collected.
- Prior to beginning Phase II, the Discharger again demonstrated control of effluent total coliform concentrations in anticipation of complying with 2,300 MPN/100 ml. During Phase II, effluent total coliforms were held to less than 2,300 MPN; eight samples were collected between September 1996 and June 1997.
- During Phase III, from July 1997 to September 1998, effluent coliform levels were also held to less than 2,300 MPN and eight samples were obtained. During this phase, the Discharger sought to achieve effluent coliform concentrations near 2,300 MPN/100 ml rather than lower values. The study's goal was not to demonstrate compliance with the limit but to evaluate the discharge's effect on the mussel stations while discharging effluent containing substantial coliform concentrations.
- The Discharger continues in the operational phase, in which the goal is to demonstrate continual compliance with the 2,300 MPN/100 ml. effluent limitation.

During the first two-thirds of Study II, eight mussel stations were arrayed as described above. Mussels were obtained from Ecomar's shellfish lease site, which has consistently been shown to be free of water and shellfish bacterial contamination. However, the study requirement that three days of current flow from outfall to the upcoast mussel stations severely limited the number of samplings since the current often flowed downcoast for days at a time. Therefore, for the remainder of the study, four new stations were added downcoast from the outfall.

Also at that time, based on new information, the time interval preceding mussel sampling required for the current to flow from the outfall to the stations was reduced from three to four days to 24 hours. This was found to be sufficient time for bacteria to accumulate in mussel tissue when exposed to wastewater. During the remainder of the study, at least two days of unidirectional flow preceded the sampling event.

Two sacks of mussels were tethered to each buoy, one above the semi-permanent thermocline and one below. The stations were arrayed at the same distance from the outfall with the same spacing from one another as during Study I, which provided the mussel tissue data obtained while disinfecting the effluent to maintain compliance with the 23 MPN total coliform/100 ml effluent limitation. Since the arrays were identical, these data were used in the final data analysis. The San Luis Obispo County Health laboratory conducted all tissue analyses and approximately 10 percent of samples were sent to another certified lab for quality control purposes.

Sampling results. Current data from the current meters, fixed drogue, and free drogue generally corroborated one another. Additionally, the unidirectional flows often lasted from12 hours to days. The agreement of these data confirms that the plume trajectory prior to sampling was accurately measured by the fixed drogue observations.

The SLO County lab analyzed mussel tissue from 312 test samples and 61 control samples. Anresco, Inc analyzed 34 split samples and found excellent agreement between the two labs.

The following table provides the results of the shellfish tissue analyses:

Table 1.
Mean shellfish tissue concentrations

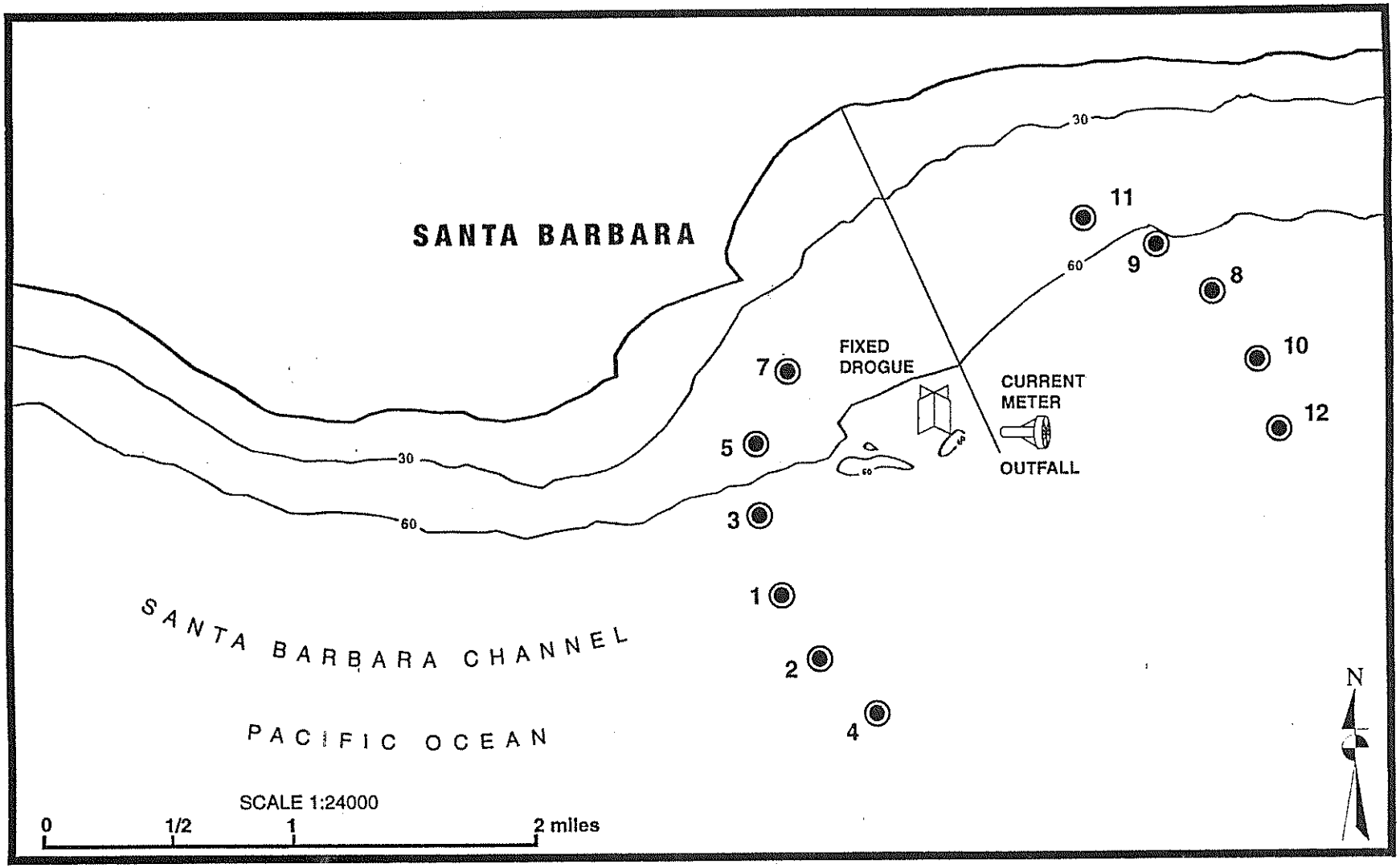
Study and Phase	Concentration, MPN/100g
Study I	49
Study II, Phase I	37
Study II, Phase II	26
Study II, Phase III	116, 24[1]

1 New mean with Sample III-8 removed from the data set.

Data analysis. The final sample, Sample III-8, was obtained after a power failure of several hours at the treatment plant, during which the discharge was partially disinfected. The day before this sampling, eight analyses were conducted on four samples collected during peak loading. The sample means were 9,000 total coliform and 1,300 fecal coliform. This was the first and only sampling in which elevated effluent coliform concentrations were mirrored by elevations in shellfish tissue fecal coliform concentrations. Fecal coliform were found at 230, 1,300 and 4,600 MPN/100g at three mussel stations on the day after the nighttime power outage at the plant. The significance of this event is that this one-time accidental discharge of undisinfected effluent was shown to cause a corresponding effect on mussels approximately a mile from the point of discharge. Moreover, the effect was detected only when effluent coliform concentrations exceeded the limitation by several times for a sustained period of time.

Table 1 provides the mean shellfish coliform concentrations found during Study I when the effluent was disinfected to less than 23 MPN total coliform per 100 ml and the mean concentrations found during Study II when effluent coliform were held to 1,300 and 2,300 MPN/100 ml. At 49 MPN/100g, the mean coliform found in shellfish while at maximum disinfection exceeded the mean coliform levels found in all the study phases when the less stringent effluent coliform limit was in effect and less disinfectant was applied. These results strongly indicate that the effluent disinfected to the less stringent standard also poses no threat to shellfish. Additionally, all mean shellfish tissue concentration were less than the allowable maximum of 230 MPN/100g.

To confirm the indications summarized above, the Discharger statistically compared the mean coliform concentrations found in shellfish tissue exposed to the less-disinfected wastewater plume to the mean concentrations found in shellfish tissue both in the control stations and the Study I test samples exposed to effluent disinfected to less than 23 MPN/100 ml. The statistical procedures employed testing of the hypothesis of whether the means of two data sets are significantly different from one another (t-test). With 99 percent confidence, no statistically significant differences were found between the means. Additionally, statistical procedures (F test) evaluating the measures of variance found that the data were not significantly different from one another. The analyses are included in the Discharger's detailed report, mentioned above.



STUDY II

FINAL SHELLFISH SAMPLING STATION CONFIGURATION

STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION
81 Higuera Street, Suite 200
San Luis Obispo, California 93401-5427

WASTE DISCHARGE REQUIREMENTS ORDER NO. 99-40
NPDES NO. CA0048143

Waste Discharger Identification No. 3 420108001
Second Draft June 16, 1999
Proposed for Consideration at the July 9, 1999 Meeting

For

CITY OF SANTA BARBARA
EL ESTERO WASTEWATER TREATMENT PLANT
AND LOCAL SEWERING ENTITY
Santa Barbara County

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

1. The City of Santa Barbara (hereafter Discharger) operates a wastewater collection, treatment, and disposal system to provide sewerage service to the City of Santa Barbara and portions of Santa Barbara County.

2. Santa Barbara County retains ownership and direct responsibility for wastewater collection and transport systems up to the point of discharge into interceptors owned and operated by the Discharger. It is incumbent upon this local sewering entity (as building permit authority) to protect the environment to the greatest degree possible and insure its local collection systems, as well as the receiving sewerage system, are protected and utilized properly. This responsibility includes preventing overflows and may include restricting or prohibiting the volume, type, or concentration of wastes added to the system.

3. On December 21, 1998, the Discharger submitted an application for authorization to discharge wastes under the National Pollutant Discharge Elimination System (NPDES). NPDES Permit No. CA0048143 was last revised by the Board on June 3, 1994 (Waste Discharge Requirements (WDRs) Order No. 94-37).

4. The El Estero Wastewater Treatment Plant (WWTP) is on property owned by the Discharger (T4N, R27W, Section 23, SB B&M), as shown on Attachment "A."

5. The treatment system consists of screening and comminution, aerated grit removal, primary sedimentation, activated sludge, secondary sedimentation, and chlorination and dechlorination. The treatment plant design capacities are as follows:

   Average Dry Weather Flow --
   11.0 million-gallons-per day (MGD)
   Peak Wet Weather Flow -- 19.0 MGD

6. The biosolids handling system consists of sludge thickening, anaerobic digestion, and belt presses. Dried sludge is hauled away and reclaimed on land. This reuse is regulated by separate biosolids reclamation requirements.

7. The WWTP provides tertiary wastewater treatment by means of coagulation, flocculation, filtration, and additional disinfection processes. The additional treatment allows the Discharger to provide up to 1.6 MGD of reclaimed wastewater for landscape irrigation within the City of Santa Barbara. WDRs and Master

Reclamation Permit Order No. 97-44 governs the use of the reclaimed wastewater in accordance with the wastewater reclamation criteria specified in the California Code of Regulations, Division 4, Title 22.

8. Wastewater is discharged to the Pacific Ocean through an 8,720-foot outfall/diffuser system. The outfall terminates in the Santa Barbara Channel (34°23'31" N. Latitude, 119°40'08" W. Longitude) in approximately 70 feet of water. The hydraulic capacity of the outfall is 28.0 MGD.

9. Existing and anticipated beneficial uses of ocean waters in the vicinity of the discharge include:

   a. Water contact recreation;
   b. Non-contact water recreation, including aesthetic enjoyment;
   c. Industrial water supply;
   d. Navigation;
   e. Marine habitat;
   f. Shellfish harvesting;
   g. Mariculture;
   h. Preservation of Rare and Endangered Species;
   i. Fish migration;
   j. Fish spawning; and,
   k. Ocean commercial and sport fishing.

10. The computed seawater to effluent minimum initial dilution ratio (MIDR), when the discharge consists solely of WWTP effluent, is 120:1. The WWTP discharge is buoyant and rises toward the ocean surface after discharge from the outfall diffuser on the seafloor.

11. When operational, the desalination plant discharges waste brine at one of five flowrates depending on the plant's rate of freshwater production. (The Discharger has deactivated the plant until it is needed.) When the plant is operational, the waste brine discharge flowrates are 3.9, 4.1, 9.4, 10, and 12.5 MGD. Due to its high salinity, the brine is substantially denser than the ambient ocean waters. As the fraction of brine in the combined brine/WWTP discharge increases, the combined discharge becomes less buoyant, and falls to the seafloor. The discharge's excess salinity threatens to impair the beneficial uses of ocean waters, including the habitat in, on and near the seafloor.

12. As estimated by computer modeling, the following table provides (1) the minimum WWTP discharge flowrate necessary to ensure the combined discharge will remain buoyant and above the seafloor, and (2) the MIDR for the combined discharge computed at the minimum WWTP discharge flowrate.

Brine Discharge, MGD	WWTP Discharge, MGD	MIDR
3.9	5	55
4.1	4	44
9.4	8	52
10	10	56
12.5	14	62

13. On September 20, 1984, the U.S. Environmental Protection Agency published revised secondary treatment regulations (40 CFR Part 133). These regulations provide permitting authorities the option of substituting the pollutant parameter $CBOD_5$ for the pollutant parameter BOD_5 in permits for secondary treatment facilities.

14. The outfall location is shown on Attachment "A." Alternative locations and methods of disposal or recycling, including land based alternatives, were considered during planning under the Clean Water Grants Program.

15. The Environmental Protection Agency and this Board classify this discharge as a major discharge.

16. The State Water Resources Control Board (State Board) adopted the "Water Quality Control Plan, Ocean Waters of California-California Ocean Plan" (California Ocean Plan) on July 23, 1997. The Ocean Plan contains water quality objectives and other requirements governing discharge to the Pacific Ocean.

17. The Water Quality Control Plan, Central Coastal Basin (Basin Plan) was adopted by the Board on November 17, 1989, and approved by the State Water Resources Control Board on August 16, 1990. The Board approved amendments to the Plan on February 11, 1994 and September 8, 1994. The Basin Plan incorporates statewide plans and policies by reference and contains a strategy for protecting the beneficial uses of the Pacific Ocean.

18. The shellfishing beneficial use (Finding 9.f.) exists wherever mussels, clams, or oysters may be harvested for human consumption. To the knowledge of this Regional Board: 1) habitat for mussels is very limited, existing only at shoreline locations and offshore oil platforms greater than 1 1/2 miles from the discharge; 2) clamming activity is insignificant; and, 3) oyster harvesting, presently, exists at no offshore commercial leases.

19. The State Department of Health Services has established an emergency notification safety zone (prohibitive zone) for shellfish harvesting within a three-mile radius of the discharge. Thus, shellfish harvesting is an existing beneficial use in nearshore areas (i.e., within one mile of shore) and outside the three mile prohibitive zone, and receiving water limitations specified in paragraph C.1 of this Order apply in these areas.

20. Waste discharge requirements for this discharge are exempt from the provisions of the California Environmental Quality Act (Public Resources Code, Section 21100, et seq.) in accordance with Section 13389 of the California Water Code.

21. A permit and the privilege to discharge waste into waters of the State are conditional upon the discharge complying with provisions of Division 7 of the California Water Code and of the Clean Water Act (as amended or as supplemented by implementing guidelines and regulations) and with any more stringent effluent limitations necessary to implement water quality control plans, to protect beneficial uses, and to prevent nuisance. This Order shall serve as a National Pollutant Discharge Elimination System Permit pursuant to Section 402 of the Clean Water Act. Compliance with this Order should assure conditions are met and mitigate any potential changes in water quality due to the project.

22. On April 19, 1999, the Board notified the Discharger and interested agencies and persons of its intent to reissue waste discharge requirements for the discharge and has provided them with a copy of the proposed order and an opportunity to submit written views and comments, and scheduled a public hearing.

23. In a public hearing on July 9, 1999, the Board heard and considered all comments pertaining to the discharge and found this Order consistent with the above findings.

IT IS HEREBY ORDERED, pursuant to authority in Section 13377 of the California Water Code, that the City of Santa Barbara, its agents, successors, and assigns, may discharge waste from the El Estero Wastewater Treatment Plant providing compliance is maintained with the following:

(Note: General permit conditions, definitions and the method of determining compliance are contained in the attached "Standard Provisions and Reporting Requirements for National Pollutant Discharge Elimination System Permits," dated January, 1985. Applicable paragraphs are referenced in paragraph E.4 of this Order.)

Throughout this Order, the following footnotes provide the sources of the waste discharge requirements:

A = 40 CFR 133.102

B = 40 CFR 122.44

C = Basin Plan

D = California Ocean Plan

E = 40 CFR 403

A. **Discharge Prohibitions**

1. Discharge of treated wastewater (other than reclaimed water) at a location other than 34°23'31" N. Latitude, 119°40'08" W. Longitude, is prohibited.

2. Bypass of the treatment facility and discharge of any wastes not meeting this Order's discharge specifications are prohibited.

3. Discharge of any wastes including overflow, bypass, and seepage from transport, treatment, or disposal systems is prohibited.

B. **Effluent Limitations**

1. "Removal Efficiencies" for Total Non-Filterable Residue (Suspended Solids) and Biochemical Oxygen Demand (BOD) shall not be less than 85%. In addition, effluent shall not exceed the following limitations:

Constituents	Unit of Measurements	Monthly (30-Day) Average	Weekly (7-Day) Average	Daily Maximum
C.B.O.D., 5-day[B]	mg/l	25	40	90
	lbs/day	2,295 *	3,670 *	8,260 *
Total Non-Filterable Residue (Suspended Solids)[B]	mg/l	30	45	90
	lbs/day	2,750 *	4,130 *	8,260 *

* For Flows less than 11.00 MGD, mass emission rates shall not exceed the "Maximum Allowable Mass Emission Rate."

2. Effluent shall not exceed the following limits:*

Constituents	Unit of Measurements	Monthly (30-Day) Average	Weekly (7-Day) Average	Daily Maximum
Grease and Oil[D]	mg/l	25	40	75
	lbs/day	2,295 *	3,670 *	6,880 *
Settleable Solids[D]	ml/l	1.0	1.5	3.0
Turbidity[D]	NTU	75	100	225
pH[D]	Within limits of 6.0 to 9.0 at all times.			
Acute Toxicity[D]	TUa	1.5	2.0	2.5

3a. When the discharge consists of effluent only, effluent shall not exceed the following limits[D] (minimum initial seawater: effluent dilution ratio equals 120):[1]

PROTECTION OF MARINE AQUATIC LIFE

Constituent	Units	Concentration 6-Month Median	Daily Maximum	Instantaneous Maximum
Total Chlorine Residual	mg/l	0.24	0.97	7.26
Ammonia (as N)	mg/l	72.60	290.40	726.00
Chronic Toxicity	TUc	-	121.00	-

1 Based on California Ocean Plan criteria using a minimum initial dilution ratio of 120:1. If the actual dilution is found to be less than this value, it will be recalculated and the Order revised.

3b. When the desalination plant is operational, effluent shall not exceed the following limits[D] (minimum initial seawater: effluent dilution ratio equals 44):[2]

PROTECTION OF MARINE AQUATIC LIFE

Constituent	Units	Concentration 6-Month Median	Daily Maximum	Instantaneous Maximum
Total Chlorine Residual	mg/l	0.09	0.36	2.70
Ammonia (as N)	mg/l	27.00	108.00	270.00
Chronic Toxicity	TUc	-	45.00	-

2 Based on California Ocean Plan criteria using a minimum initial dilution ratio of 44:1. If the actual dilution is found to be less than this value, it will be recalculated and the Order revised.

a. During any 24-hour period, the effluent mass emission rate shall not exceed the "Maximum Allowable Mass Emission Rate".

b. The Discharger shall report violations of the "Instantaneous Maximum" or "Maximum Allowable Daily Emission Rate" to the Executive Officer within 24 hours after discovery.

c. During any six-month period, the effluent mass emission rate shall not exceed the "Maximum Allowable Six-month Median Mass Emission Rate."

4. Effluent daily dry weather flow shall not exceed monthly average of 11.00 MGD.

5. Effluent[D] shall be essentially free of materials and substances that:

a. float or become floatable upon discharge.
b. may form sediments which degrade benthic communities or other aquatic life.

c. accumulate to toxic levels in marine waters, sediments or biota.
d. decrease the natural light to benthic communities and other marine life.
e. result in aesthetically undesirable discoloration of the ocean surface.

6. Effluent discharged to the Pacific Ocean shall encounter the seafloor only after the seawater to effluent dilution ratio has increased to the minimum ratio specified in Effluent Limitation 3a, 3b, or as determined according to Provisions G.4, G.5 and G.6. The dilution ratio shall be demonstrated by means of a computer model approved by the Executive Officer, employing input variables approved by the Executive Officer.

7. The median number of total coliform organisms in effluent shall not exceed 2,300 per 100 milliliters (ml), as determincd by the bacteriological results for the last 30 days on which analyses were completed, and the number of total coliform organisms in any sample shall not exceed 16,000 MPN/100 ml.

8. The median number of fecal coliform organisms in effluent shall not exceed 460 per 100 milliliters (ml), as determined by the bacteriological results for the last 30 days on which analyses were completed, and the number of fecal coliform organisms in any sample shall not exceed 3,200 MPN/100 ml.

C. Receiving Water Limitations

(Receiving water quality is a result of many factors, some unrelated to the discharge. This permit considers these factors and is designed to minimize the influence of the discharge to the receiving water.)

The discharge shall not cause:

1. The following bacteriological limits to be exceeded in the water column (a) within a zone bounded by the shoreline and 30-foot depth contour/a distance of 1,000 feet from the shoreline; (b) within areas where there are kelp beds; and (c) within areas used for body contact recreation:

Parameter Applicable	Total Coliform Organisms (MPN/100 ml)	Fecal Coliform Organisms (MPN/100 ml)
Log Mean (30-day period)	---	200
90% of Samples (60-day period)	--	400
80% of Samples (30-day period)	1,000	---
Maximum*	10,000	---

* Verified by a repeat sample taken within 48 hours of test completion.

The following bacteriological limits to be exceeded in the water column in areas where shellfish are harvested:

Parameter Applicable to any 60-day period	Total Coliform Organisms (MPN/100 ml)
Median	70
90% of Samples	230

2. Change in the rate of deposition of inert solids and the characteristics of inert solids in ocean sediments such that benthic communities are degraded.

3. Aesthetically undesirable discoloration of the ocean surface.

4. Significant reduction of transmittance of natural light in ocean waters outside the "zone of initial dilution".

5. Change in the rate of deposition and characteristics of inert solids in ocean sediments so as to degrade benthic communities.

6. The dissolved oxygen concentration outside the zone of initial dilution to fall below 5.0 mg/l or to be depressed more than 10 percent from the naturally-occurring concentration.

7. The pH outside the zone of initial dilution to be depressed below 7.0, increased above 8.5, or changed more than 0.2 units from the naturally-occurring level.

8. Dissolved sulfide concentrations in waters in and near sediments to significantly increase above naturally-occurring levels.

9. Concentrations of the substances specified in Table B of the Ocean Plan to increase in marine sediments to concen5rsations which would degrade indigenous biota.

10. Objectionable aquatic growth or degradation of indigenous biota.

11. Concentrations of organic compounds in marine sediments to increase to concentrations which would degrade marine life.

12. Degradation of marine communities, including vertebrates, invertebrates, and plants.

13. Alteration of natural tastes, odor, or color of fish, shellfish, or other marine resources consumed by humans.

14. Concentrations of organic compounds in fish, shellfish, or other marine resource consumed by humans to bioaccumulate to concentrations that threaten or impair human health.

15. Degradation of marine life due to radioactive waste.

16. Temperature of the receiving water to impair beneficial uses.

D. Pretreatment Specifications[E]

1. The Discharger shall be responsible for the performance of all pretreatment requirements contained in 40 CFR §403 and shall be subject to enforcement actions, penalties, fines, and other remedies by the Environmental Protection Agency (EPA), or other appropriate parties, as provided in the Clean Water Act, as amended (33 USC 1351 et seq.) The Discharger shall implement and enforce its Approved POTW Pretreatment Program. The Discharger's Approved POTW Pretreatment Program is hereby made an enforceable condition of this Order and Permit. EPA or the State may initiate enforcement standards and requirements as provided in the Clean Water Act.

2. The Discharger shall enforce the requirements promulgated under Sections 307(b), 307(c), 307(d), and 402(b) of the Clean Water Act. The Discharger shall cause industrial users subject to Federal Categorical Standards to achieve compliance no later than the date specified in those requirements or, in the case of

a new industrial user, upon commencement of the discharge.

3. The Discharger shall perform the pretreatment functions as required in 40 CFR §403 including, but not limited to:

   a. Implement the necessary legal authorities as provided in 40 CFR §403.8(f)(1);
   b. Enforce the pretreatment requirements under 40 CFR §403.5 and §403.6;

   c. Implement the programmatic functions as provided in 40 CFR §403.8(f)(2); and

   d. Provide the requisite funding and personnel to implement the pretreatment program as provided in 40 CFR §403.8(f)(3).

E. Collection System Maintenance and Renovation Program

The Discharger shall continue to implement its Collection System Maintenance and Renovation Program (Program). The Program shall continue to operate, maintain, and replace the collection system to achieve the following goals:

- Reduce overflows caused by, but not limited to, the following: blocked sewer laterals and mains; excessive flows caused by excessive inflow and infiltration exceeding manhole and pump station capacity; inadequate pipeline capacity; and/or poor location of pipelines, lift stations, and manholes such that chronic overflow occurs.
- Increase reliability of system operations by means of, but not limited to, the following: backup power generators, failure alarms, and/or computerized system monitoring and control.

In its annual report to the Executive Officer, the Discharger shall describe the following:

1. The Program components, including short-term and long-term goals to:
   a. replace and renovate sewer pipelines and lift stations,
   b. reduce illegal discharges into the sewer system and;
   c. finance the Program.

2. Describe actions taken in the prior year according to the Program to achieve the goals specified above. The actions shall include, as appropriate and not limited to, the following: pipeline flushing, visual inspections, pipeline repair and replacement, lift station upgrades, and/or control system improvements.

3. Describe the prior year's overflows and actions taken in response. in the facility Annual Report.

4. Fiscal Resources: The Program shall provide a description of fiscal resources necessary to ensure system operation. The Program shall include, at a minimum, the following items:

   a. Fee Structure: Quantification of current and five year projected sewer assessment fees necessary to implement the Program including a comparison of fees collected by the Discharger as well as those collected by all other member sewering entities.

   b. Available Fiscal Resources: Actual and five year projected budget expenses for staffing, operation and replacement of collection system, including a description of a capital improvement or sinking fund to provide funding for item 6.e., below.

F. Biosolids Specifications.

The Discharger shall dispose or use all biosolids[1] in compliance with the applicable portions of the following:

- 40 CFR 503: for land-applied or incinerated biosolids, or those disposed of in surface sites;

- 40 CFR 258: for biosolids disposed of in municipal solid waste landfills:

- 40 CFR 257: for all biosolids uses and disposal practices not covered under 40 CFR 258 or 503.

40 CFR 503 Subpart B (land application) applies to biosolids applied for the purpose of enhancing plant growth or for land reclamation. 503 Subpart C

(surface disposal) applies to biosolids placed on the land for the purpose of disposal.

The Discharger shall assure that all biosolids produced at the treatment plant are used or disposed of in accordance with these rules, whether the Discharger uses or disposes of the biosolids or transfers them to another party for treatment, use, or disposal. The Discharger shall inform subsequent owners of the biosolids of the rules listed above.

G. Provisions.

1. The requirements prescribed by this Order supersede the requirements prescribed by Order No. 94-37, adopted by the Board on June 3, 1994. Order No. 94-37 is hereby rescinded.

2. The Discharger shall comply with "Monitoring and Reporting Program No. 99-40," as ordered by the Executive Officer.

3. Where toxicity monitoring shows a violation of toxicity limitations in Effluent Limitations B.2 or B.3 of this Order, the Discharger shall increase the frequency of toxicity testing to once per week and submit the results within 10 days after each test to the Executive Officer (EO). The EO will determine whether to initiate enforcement action or whether to require Discharger to implement toxicity reduction evaluation (TRE) requirements. Discharger shall implement a TRE as outlined below: [EPA's Toxicity Reduction Evaluation Procedures, Phases 1,2, and 3 (EPA Document Nos. EPA 600/3-88/034, 600/3-88/035 and 600/3-88/036, respectively) and TRE Protocol for Municipal Wastewater Treatment Plants (EPA 600/2-88/062) shall be the basis for this plan].

Toxicity Reduction Evaluation

Upon identifying noncompliance, in accordance with the reporting requirement noted above, the Discharger shall initiate a TRE according to the following schedule:

TASK	TIME SCHEDULE
a. Take all reasonable measures necessary to immediately reduce toxicity, where source is known.	Within 24 hours of identification of noncompliance
b. Submit to the EO a TRE study plan describing the toxicity reduction procedures to be employed.	Within 60 days of identification of noncompliance
c. Initiate the TRE	To be determined by the EO
d. Conduct the TRE following the procedures in the plan.	To be determined by the EO
e. Submit the results of the TRE, including summary of findings, required corrective action, and all results and data.	Within 60 days of completion of the TRE
f. Implementation corrective actions to meet permit limits and conditions.	Within 7 days of notification by the EO
g. Return to regular monitoring after implementing corrective measures and approval by the EO.	One-year period or as specified in the plan

4. If the projected waste brine and municipal discharge flowrates will vary from those specified in Finding No. 12, then the Discharger shall submit, for the approval of the Executive Officer, the results of computer modeling, approved by the Executive Officer, to establish the required minimum initial dilution ratio (MIDR) for the combined discharge at the boundary of the zone of initial dilution. The Discharger shall submit the modeling results at least 60 days before proposing to begin the discharge of waste brine from the desalination plant.

5. Before reporting the proposed discharge of waste brine to the ocean outfall as provided in Provision G.4, the Discharger shall ensure the study addressed in Provision D.6 has been conducted and its results approved by the Executive Officer.

6. At least 180 days before the proposed date of discharge from the desalination plant, the Discharger shall inform the Executive Officer. Board staff shall then draft revised waste discharge requirements establishing the revised MIDR for the combined discharge and present them to the Board for their consideration at a regularly scheduled public meeting.

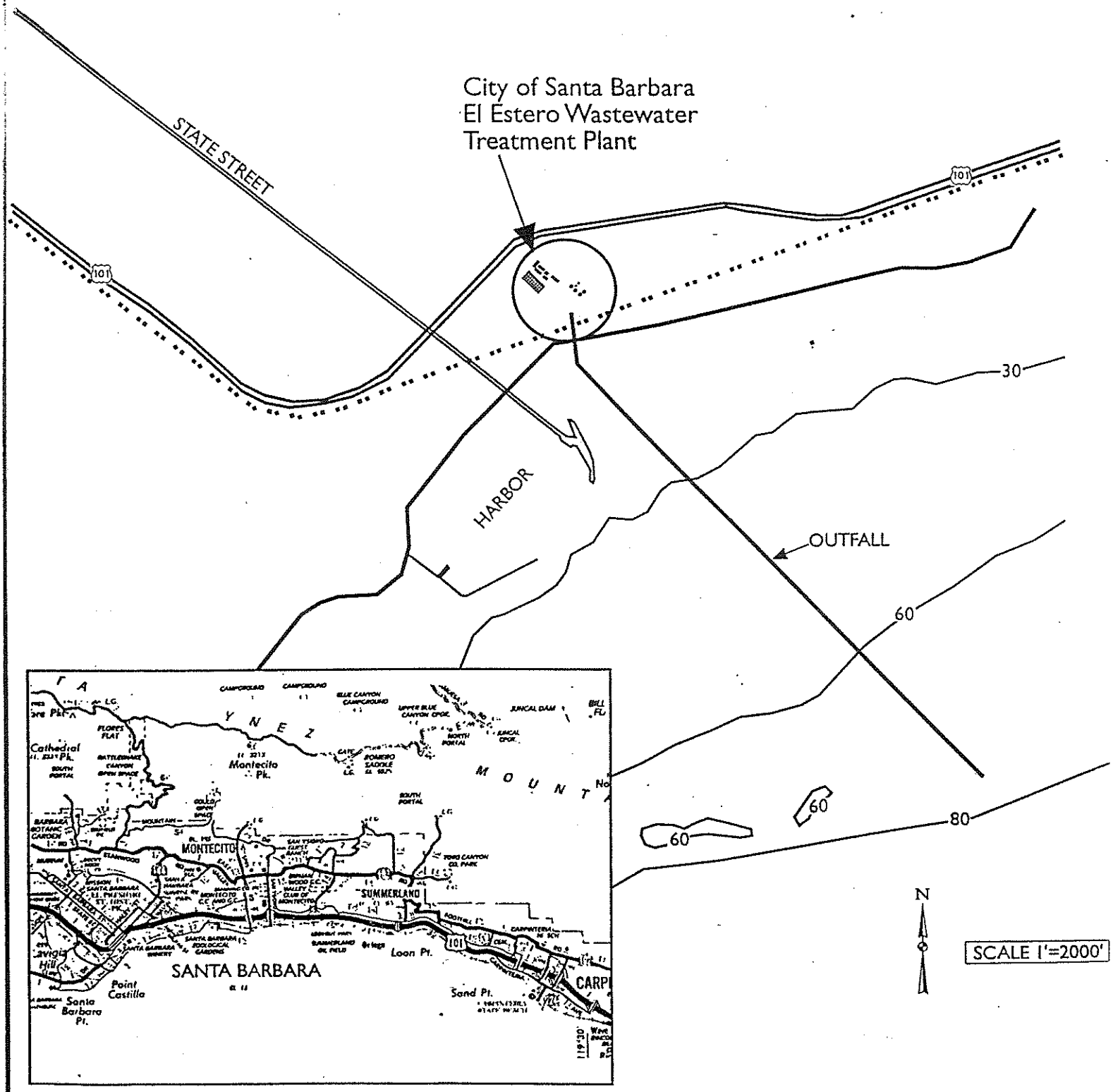
7. Discharger shall comply with all items of the attached "Standard Provisions and Reporting Requirements for the National Pollutant Discharge Elimination System," dated January 1985, except Item No. C.18.

8. This Order expires on July 9, 2004 and the Discharger must file a Report of Waste Discharge in accordance with California Code of Regulations, Title 23, Chapter 3, Subchapter 9, not later than January 9, 2004 if it wishes to continue the discharge.

IT IS FURTHER ORDERED, that the County of Santa Barbara shall:

1. Comply with the attached "Standard Provisions and Reporting Requirements," including: A, General Permit Conditions, paragraphs numbered 1-4, 6-11, 14-18, 20 and 21; C, General Reporting Requirements, paragraph numbers 4, 5, 13, 14, 15, and 17; D, General Pretreatment Provisions; F, Enforcement, paragraph numbers 3, 4, and 5; and G, Definitions.

2. Cooperate with the Discharger in implementing its pretreatment program.



ATTACHMENT A

STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION
81 Higuera Street, Suite 200
San Luis Obispo, CA 93401-5427

MONITORING AND REPORTING PROGRAM NO. 99-40
NPDES PERMIT NO. CA0048143

Waste Discharger Identification No. 3 420108001
Second Draft June 16, 1999
Proposed for Consideration at the July 9, 1999 Meeting

For

CITY OF SANTA BARBARA
EL ESTERO WASTEWATER TREATMENT FACILITY,
Santa Barbara County

INFLUENT MONITORING

All influent samples shall be collected from the influent pipelines to the plant and analyzed at the frequency specified. Composite samples may be taken by a proportional-sampling device approved by the Executive Officer or by composited grab samples. In compositing grab samples, the sampling interval shall not exceed one hour. The following shall constitute the influent monitoring program:

Constituent	Units	Type of Sample	Sampling and Analyzing Frequency
Daily Flow	MG	Metered	Daily
Instantaneous Flow Rate	MGD	Metered	Daily
Maximum Daily Flow	MGD	--	Monthly
Mean Daily Flow	MGD	--	Monthly
CBOD, 5-Day	mg/l	24-hr. composite	Monthly
Suspended Solids	mg/l	24-hr. composite	Monthly

EFFLUENT MONITORING

When the desalination plant is not operating, effluent samples shall be collected from the outfall line at a location beyond the last point where effluent from the wastewater treatment plant enters the line, before the point of entry of the desalination plant waste brine. When the desalination plant is operating, the Discharger shall also sample the combined effluent from a location, approved by the Executive Officer, where the separate streams are completely mixed. Composite samples may be taken by a proportional-sampling device approved by the Executive Officer or by grab samples composited in proportion to the flow. In compositing grab samples, the sampling interval shall not exceed one hour. The effluent monitoring program is:

Constituent	Units	Type of Sample	Sampling Frequency
Daily Flow[5]	MD	Metered	Daily
Instantaneous Flow Rate[5]	MGD	Metered	Daily
Maximum Daily Flow[5]	MGD	Metered	Monthly

Type of Constituent	Sampling Units	Sample	Frequency
Mean Daily Flow[5]	MGD	Metered	Continuous
Chlorine Residual[5]	mg/l	Metered (after dechlorination)	Continuous
Total Chlorine[5]	lbs/day	Recorded	Daily
Total Coliform Organisms[5]	MPN/100 ml	Grab	Daily
Fecal Coliform Organisms[5]	MPN/100ml	Grab	Daily
Salinity[5]	mg/l	Grab	Weekly[6]
Turbidity[5]	NTU	Grab	Daily
Suspended Solids[5]	mg/l	24-hr. Composite	Daily
Settleable Solids[5]	ml/l	Grab	Daily
pH[5]	pH units	Grab	Daily
CBOD, 5-day[5]	mg/l	24-hr. Composite	Once every 6 days
Grease and Oil[5]	mg/l	Grab	Once every 6 days
Temperature[5]	°F	Grab	Once every 6 days
Ammonia (as N)[5]	mg/l	Grab	Monthly
Phenolic Compounds (non-chlorinated)	µg/l	Grab	Quarterly[2] (March/June/Sept./Dec.)
Chlorinated Phenolics	µg/l	Grab	(March/June/Sept./Dec.)
Total Sulfides	mg/l	Grab	(March/June/Sept./Dec.)
Toxicity Concentration			
Acute[7]	TUa	Grab	Quarterly [2] (March/June/Sept./Dec.)
Chronic[8]	TUc	Grab	Semi-annually[2,4] (March/December)
Arsenic	mg/l	24-hr. Composite	1999[1]
Cadmium	mg/l	24-hr. Composite	1999[1]
Chromium (Total)	mg/l	24-hr. Composite	1999[1]
Chromium (Hex)	mg/l	24-hr. Composite	1999[1]
Copper	mg/l	24-hr. Composite	1999[1]
Iron	mg/l	24-hr. Composite	1999[1]
Lead	mg/l	24-hr. Composite	1999[1]
Mercury	mg/l	24-hr. Composite	1999[1]
Nickel	mg/l	24-hr. Composite	1999[1]
Silver	mg/l	24-hr. Composite	1999[1]
Zinc	mg/l	24-hr. Composite	1999[1]
Cyanide	mg/l	Grab	1999[1]
Acrolein	mg/l	Grab	1999[1]
Antimony	mg/l	Grab	1999[1]
Bis(2-chloroethoxy)methane	µg/l	Grab	1999[1]
Bis(2-chloroisopropyl)ether	mg/l	Grab	1999[1]
Chlorobenzene	mg/l	Grab	1999[1]
Chromium (III)	g/l	Grab	1999[1]
Di-n-butylphthalate	mg/l	Grab	1999[1]

Type of Constituent	Units	Sample	Sampling Frequency
Dichlorobenzenes	g/l	Grab	1999[1]
I,I-Dichloroethylene	g/l	Grab	1999[1]
Diethylphthalate	g/l	Grab	1999[1]
Dimethylphthalate	g/l	Grab	1999[1]
4,6-Dinitro-2-methylphenol	mg/l	Grab	1999[1]
2,4-Dinitrophenot	µg/l	Grab	1999[1]
Ethylbenzene	mg/l	Grab	1999[1]
Fluoranthene	mg/l	Grab	1999[1]
Hexachlorocyclopentadiene	mg/l	Grab	1999[1]
Isophorone	g/l	Grab	1999[1]
Nitrobenzene	mg/l	Grab	1999[1]
Thallium	mg/l	Grab	1999[1]
Toluene	g/l	Grab	1999[1]
1, 1,2,2-Tetrachloroethane	mg/l	Grab	1999[1]
Tributyltin	ng/l	Grab	1999[1]
1,1,1 -Trichloroethane	g/l	Grab	1999[1]
1,1,2-Trichloroethane	g/l	Grab	1999[1]
Acrylonitrile	µg/l	Grab	1999[1]
Aldrin	ng/l	Grab	1999[1]
Benzene	mg/l	Grab	1999[1]
Benzidine	ng/1	Grab	1999[1]
Beryllium	µg/1	Grab	1999[1]
Bis(2-chloroethyl)ether	µg/l	Grab	1999[1]
Bis(2-ethythexyl)phthalate	µg/1	Grab	1999[1]
Carbon tetrachloride	µgII	Grab	1999[1]
Chlordane	ng/l	Grab	1999[1]
Chloroform	mg/l	Grab	1999[1]
DDT	ng/l	Grab	1999[1]
1,4-Dichlorobenzene	mg/l	Grab	1999[1]
3,3-Dichlorobenzidine	µg/l	Grab	1999[1]
1,2-Dichloroethane	mg/l	Grab	1999[1]
Dichloromethane	mg/l	Grab	1999[1]
1,3-Dichloropropene	mg/l	Grab	1999[1]
Dieldrin	ng/1	Grab	1999[1]
2,4-Dinitrotoluene	µg/l	Grab	1999[1]
1,2-Diphenylhydrazine	µg/l	Grab	1999[1]
Halomethanes	mg/l	Grab	1999[1]
Heptachlor	ng/l	Grab	1999[1]
Hexachlorobenzene	ng/l	Grab	1999[1]
Hexachlorobutadiene	mg/l	Grab	1999[1]
Hexachloroethane	µg/l	Grab	1999[1]
N-Nitrosodimethylamine	mg/l	Grab	1999[1]
N-Nitrosodiphenylamine	g/l	Grab	1999[1]
Polynuclear aromatic hydrocarbons	µg/l	Grab	1999[1]
Polychlorinated biphenyls (PCB)	g/l	Grab	1999[1]
TCDD equivalents	pg/l	Grab	1999[1]
Tetrachloroethylene	mg/l	Grab	1999[1]

Constituent	Units	Type of Sample	Sampling Frequency
Toxaphene	ng/l	Grab	1999[1]
Trichloroethylene	mg/l	Grab	1999[1]
2,4,6-Trichlorophenot	µg/l	Grab	1999[1]
Vinyl chloride	mg/l	Grab	1999[1]

[1] Samples shall be obtained in September 1999 and, if constituents are not detected, additional sampling will not be required. The Discharger shall submit quarterly certification that the constituents are not added to the waste stream as determined through means under its control (such as the Pretreatment Program), and that no change has occurred in activities within the service area which could cause such substances to be present in the discharge. Certification does not relieve the Discharger from the requirement to meet all effluent limitations.

[2] Samples shall be collected simultaneously with sampling of desalination plant effluent for like constituents. If toxicity is detected, effluent shall be resampled within 24 hours of completing the analysis.

[3] Report daily maximum and daily mean values for chlorine residual. Discharger shall notify the Regional Board (telephone: 805-549-3147), Department of Health Services (telephone: 510-540-3423), and any Mariculture Grower as soon as possible when there is a shutdown of chlorination equipment or if three consecutive effluent coliform bacteria tests exceed 16,000 MPN/100ml.

[4] Effluent samples shall be also obtained immediately after commencing discharge of desalination brine. Desalination brine dilutions shall represent the entire range of possible dilutions by effluent from the wastewater treatment plant. Test species shall represent locally indigenous benthic infauna, epilbenthic macroinvertibrates, and demersal fish.

[5] When the desalination plant is operating, these constituents shall be monitored in samples taken from the wastewater treatment plant effluent sampling point upstream of the point where the desalination plant waste brine is combined into the discharge.

[6] When desalination plant is operating.

[7] Acute toxicity tests shall be 96-hour static-renewal tests conducted in accordance with *Methods for measuring the Acute Toxicity of Effluents to Freshwater and Organisms* (EPA 600/4-94-27F, August 1993), or subsequent editions. The test species shall be inland silversides (Menidia Beryllina).

Reference toxicant tests shall be conducted concurrently with the sample tests. Both tests must satisfy the test acceptability specified in the references cited above. If the test acceptability criteria are not achieves or if toxicity is detected, the sample shall be retaken and retested within 14 days of the failed sampling event. The retest results shall be reported in accordance with the chapter on report preparation and in the reference cited above, and the results shall be attached to the next monitoring report.

The presence of effluent acute toxicity is represented by the statistically significant mortality of the test species in the wastewater samples compared with their mortality in the control sample. The sample's acute toxicity should be determined by establishing the LC_{50} concentration as described in the document noted above.

8 A minimum of three test species with approved test protocols shall be used to measure compliance with chronic toxicity objectives. If possible, the test species shall include a fish, an invertebrate, and an aquatic plant. After a screening period, monitoring can be reduced to the most sensitive species. Dilution and control water should be obtained from an unaffected area of the receiving waters. The sensitivity of the test organisms to a reference toxicant shall be determined concurrently with each bioassay test and reported with the test results.

The following tests shall be used to measure TUc. Other tests may be added to the list when approved by the State Board.

Constituent	Effect	Reference
giant kelp, Macrocystis pyrifera	percent germination; germ tube length	1,3
red abalone, Haliotis rufescens	abnormal shell development	1,3
oyster, Crassostrea gigas mussel, Mytilus edulis	abnormal shell development; percent survival	1,3
urchin, Strongylocentrotus purpuratus. sand dollar, Dendraster excentricus	percent fertilization; percent normal development	1,3
shrimp, Holmesimysis costata	percent survival; growth	1,3
topsmelt, Atherinops affinis	larval growth rate, percent survival	1,3

Bioassay Reference

1. Chapman, G.A., D.L. Denton, and J.M. Lazorchak. 1995. Short-term methods for estimating the chronic toxicity of effluents and receiving waters to west coast marine and estuarine organisms. EPA/600/R-95/136.

3. SWRCB1996. Procedures Manual for Conducting Toxicity Tests Developed by the Marine Bioassay Project.

RECEIVING WATER MONITORING

Sampling Station Location

Shore Stations	Description
A	Surf at Leadbetter beach
C	Surf east of Stearns Wharf pier
D	Surf at end of Santa Barbara Street
F	Surf opposite Palm Park restroom
H	Surf opposite bird refuge

Ocean Stations	Description
1	Near new outfall diffuser
2	1,400' north from end of new outfall
3	Near end of old outfall
4	6,500' west and at same depth contour as Station 1
5	1,400' east of new outfall
6	1,400' south of new outfall
7	1,400' west of new outfall
8	8,000' eastward and at same depth contour as Station 1

Shoreline Monitoring

If three consecutive effluent coliform bacteria tests exceed 16,000 MPN/100mL, samples shall be collected at shore stations A,C,D,F, and H and analyzed for total and fecal coliform organisms once a week from June through September and monthly from October through May. Sampling will continue until the effluent bacteria concentration returns to compliance.

Offshore Monitoring

The offshore monitoring program shall consist of the following four sections:

I. OUTFALL INSPECTION

Outfall Inspection: A diver shall inspect the outfall and diffuser ports annually. Cracks, breaks, plugged ports and other indications of the outfall diffuser system's state of repair and operation shall be reported to the Executive Officer.

II. BOTTOM SEDIMENT SAMPLING
(in 2002)

Parameter	**Units**	**Sampling Stations**
Sulfides (at pH 7)	mg/kg	1 through 8
Particle size distribution (incl. % retained on #200 sieve)	--	1 through 8
Organic Matter (volatile solids or TOC)	mg/kg	1 through 8
Total Coliform Organisms	MPN/100 g	1 through 8
Fecal Coliform Organisms	MPN/100 g	1 through 8
BOD	mg/kg	1 through 8
Total Kjeldahl Nitrogen	mg/kg	1 through 8
Arsenic	mg/kg	1 through 8
Cadmium	mg/kg	1 through 8
Total Chromium	mg/kg	1 through 8
Hexavalent Chromium	mg/kg	1 through 8
Copper	mg/kg	1 through 8
Lead	mg/kg	1 through 8

Parameter	Units	Sampling Stations
Mercury	mg/kg	1 through 8
Nickel	mg/kg	1 through 8
Iron	mg/kg	1 through 8
Silver	mg/kg	1 through 8
Zinc	mg/kg	1 through 8

The following procedure shall be carried out for sampling and analyzing ocean bottom sediments:

1. Duplicate samples shall be taken at each station and shall be analyzed and reported separately. Samples may be taken either by divers using non-contaminating samplers or by a surface-operated grab sampler which will obtain a relatively undisturbed sample. If the surface-operated grab sampler is used, a subsample (uncontaminated by the sampler) should be taken from the grab. In either case, the top five centimeters of material shall be used for analyses. Enough cores shall be taken at each station to provide sufficient sediment material for the required duplicate analyses

2. The contractor shall locate and mark the outfall teminus before beginning station locations and sampling. Reliance on charts or as-built plans will not suffice.

3. Control stations have been selected in areas that should provide similar sediments at similar depths to the outfall stations. If the contractor encounters rocks or gravel at a station, he shall reposition the station, as necessary, to obtain a usable sediment sample. Station location changes shall be described in the final report.

4. Samples shall be placed in airtight polyethylene containers. Care shall be taken to ensure the containers are completely filled by the samples and air bubbles are not trapped in the containers. A separate subsample for sulfide analysis shall be placed in small (100-200 ml) wide-mouth bottle and preserved with zinc acetate. The preservative must be carefully mixed with the sediment sample. The samples shall be stored immediately at 2 to 4°C and not frozen or dried. Total sample storage time shall not exceed two weeks.

   For bacterial analysis, storage time should not exceed 6 to 8 hours. Bacterial analysis should be performed prior to preservation.

5. When processing for analyses, macrofauna and remnants should be removed, taking cares to avoid contamination.

6. Chemical extractions are to be run for 24 hours with dilute HCL (0.5N) using guidelines recommended by the SWRCB. Subsequent analyses shall be conducted in accordance with the current edition of *Guidelines Establishing Test Procedures for Analysis of Pollutants,* promulgated by the United States Environmental Protection Agency. Any variations must be reported with the test results.

7. Results shall be expressed on a dry-weight basis.

8. Results shall be compared between outfall and reference areas using standard statistical techniques. Data shall be compared in its raw form, and chemical results are to be normalized to the clay fraction, which is the percent by weight passing the No. 200 sieve, as follows:

$$\text{normalized result} = \frac{\text{raw result}}{\text{\% of clay (as a decimal)}}$$

III. BENTHIC BIOTA

(same frequency as II)

1. At least four (4) samples will be taken at each of the following four stations: 1, 4, 7, and 8. The samples shall be taken by mechanical grab or qualified diver biologists utilizing three-pound coffee cans (or similar) with both ends cut out. (The cans are to be pushed into the sediment full length, the top capped,

surrounding sediment dug away, and the bottom capped). During collection, water temperature shall be recorded at three-meter depth intervals, and at the surface and bottom.

2. The sample shall be processed by washing it in a one millimeter (1 mm) sieve.

3. The sample should then be preserved in to percent buffered formalin or 75 percent alcohol. The material may be stained with Rose Bengal.

4. Coelenterates, polychaetes, macrocrustaceans, mollusks, ectoprocts, echinoderms, and algae shall be identified to species or at least to genus. All others shall be identified to the lowest taxon possible. All specimens shall be counted to provide information on abundance. Species abundance lists shall be presented with data reduced to standard area (sq. meter) and standard volume (liter).

5. For data from each sampling period, the following basic statistical analyses shall, as a minimum, be performed and reported:

   a. The mean, median, range, standard deviation, and 95 percent confidence limits of the species abundance data reduced to standard area and volume.

   b. Information theory species diversity index value

$$[H= \quad -\sum_{i=1}^{n} (n_1/N) \log (n_i/N)].$$

   for each replicate sample at each station and for the station as a whole (i.e., pooling data from all replicates for the station during one survey). In addition, the station mean, range, and standard deviation shall be calculated from the replicate index values.

   c. The infaunal index, dominance index and distributional statistics on "dominant" species as developed by the Southern California Coastal Water Research Project (SCCWRP) shall be calculated for each station. SCCWRP should be contacted for the latest species list and formula required.

6. The names and qualifications of persons identifying this material shall be indicated in all data reports. Furthermore, type collections shall be established for the various groups. All material shall be saved and stored for future reference. Material may be discharged after four years.

7. The final report on community analyses shall include a complete discussion of survey results and possible influence of the outfall on the marine communities in the study area. The discussion should be based on statistical evidence developed in item 5, above, and on similarity analysis and cluster analysis of the data. It should include an analysis of natural community variation including the effects of different oceanic seasons and water temperatures, which could influence the validity of study results.

IV. CHEMICAL ANALYSIS OF BIOTA

(same frequency as II & III)

Six (6) specimens of each species for chemical analysis shall be collected at the following locations:

Species	Outfall Area (Stations 1, 2, 5, 6, and 7 combined)	Control Area*
Pink Surfperch (zalembius rocaceus)	6	6
Giant Red Sea Urchin	6	6

(Stronglyocentrotus fimciscanus)	(attached to outfall or nearby substrate)

If one or both of the species listed above cannot be obtained as required or the Discharger/contractor justifies another method to fulfill the requirements, the Executive Officer may approve an alternate sampling species and/or procedure. The standard and total length, wet weight, sex and physiological condition of each specimen shall be recorded. Tissue shall be combined in a manner to produce sufficient material for two (2) separate analyses for each parameter from each sampling location. Each of these duplicate composite samples shall be separately analyzed for all toxic substances identified in the effluent and must include as a minimum: Cd, Total Cr, Cu, Pb, Hg, Ni, Ag and Zn. Specimens shall be stored in polyethylene at –20°C prior to analysis.

*A control area is to be selected by the Discharger near one of the Channel Islands. The site should provide similar habitats and species to the outfall area, and must be approved by the Executive Officer before sampling. Its location can be adjusted if necessary to obtain the required samples.

**Fish liver composites shall be analyzed for all trace metals except mercury. Fish flesh composites of dorsal muscle tissue shall be analyzed for mercury. Tissue for macro-invertebrate analysis to be approved by the Executive Officer.

PRETREATMENT REPORTING

By March 31 of each year, the Discharger shall submit an annual report to the State Board, Regional Board and EPA describing the Discharger's pretreatment activities over the previous 12 months. If the Discharger is not in compliance with any condition or requirement of this Order and permit, including any noncompliance with pretreatment audit or compliance inspection requirements, then the Discharger shall also include the reasons for noncompliance and state how and when the Discharger shall comply with such conditions and requirements. The report shall contain, but not necessarily be limited to, the following information:

1. A summary of analytical results from representative, flow-proportioned, 24-hour composite sampling of the plant's influent and effluent for those pollutants EPA has identified under Section 307(a) of the Act which are known or suspected to be discharged by industrial users. The Discharger is not required to sample and analyze for asbestos until EPA promulgates an applicable analytical technique under 40 CFR Part 136. Sludge shall be sampled during the same 24-hour period and analyzed for the same pollutants as the influent and effluent sampling and analysis. The sludge analyzed shall be a composite sample of a minimum of twelve discrete samples taken at equal time intervals over the 24-hour period. Wastewater and sludge sampling and analysis shall be performed annually, at a minimum, and not less than the frequency required in the plant's monitoring program. The Discharger shall also provide any influent, effluent, or sludge monitoring data for nonpriority pollutants that the Discharger believes may be causing or contributing to interference, pass-through, or adversely affecting sludge quality. Sampling and analysis shall be performed in accordance with the techniques prescribed in 40 CFR Part 136 and amendments thereto.

2. A discussions of upset, interference, or pass-through incidents, if any, at the POTW that the Discharger knows or suspects were caused by industrial users of the POTW system. The discussion shall include the cause(s) of the incidents, corrective actions taken and the name and address of the industrial user(s) responsible. Discussions shall also include a review of applicable pollutant limitations to determine whether any additional limitations or changes to existing requirements may be necessary to prevent pass-through, interference, or noncompliance with sludge disposal requirements.

3. The cumulative number of industrial users that the Discharger has notified regarding Baseline

Monitoring Reports and the cumulative number of industrial user responses.

4. An updated list of the Discharger's industrial users, including their names and addresses, or a list of deletions and additions keyed to a previously submitted list. The Discharger shall provide a brief explanation for each deletion. The list shall identify the industrial users subject to Federal Categorical Standards by specifying which set(s) of standards are applicable. The list shall indicate which categorical industries, or specific pollutants from each industry, are subject to local limitations that are more stringent than the Federal Categorical Standards. The Discharger shall also list the noncategorical industrial users that are subject only to local discharge limitations. The Discharger shall characterize the compliance status of each industrial user by employing the following descriptions:

   (a) In compliance with Baseline Monitoring Report requirements (where applicable);

   (b) Consistently achieving compliance;

   (c) Inconsistently achieving compliance;

   (d) Significantly violated applicable pretreatment requirements as defined by 40 CFR 403.8(f)(2Xvii);

   (e) On a schedule to achieve compliance (include the date final compliance is required);

   (f) Not achieving compliance and not on a compliance schedule; or

   (g) The Discharger does not know the industrial user's compliance status.

   A report describing the compliance status of any industrial user characterized by descriptions in Items 4(c) through (g) above shall be submitted quarterly from the annual report date to the State Board, Regional Board, and EPA. The report shall identify the specific compliance status of each such industrial user. This quarterly reporting requirement shall commence upon issuance of this Order and Permit. Quarterly reports shall be submitted April 30, July 31, and October 31. The fourth quarter report shall be incorporated in the annual report. Quarterly reports shall briefly describe POTW compliance with audit/pretreatment compliance inspection requirements. If none of the aforementioned conditions exist, at a minimum, a letter indicating that all industries are in compliance and no violations or changes to the pretreatment program have occurred during the quarter must be submitted.

5. A summary of inspection and sampling activities conducted by the Discharger during the past year to gather information and data regarding industrial users. The summary shall include:

   (a) Names and addresses of the industrial users subject to surveillance by the Discharger and an explanation of whether they were inspected, sampled, or both and the frequency of these activities at each user; and

   (b) Conclusions or results from the inspection or sampling of each industrial user.

6. A summary of compliance and enforcement activities during the past year. The summary shall include names and addresses of the industrial users affected by the following actions:

   (a) Warning letters or notices of violation regarding the industrial users' apparent noncompliance with Federal Categorical Standards or local discharge limitations. For each industrial user, identify whether the apparent violation concerned the Federal Categorical Standards or local discharge limitations;

   (b) Administrative Orders regarding the industrial users' noncompliance with Federal Categorical Standards or local

discharge limitations. For each industrial user, identify whether the violation concerned the Federal Categorical Standards or local discharge limitations;

(c) Civil actions regarding the industrial user's noncompliance with Federal Categorical Standards or local discharge limitations. For each industrial user, identify whether the violation concerned the Federal Categorical Standards or local discharge limitations;

(d) Criminal actions regarding the industrial user's noncompliance with Federal Categorical Standards or local discharge limitations. For each industrial user, identify whether the violation concerned Federal Categorical Standards or local discharge limitations;

(e) Assessment of monetary penalties. For each industrial user, identify the amount of the penalties;

(f) Restriction of flow to the POTW; or

(g) Disconnection from discharge to the POTW.

7. Description of any significant changes in operating the pretreatment program which differ from the information in the Discharger's Approved POTW Pretreatment Program including, but not limited to changes concerning: the program's administrative structure; local industrial discharge limitations; monitoring program or monitoring frequencies; legal authority or enforcement policy; funding mechanisms; resource requirements; or staffing levels.

8. A summary of the annual pretreatment budget, including the costs of pretreatment program functions and equipment purchases.

9. A summary of public participation activities to involve and inform the public.

10. A description of any changes in sludge disposal methods and a discussion of any concerns not described elsewhere in the report.

Reports shall be signed by a principal executive officer, ranking elected official, or other duly authorized employee if such employee is responsible for overall operation of the POTW. Signed copies of these reports shall be submitted to the Regional Administrator and the State at the following addresses:

California Regional Water Quality Control Board
81 Higuera Street, Suite 200
San Luis Obispo, CA 93401-5427

State Water Resources Control Board
Pretreatment Unit
P. 0. Box 944213
Sacramento, CA 94244-2130

Pretreatment & Compliance Section
U.S. Environmental Protection Agency
Region 9, Attn: W-5-2
75 Hawthorne Street
San Francisco, CA 94105

REPORTING

All reports required in this monitoring and reporting program are required pursuant to Water Code § 13267. All influent, effluent, and coliform monitoring reports shall be submitted by the 15th day of the month following sampling. All offshore monitoring reports shall be submitted as follows:

- The annual report shall be submitted by March 31 of the year following the reporting year.
- Reports for Section I shall be submitted 45 days following the end of the quarter with a summary analysis included in the annual report.

- Reports for Sections II, III, & IV shall be submitted by the last working day of December of the year of sampling with a summary analysis included as an attachment to the annual report. This excepts the initial desalination plant waste brine sampling and chronic toxicity testing specified in Footnote 4 to the Effluent Monitoring section, for which a toxicity report shall be submitted within 45 days of commencing brine discharge.

- Final offshore receiving water monitoring reports are due by the last working day of December of the year of sampling. All data analysis and conclusions should be presented in the annual report.