

CALIFORNIA COASTAL COMMISSION

South Coast Area Office
200 Oceangate, Suite 1000
Long Beach, CA 90802-4302
(562) 590-5071

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RECORD PACKET COPY**COMBINED STAFF REPORT: PERMIT AMENDMENTS**

Filed: May 24, 2001
49th Day: July 12, 2001
180th Day: November 20, 2001
Staff: KFS-LB 
Staff Report: June 28, 2001
Hearing Date: July 10-13, 2001
Commission Action:

**AMENDMENT**

APPLICATION NOS.: 5-97-316-A4; A-5-LGB-97-166-A4; 5-83-959-A8 (an amendment to A-61-76)

APPLICANTS: County of Orange (5-97-316-A4; A-5-LGB-97-166-A4)
Aliso Water Management Agency (5-83-959-A8)

AGENT: Larry Paul, County of Orange, Planning and Development Services
Mike Wellborn, County of Orange, Planning and Development Services

PROJECT LOCATION: Aliso Creek, 300 feet upstream of the Coast Highway bridge, and 1.5 miles off-shore of Aliso Creek County Beach, City of Laguna Beach, County of Orange

DESCRIPTION OF PREVIOUSLY APPROVED PROJECT:

5-97-316 (as amended): The temporary installation of a sand berm in Aliso Creek to collect creek flows and divert them to an outfall line which discharges 1.5 miles offshore. The development was authorized for the period May 1, 1998 through October 15, 1998. The development also received temporary re-authorization for the period May 1, 1999 through October 15, 1999 and May 1, 2000 through October 15, 2000.

A-5-LGB-97-166 (as amended): Installation of: 1) a temporary sand berm on the banks of Aliso Creek, 2) motorized pump, and 3) a 200 foot long pipe between a point in Aliso Creek, upstream of the proposed berm, and an adjacent existing sewage outfall; to collect creek flows (up to 3.23 million gallons per day) and divert them to the existing outfall line which discharges approximately 1.5 miles offshore for one summer season. The proposed development was authorized only for the period May 1, 1998 through October 15, 1998. The proposed development also received re-authorization for the period of May 1, 1999 through October 15, 1999 and May 1, 2000 through October 15, 2000.

A-61-76/5-83-959 (as amended): Construction of a 48-inch pipeline and ocean outfall to discharge regional waste water effluent 1.5 miles offshore. Authorize use of the 48-inch pipeline and outfall for the temporary diversion of Aliso Creek during the period May 1, 1998 and October 15, 1998; May 1, 1999 through October 15, 1999; and May 1, 2000 through October 15, 2000.

DESCRIPTION OF AMENDMENTS:

5-97-316-A4; A-5-LGB-97-166-A4: Authorize the temporary installation of a sand berm in Aliso Creek to collect creek flows and divert them to an outfall line which discharges 1.5 miles offshore for the time period of May 1, 2001 through October 15, 2001.

5-83-959-A8: Authorize use of the pipeline and outfall for the diversion of Aliso Creek from May 1, 2001 through October 15, 2001.

STAFF NOTE: On June 14, 2001 a public hearing was held on the subject applications. At that hearing, testimony and materials were presented to the Commission by members of the public regarding alternatives to the proposed diversion of untreated creek water 1.5 miles offshore. Alternatives presented included diversion of creek water to sewage treatment plants in the area for treatment. Another alternative presented included the use of portable

water treatment systems (e.g. Clear Creek) to treat the contaminated water in the creek. The applicant was not available to respond to these suggestions from the public. Therefore, the Commission voted to postpone action in order to allow the applicant to analyze the alternatives suggested.

Commission staff have requested that the applicant analyze the treatment plant and portable treatment system alternatives. The applicant is in the process of preparing that analysis. However, as of the date of this staff report, the analysis has not been made available to Commission staff for review. The applicant expects to have the analysis available prior to the July 2001 hearing. Provided time allows, Commission staff will prepare an addendum responding to the analysis once the analysis is submitted by the applicant. In addition, Commission staff have encouraged the applicant to attend the hearing on this matter so that they would be available to respond to any questions or issues raised at the hearing.

SUMMARY OF STAFF RECOMMENDATION: The purpose of the proposed project is to re-locate contaminated water away from Aliso Beach in order to reduce beach contamination postings and beach closures during the summertime beach use season. Staff recommends **APPROVAL** of the proposed project with special conditions. The major issues raised by this project include verification that the project achieves its intended goal without adverse water quality and other resource impacts in the creek or at the outfall, water quality, streambed alteration, flood hazards, growth inducement/air quality, and public access. In addition, this third re-authorization of the diversion raises issues about continued reliance upon the diversion to address poor water quality at the beach as opposed to addressing water quality issues at the watershed level in order to improve water quality and eliminate the need for the diversion.

The proposed development was previously approved for implementation as a temporary project to occur during a specific period, May 1, 1998 through October 15, 1998. However, exceptionally large El Nino-induced summertime creek flows prevented implementation of the project in 1998, therefore the applicant was unable to analyze the effectiveness of the diversion at reducing water quality problems in the surf zone. Accordingly, the applicant proposed and the Commission approved the project for the period of May 1, 1999 through October 15, 1999 with special conditions. During 1999 the diversion was only operational for 15 days (October 1-15, 1999). However, results from that period were positive. Thus the applicant proposed and obtained Commission approval for the diversion for May 1, 2000 through October 15, 2000. Once again, a reduction in the quantity of beach closures and water quality postings during the diversion period indicates the diversion contributes to improvements in the quality of water at Aliso Beach. Therefore, the applicant is seeking approval for the diversion to occur again from May 1, 2001 through October 15, 2001.

The proposed project requires amendments to three permits: 1) Coastal Development Permit 5-97-316 which covers the portion of the project in the Commission's original jurisdiction; 2) Coastal Development Permit A-5-LGB-166 which covers the portion of the development in within the jurisdiction of the City of Laguna Beach (which was acted on by the Commission in 1998 as an appeal and De Novo approval and which the Commission retains jurisdiction over for purposes of condition compliance and amendment); and 3) Coastal Development Permit A-61-76 issued by the California Coastal Zone Conservation Commission (now known as 5-83-959) which relates to the sewage effluent outfall into

which the creek waters are being diverted and which must be amended to allow the County of Orange to use the outfall approved by CDP A-61-76 to discharge summertime flows from Aliso Creek. At the time of approval of permit A-61-76, diversion of Aliso Creek into the outfall was not contemplated, therefore, the amendment authorizes the use of the outfall for these purposes. All three coastal development permit amendment applications needed to authorize the project are scheduled concurrently (5-97-316-A4, A-5-LGB-97-166-A4 and 5-83-959-A8).

At the time of Commission action in 1998, the proposed project was the subject of some controversy. Opponents to the project were concerned with the potential for upstream flooding which might be associated with pump failure or unexpectedly large summertime discharges of the creek. In addition, opponents were concerned with impacts upon biological resources. Finally, opponents were concerned the proposed temporary project, which simply moves pollution further offshore, would become a permanent solution in place of a comprehensive plan which works toward overall reduction of contaminant levels in Aliso Creek. Supporters of the development expressed their belief that the proposed project would provide a feasible interim measure to reduce contamination levels at local beaches while a longer term solution (i.e. water quality management plan) was developed. All approvals granted by the Commission were conditioned to address adverse impacts related to flooding and biological resources. Opposition to the project subsided between 1998 and 2000.

However, some opposition to the creek diversion has re-emerged at this time. Opponents to the project are concerned about the slow progress on efforts to implement watershed-level measures which would address the source of the water quality problems and eliminate need for the berm. In addition, the designation of the lower reach of Aliso Creek (where the proposed berm is located) as critical habitat for the federally endangered Tidewater goby has raised concerns about the impacts the proposed project may have upon biological resources. It must be noted that no tidewater goby have been found in Aliso Creek in recent times. Rather, Aliso Creek was identified as critical habitat because of the potential for future goby translocation to the creek. Therefore, the proposed project would not have any direct impact upon the goby.

The applicant acknowledges that the creek diversion is intended as a temporary short term measure to address water quality problems within the Aliso Creek watershed which contribute to water quality degradation in the creek and in the surf zone where the creek discharges and which threatens the health and safety of users of popular Aliso Beach and users of the creek itself. The applicant in partnership with the various municipalities that are a part of the Aliso Creek Watershed are working on mid-term and long-term measures to address the source of the water quality problems. These mid-term and long-term measures include completion and implementation of the recommendations developed through the U.S. Army Corps of Engineers' *Aliso Creek Watershed Management Study* and improved compliance with existing municipal storm water discharge permits.

Meanwhile, other regulatory agencies are increasing enforcement efforts to improve water quality in the watershed. For instance, the California Regional Water Quality Control Board for the San Diego Region (RWQCB) has issued a Clean Up and Abatement Order for the sub-watershed within the Aliso Creek watershed known as J03P02 which has prompted a rapid clean-up response from the responsible municipalities. In addition, the Executive

Director of RWQCB issued a "13225 Directive" on March 2, 2001 requiring an extensive water quality testing program designed to identify 'hot spots' within the watershed. Once the 'hot spots' within the watershed are identified, the directive requires implementation of measures to clean up those areas. The improved regulatory enforcement and positive responses to these directives from the applicant and other municipalities suggests that progress is occurring upon mid and long term measures which would eventually eliminate the need for this diversion in the future. In the interim, an "end of pipe" response to the contamination problem appears to be the most immediate way to reduce beach postings and closures and improve protection of the health and safety of users of popular Aliso Beach. Therefore, staff recommends approval of the proposed project with revised special conditions.

The special conditions of these amendments: 1) limit the proposed project to one summer season and limit the quantity of water which may be diverted; 2) require restoration of the stream after the temporary development is removed; 3) require submittal of water quality, biological and flood hazard monitoring data and conclusions regarding the data; 4) require removal of the berm before October 15, 2001 in the event of significant storm event; 5) require avoidance of adverse impacts upon the public's ability to use parking spaces adjacent to the project site; and 6) require that the water diverted through the outfall conform with State water quality standards. These measures will minimize all significant adverse impacts.

PROCEDURAL NOTE

1. Coastal Development Permit Amendments

The Commission's regulations provide for referral of permit amendment requests to the Commission if:

- 1) The Executive Director determines that the proposed amendment is a material change,
- 2) Objection is made to the Executive Director's determination of immateriality, or
- 3) The proposed amendment affects conditions required for the purpose of protecting a coastal resource or coastal access.

If the applicant or objector so requests, the Commission shall make an independent determination as to whether the proposed amendment is material. 14 Cal. Admin. Code 13166.

In this case, the proposed amendment would authorize diversion of Aliso Creek to occur during the summer season of 2001. In order to authorize this change to the project, the special conditions must be updated to move the authorized period of activity from May 1, 2000 through October 15, 2000 to May 1, 2001 to October 15, 2001. Pursuant to Title 14, Section 13166(a)(1) of the California Code of Regulations, the Executive Director has determined that the proposed development constitutes a material amendment, as it would affect conditions required for the purpose of protecting coastal resources. Therefore, pursuant to Section 13166(a)(3) of the Commission's regulations, the Executive Director is referring this application to the Commission for action.

2. Standard of Review

a. Coastal Development Permit Amendment 5-97-316-A4

The portion of the proposed berm in the creek bed and the discharge point 1.5 miles offshore is within the Commission's original permit jurisdiction under Coastal Act Section 30519(b) and must be evaluated for consistency with the Chapter 3 policies of the Coastal Act. The policies of the certified Laguna Beach LCP may be used for guidance.

b. Coastal Development Permit Amendment A-5-LGB-166-A4

Section 30604(b) of the Coastal Act provides that the standard of review is the certified LCP for the portions of the proposed project within the certified area. This includes all of the project except for the portion of the berm in the creek bed and the portion of the outfall located offshore.

c. Coastal Development Permit Amendment 5-83-959-A8

The portion of the subject pipeline which is on land is within the certified area of the City of Laguna Beach. For this portion, the standard of review pursuant to Section 30604(b) of the Coastal Act is consistency with the certified local coastal program. The portion of the subject outfall offshore is within the Commission's original permit jurisdiction area. For this portion, the standard of review pursuant to Section 30519(b) of the Coastal Act is consistency with the Chapter 3 policies of the Coastal Act.

LOCAL APPROVALS RECEIVED: City of Laguna Beach CDP97-19

SUBSTANTIVE FILE DOCUMENTS: See Appendix A

I. STAFF RECOMMENDATION, MOTION AND RESOLUTIONS OF APPROVAL:

The staff recommends that the Commission APPROVE the permit amendment applications with special conditions:

MOTION #1

I move that the Commission approve the proposed amendment to Coastal Development Permit No. 5-97-316 pursuant to the staff recommendation.

STAFF RECOMMENDATION OF APPROVAL:

Staff recommends a **YES** vote. Passage of this motion will result in approval of the amendment as conditioned and adoption of the following resolution and findings. The motion passes only by affirmative vote of a majority of the Commissioners present.

RESOLUTION TO APPROVE A PERMIT AMENDMENT:

The Commission hereby approves the coastal development permit amendment on the ground that the development as amended and subject to conditions, will be in conformity with the policies of Chapter 3 of the Coastal Act and will not prejudice the ability of the local government having jurisdiction over the area to prepare a Local Coastal Program conforming to the provisions of Chapter 3. Approval of the permit amendment complies with the California Environmental Quality Act because either 1) feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the amended development on the environment, or 2) there are no feasible mitigation measures or alternatives that would substantially lessen any significant adverse impacts of the amended development on the environment.

MOTION #2

I move that the Commission approve the proposed amendment to Coastal Development Permit No. A-5-LGB-97-166 pursuant to the staff recommendation.

STAFF RECOMMENDATION OF APPROVAL:

Staff recommends a **YES** vote. Passage of this motion will result in approval of the amendment as conditioned and adoption of the following resolution and findings. The motion passes only by affirmative vote of a majority of the Commissioners present.

RESOLUTION TO APPROVE A PERMIT AMENDMENT:

The Commission hereby approves the coastal development permit amendment on the ground that the development as amended and subject to conditions, will be in conformity with the policies of the certified Local Coastal Program and the public access and recreation policies of the Coastal Act. Approval of the permit amendment complies with the California Environmental Quality Act because either 1) feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the amended development on the environment, or 2) there are no feasible mitigation measures or alternatives that would substantially lessen any significant adverse impacts of the amended development on the environment.

MOTION #3:

I move that the Commission approve the proposed amendment to Coastal Development Permit No. 5-83-959 pursuant to the staff recommendation.

STAFF RECOMMENDATION OF APPROVAL:

Staff recommends a **YES** vote. Passage of this motion will result in approval of the amendment as conditioned and adoption of the following resolution and findings. The motion passes only by affirmative vote of a majority of the Commissioners present.

RESOLUTION TO APPROVE A PERMIT AMENDMENT:

The Commission hereby **APPROVES** the amendment to coastal development permit 5-83-959 and adopts the findings set forth below on grounds that the development as conditioned will be in conformity with the policies of Chapter 3 of the Coastal Act and with the certified Local Coastal Program. Approval of the permit complies with the California Environmental Quality Act because either 1) feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the development on the environment, or 2) there are no further feasible mitigation measures or alternatives that would substantially lessen any significant adverse impacts of the development on the environment.

II. STANDARD CONDITIONS (APPLICABLE TO ALL PERMITS).

1. **Notice of Receipt and Acknowledgment.** The permit is not valid and development shall not commence until a copy of the permit, signed by the permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.
2. **Expiration.** If development has not commenced, the permit will expire two years from the date this permit is reported to the Commission. Development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the permit must be made prior to the expiration date.
3. **Interpretation.** Any questions of intent or interpretation of any condition will be resolved by the Executive Director or the Commission.
4. **Assignment.** The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.
5. **Terms and Conditions Run with the Land.** These terms and conditions shall be perpetual, and it is the intention of the Commission and the permittee to bind all future owners and possessors of the subject property to the terms and conditions.

III. SPECIAL CONDITIONS

Special Conditions for Coastal Development Permit Amendment 5-97-316-A4:

1. **Removal of Development.** The diversion of up to a twenty-four (24) hour average flow rate of five (5) cubic feet per second (i.e., 3.23 million gallons per day) of the water flow of Aliso Creek approved by this permit is authorized only for the 2001 summer season from May 1 through October 15, 2001. In no case shall the diverted flows exceed seven (7) cubic feet per second (i.e., 4.52 million gallons per day) at any time. This permit does not authorize the diversion to continue past October 15, 2001. All structural development shall be removed as quickly as possible prior to the rainy season but in no case shall any development remain after October 25, 2001.

2. **Restoration.** The bed and banks of Aliso Creek disturbed by the approved project shall, after the removal of the berm and pipe, be restored, at a minimum, to the condition in which they existed prior to construction of the berm and installation of the pipe. As part of the restoration, the applicant shall remove all non-native invasive plant species from the project area. In addition, as part of the restoration the applicant shall re-vegetate for erosion control purposes the upland areas adjacent to the creek which were disturbed by construction activity. The applicant shall document and submit evidence of restoration of the creek bed and banks to the Executive Director by March 15, 2002. Documentation shall include the biological survey of the project area required in Special Condition 3 of this Coastal Development Permit Amendment and pre-construction and post-restoration topographic surveys of the project site and/or pre-development, implementation, and post-development photographs of the project site from consistent, documented photographic points.

3. **Water Quality and Biological Monitoring**
 - A. The applicant shall provide to the Commission monitoring data (as is also required by the San Diego Regional Water Quality Control Board and the California Health & Safety Code (i.e. AB411)) for the project period and for comparative periods when the project was not in place (e.g. 3 months before project implementation and 3 months after project implementation) for (1) the quantities and types of pollutants (both organic and heavy metals) being discharged from the outfall, (2) the quantities and types of pollutants (both organic and heavy metals) present in the waters of Aliso Creek, the surf zone and vicinity where Aliso Creek discharges to coastal waters, and in near shore waters, and (3) the effects of the project on the marine environment in the vicinity of the outfall and Aliso Creek County Beach, including beneficial/adverse effects on human health and marine life. If the above described monitoring is not required by the San Diego Regional Water Quality Control Board and the California Health & Safety Code for any reason, the applicant is still required to perform the monitoring in compliance with this coastal development permit.

 - B. If not already submitted by the applicant under item A above, the applicant shall submit copies of the following data, reports, analyses, and regulatory responses: 1) complete copies of all monthly, quarterly, semi-annual, and annual monitoring

reports required under Order No. 95-107 AWMA NPDES Permit No. CA0107611 (or any subsequently approved NPDES permit) along with summaries of violations of Order No. 95-107; 2) written responses from the RWQCB to the applicant regarding the respective monthly, quarterly, semi-annual, and annual monitoring reports required under Order No. 95-107; 3) monitoring, analysis and regulatory responses related to RWQCB Clean Up and Abatement Order 99-211 and RWQCB 13225 Directive issued on March 2, 2001; 4) monitoring, analysis, and regulatory responses regarding compliance with the California Health & Safety Code (as amended by AB411) related to water quality at Aliso Beach including a complete log of all water quality monitoring and beach posting and closures at Aliso Beach; 5) copies of any reports generated under the U.S. Army Corps of Engineers *Aliso Creek Watershed Management Study*;

- C. The applicant shall also monitor and provide data and analysis regarding (1) the effects of the project on riparian vegetation and other biological resources (including, but not limited to, tidewater goby and/or their habitat) along the banks and within Aliso Creek in the area of the creek affected by the proposed berm; (2) the effects of the proposed project upon biological resources at the AWMA outfall; and (3) the effects of the project on the adjacent Ben Brown's restaurant property, including any minor flooding which may occur. The monitoring of riparian vegetation and biological resources shall take the form of a biological survey and analytical report prepared by an appropriately trained biologist prepared in accordance with the standards of current professional practice. The biological survey and analysis shall document conditions prior to project construction, during project implementation, and after removal of the berm and restoration of the project area. The biological survey and analysis shall document any adverse impacts and provide recommendations to address any such impacts. In addition to other biological resource impacts, the biological survey and analysis shall specifically address any impacts (temporary and long term) which the project may have upon suitable habitat for tidewater goby. The applicant shall mitigate any adverse impacts through the coastal development permit process. The monitoring area shall include the entire stream corridor downstream of the berm and any area inland of the berm affected by the ponding of creek water behind the berm.
- D. The applicant shall submit the results of the monitoring required in Special Condition 3.A., 3.B. and 3.C. above to the Executive Director by March 15, 2002. The monitoring results shall be accompanied by an analysis prepared by an appropriately licensed professional which demonstrates whether applicable water quality standards (e.g. in stream Basin Plan objectives for Aliso Creek and Ocean Plan standards) were met during the project period and when the project was not operational. The analysis shall indicate whether Aliso Creek County Beach was posted or closed pursuant to the requirements of the California Health & Safety Code during the project period and whether the proposed project was operational during any postings or closures. The analysis shall contain a determination (including the basis on which the determination was made) of whether the proposed project reduced beach postings or closures during the project period and whether other non-project related factors may have contributed to any observed reduction in beach postings or closures. The analysis shall also contain a determination (including the basis on which the determination was made) of whether the proposed

project had any beneficial/adverse impacts upon human health and marine life including any such impacts at the outfall, in near shore waters, in the surf zone or in Aliso Creek. All analyses and determinations shall include the method of analysis as well as publication of, or clearly cited references to, the data used in the analysis and determination.

4. **Removal of berm prior to October 15, 2001 to prevent flooding.** Notwithstanding Special Condition No. 1 above, if, prior to October 15, 2001, the National Weather Service predicts that a significant storm event will occur prior to October 15, 2001 which could cause flooding in Aliso Creek, the proposed berm shall be removed prior to the forecasted date of the storm event so that no flooding will occur. For purposes of this condition, a "significant storm event" shall be defined as: an event of one inch or more of rainfall within a 24 hour period in any area which drains into the watershed of Aliso Creek.

5. **Prior Conditions**

Unless specifically altered by this amendment, all regular and special conditions attached to coastal development permit 5-97-316 remain in effect.

Special Conditions for Coastal Development Permit Amendment A-5-LGB-166-A4:

1. **Removal of Development.** The diversion of up to a twenty-four (24) hour average flow rate of five (5) cubic feet per second (i.e., 3.23 million gallons per day) of the water flow of Aliso Creek approved by this permit is authorized only for the 2001 summer season from May 1, 2001 through October 15, 2001. In no case shall the diverted flows exceed seven (7) cubic feet per second (i.e., 4.52 million gallons per day) at any time. This permit does not authorize the diversion to continue past October 15, 2001. All structural development, except for the buried 12 inch PVC connecting pipe, shall be removed as quickly as possible prior to the rainy season but in no case shall any development remain after October 25, 2001. The Aliso Creek end of the connecting pipe shall be capped as quickly as possible prior to the rainy season but in no case shall it be capped any later than October 25, 2001.
2. **Restoration.** The bed and banks of Aliso Creek disturbed by the approved project shall, after the removal of the berm and pipe, be restored, at a minimum, to the condition in which they existed prior to construction of the berm and installation of the pipe. As part of the restoration, the applicant shall remove all non-native invasive plant species from the project area. In addition, as part of the restoration the applicant shall re-vegetate for erosion control purposes the upland areas adjacent to the creek which were disturbed by construction activity. The applicant shall document and submit evidence of restoration of the creek bed and banks to the Executive Director by March 15, 2002. Documentation shall include the biological survey of the project area required in Special Condition 3 of this Coastal Development Permit Amendment and pre-construction and post-restoration topographic surveys of the project site and/or pre-development, implementation, and post-development photographs of the project site from consistent, documented photographic points.

3. **Water Quality and Biological Monitoring**

- A. The applicant shall provide to the Commission monitoring data (as is also required by the San Diego Regional Water Quality Control Board and the California Health & Safety Code (i.e. AB411)) for the project period and for comparative periods when the project was not in place (e.g. 3 months before project implementation and 3 months after project implementation) for (1) the quantities and types of pollutants (both organic and heavy metals) being discharged from the outfall, (2) the quantities and types of pollutants (both organic and heavy metals) present in the waters of Aliso Creek, the surf zone and vicinity where Aliso Creek discharges to coastal waters, and in near shore waters, and (3) the effects of the project on the marine environment in the vicinity of the outfall and Aliso Creek County Beach, including beneficial/adverse effects on human health and marine life. If the above described monitoring is not required by the San Diego Regional Water Quality Control Board and the California Health & Safety Code for any reason, the applicant is still required to perform the monitoring in compliance with this coastal development permit.
- B. If not already submitted by the applicant under item A above, the applicant shall submit copies of the following data, reports, analyses, and regulatory responses: 1) complete copies of all monthly, quarterly, semi-annual, and annual monitoring reports required under Order No. 95-107 AWMA NPDES Permit No. CA0107611 (or any subsequently approved NPDES permit) along with summaries of violations of Order No. 95-107; 2) written responses from the RWQCB to the applicant regarding the respective monthly, quarterly, semi-annual, and annual monitoring reports required under Order No. 95-107; 3) monitoring, analysis and regulatory responses related to RWQCB Clean Up and Abatement Order 99-211 and RWQCB 13225 Directive issued on March 2, 2001; 4) monitoring, analysis, and regulatory responses regarding compliance with the California Health & Safety Code (as amended by AB411) related to water quality at Aliso Beach including a complete log of all water quality monitoring and beach posting and closures at Aliso Beach; 5) copies of any reports generated under the U.S. Army Corps of Engineers *Aliso Creek Watershed Management Study*;
- C. The applicant shall also monitor and provide data and analysis regarding (1) the effects of the project on riparian vegetation and other biological resources (including, but not limited to, tidewater goby and/or their habitat) along the banks and within Aliso Creek in the area of the creek affected by the proposed berm; (2) the effects of the proposed project upon biological resources at the AWMA outfall; and (3) the effects of the project on the adjacent Ben Brown's restaurant property, including any minor flooding which may occur. The monitoring of riparian vegetation and biological resources shall take the form of a biological survey and analytical report prepared by an appropriately trained biologist prepared in accordance with the standards of current professional practice. The biological survey and analysis shall document conditions prior to project construction, during project implementation, and after removal of the berm and restoration of the project area. The biological survey and analysis shall document any adverse impacts and provide recommendations to address any such impacts. In addition to other biological resource impacts, the biological survey and analysis shall specifically

address any impacts (temporary and long term) which the project may have upon suitable habitat for tidewater goby. The applicant shall mitigate any adverse impacts through the coastal development permit process. The monitoring area shall include the entire stream corridor downstream of the berm and any area inland of the berm affected by the ponding of creek water behind the berm.

- D. The applicant shall submit the results of the monitoring required in Special Condition 3.A., 3.B. and 3.C. above to the Executive Director by March 15, 2002. The monitoring results shall be accompanied by an analysis prepared by an appropriately licensed professional which demonstrates whether applicable water quality standards (e.g. in stream Basin Plan objectives for Aliso Creek and Ocean Plan standards) were met during the project period and when the project was not operational. The analysis shall indicate whether Aliso Creek County Beach was posted or closed pursuant to the requirements of the California Health & Safety Code during the project period and whether the proposed project was operational during any postings or closures. The analysis shall contain a determination (including the basis on which the determination was made) of whether the proposed project reduced beach postings or closures during the project period and whether other non-project related factors may have contributed to any observed reduction in beach postings or closures. The analysis shall also contain a determination (including the basis on which the determination was made) of whether the proposed project had any beneficial/adverse impacts upon human health and marine life including any such impacts at the outfall, in near shore waters, in the surf zone or in Aliso Creek. All analyses and determinations shall include the method of analysis as well as publication of, or clearly cited references to, the data used in the analysis and determination.

4. **Removal of berm prior to October 15, 2001 to prevent flooding.** Notwithstanding Special Condition No. 1 above, if, prior to October 15, 2001, the National Weather Service predicts that a significant storm event will occur prior to October 15, 2001 which could cause flooding in Aliso Creek, the proposed berm shall be removed prior to the forecasted date of the storm event so that no flooding will occur. For purposes of this condition, a "significant storm event" shall be defined as: an event of one inch or more of rainfall within a 24 hour period in any area which drains into the watershed of Aliso Creek.
5. **Preservation of Parking.** Construction activities and the staging or storage of construction equipment or material in the public parking lot inland of Pacific Coast Highway adjacent to Aliso Creek shall not displace or obstruct access to any parking spaces within the lot between May 28, 2001 (i.e. Memorial Day weekend) and September 6, 2001 (i.e. Labor Day weekend).
6. **Prior Conditions**

Unless specifically altered by this amendment, all regular and special conditions attached to coastal development permit A-5-LGB-97-166 remain in effect.

Special Conditions for Coastal Development Permit Amendment 5-83-959-A8:

1. **Duration of Diversion.** The diversion of up to a twenty-four (24) hour average flow rate of five (5) cubic feet per second (i.e., 3.23 million gallons per day) of the water flow of Aliso Creek approved by this permit amendment is authorized only for the 2001 summer season from May 1, 2001 through October 15, 2001. In no case shall the diverted flows exceed seven (7) cubic feet per second (i.e., 4.52 million gallons per day) at any time. This permit amendment does not authorize the diversion to continue past October 15, 2001.

2. **Change to Previously Imposed Special Condition No. 6.** Special Condition No. 6 of permit A-61-76 regarding "Water Quality" shall be replaced with the following:

The effluent discharged from the approved outfall shall comply with the requirements of "Order No. 95-107, NPDES Permit No. CA0107611, Waste Discharge Requirements for the Aliso Water Management Agency, Orange County, Discharge to the Pacific Ocean Through the Aliso Water Management Agency Ocean Outfall" issued by the California Regional Water Quality Control Board, San Diego Region.

3. **Water Quality and Biological Monitoring**

A. The applicant shall provide to the Commission monitoring data (as is also required by the San Diego Regional Water Quality Control Board and the California Health & Safety Code (i.e. AB411)) for the project period and for comparative periods when the project was not in place (e.g. 3 months before project implementation and 3 months after project implementation) for (1) the quantities and types of pollutants (both organic and heavy metals) being discharged from the outfall, (2) the quantities and types of pollutants (both organic and heavy metals) present in the waters of Aliso Creek, the surf zone and vicinity where Aliso Creek discharges to coastal waters, and in near shore waters, and (3) the effects of the project on the marine environment in the vicinity of the outfall and Aliso Creek County Beach, including beneficial/adverse effects on human health and marine life. If the above described monitoring is not required by the San Diego Regional Water Quality Control Board and the California Health & Safety Code for any reason, the applicant is still required to perform the monitoring in compliance with this coastal development permit.

B. If not already submitted by the applicant under item A above, the applicant shall submit copies of the following data, reports, analyses, and regulatory responses: 1) complete copies of all monthly, quarterly, semi-annual, and annual monitoring reports required under Order No. 95-107 AWMA NPDES Permit No. CA0107611 (or any subsequently approved NPDES permit) along with summaries of violations of Order No. 95-107; 2) written responses from the RWQCB to the applicant regarding the respective monthly, quarterly, semi-annual, and annual monitoring reports required under Order No. 95-107; 3) monitoring, analysis and regulatory responses related to RWQCB Clean Up and Abatement Order 99-211 and RWQCB 13225 Directive issued on March 2, 2001; 4) monitoring, analysis, and regulatory responses regarding compliance with the California Health & Safety Code (as amended by AB411) related to water quality at Aliso Beach including a complete log

of all water quality monitoring and beach posting and closures at Aliso Beach; 5) copies of any reports generated under the U.S. Army Corps of Engineers *Aliso Creek Watershed Management Study*;

- C. The applicant shall also monitor and provide data and analysis regarding (1) the effects of the project on riparian vegetation and other biological resources (including, but not limited to, tidewater goby and/or their habitat) along the banks and within Aliso Creek in the area of the creek affected by the proposed berm; (2) the effects of the proposed project upon biological resources at the AWMA outfall; and (3) the effects of the project on the adjacent Ben Brown's restaurant property, including any minor flooding which may occur. The monitoring of riparian vegetation and biological resources shall take the form of a biological survey and analytical report prepared by an appropriately trained biologist prepared in accordance with the standards of current professional practice. The biological survey and analysis shall document conditions prior to project construction, during project implementation, and after removal of the berm and restoration of the project area. The biological survey and analysis shall document any adverse impacts and provide recommendations to address any such impacts. In addition to other biological resource impacts, the biological survey and analysis shall specifically address any impacts (temporary and long term) which the project may have upon suitable habitat for tidewater goby. The applicant shall mitigate any adverse impacts through the coastal development permit process. The monitoring area shall include the entire stream corridor downstream of the berm and any area inland of the berm affected by the ponding of creek water behind the berm.
- D. The applicant shall submit the results of the monitoring required in Special Condition 3.A., 3.B. and 3.C. above to the Executive Director by March 15, 2002. The monitoring results shall be accompanied by an analysis prepared by an appropriately licensed professional which demonstrates whether applicable water quality standards (e.g. in stream Basin Plan objectives for Aliso Creek and Ocean Plan standards) were met during the project period and when the project was not operational. The analysis shall indicate whether Aliso Creek County Beach was posted or closed pursuant to the requirements of the California Health & Safety Code during the project period and whether the proposed project was operational during any postings or closures. The analysis shall contain a determination (including the basis on which the determination was made) of whether the proposed project reduced beach postings or closures during the project period and whether other non-project related factors may have contributed to any observed reduction in beach postings or closures. The analysis shall also contain a determination (including the basis on which the determination was made) of whether the proposed project had any beneficial/adverse impacts upon human health and marine life including any such impacts at the outfall, in near shore waters, in the surf zone or in Aliso Creek. All analyses and determinations shall include the method of analysis as well as publication of, or clearly cited references to, the data used in the analysis and determination.
4. **Previously Imposed Conditions.** Unless specifically altered by this amendment, all regular and special conditions attached to coastal development permit 5-83-959 remain in effect.

IV. FINDINGS AND DECLARATIONS

A. PROJECT DESCRIPTION

The proposed project is to re-authorize the temporary diversion of low-flow summertime discharges of Aliso Creek into an existing sewage outfall which outlets 1.5 miles offshore for one summer season only. The first diversion was approved by the Commission in 1998 for the period of May 1, 1998 through October 15, 1998. Subsequent amendments have authorized the diversion to occur during the same periods in 1999 and 2000. The applicant is now requesting authorization to install the diversion between May 1, 2001 through October 15, 2001.

The diversion would occur by building a berm in Aliso Creek, approximately 300 feet inland of Coast Highway (Exhibits 1 and 2). The proposed sand berm would be four feet high above the creek bed, 24 feet wide, and sixty feet long. The proposed berm would be lined with plastic to prevent erosion and allow for ponding of water behind the berm. The proposed berm would have an 18" deep notch at the top in the middle at an elevation three feet high above the creek bed to allow for overflow to prevent flooding in the event the pump fails or water ponds too rapidly. The water which ponds behind the berm would then be pumped, at a rate of about five cubic feet per second, via an existing pipe into the existing nearby Aliso Water Management Agency ("AWMA") pipeline. The existing PVC pipe, which was previously approved by the Commission and which remains in place, is 200 feet long and is buried two feet below grade and crosses through a previously graded and surfaced terrace and an existing public parking lot. To minimize pump noise, the proposed pump would be electric and be housed in an unused building owned by AWMA.

As conditioned by the conditions of CDPs 5-97-316, A-5-LGB-97-166, and 5-83-959, the proposed development could only occur during the period of May 1, 1998 through October 15, 1998. Also, the Commission's approval only authorized diversion of flows, on average, of up to 5 cubic feet per second (3.23 million gallons per day) during a 24 hour period. In addition, peak flows could not exceed 7 cubic feet per second (4.52 million gallons per day). Due to higher than anticipated summertime flows in Aliso Creek, which exceeded pumping capacity, outfall line capacity, and approved diversion quantities, the applicant did not implement the proposed project in 1998. Subsequently, the applicant has received approval for amendments which have authorized the diversion to occur between May 1st and October 15th in 1999 and 2000. The diversion was operational for 15 days in 1999 and approximately 3 months in 2000.

The proposed project involves three separate permit amendment actions. First, permit amendment application (A-5-LGB-97-166-A3) covers the portion of the proposed project within the certified area of the City of Laguna Beach. In 1997, the City of Laguna Beach approved the entire proposed project, including the portion of the berm within the creek bed. The City's coastal development permit was subsequently appealed to the Commission. The Commission found substantial issue, consequently the City's permit was re-characterized. The City-issued coastal development permit CDP 97-19 was appealed to the Commission in 1997 based on inconsistency with the certified local coastal program regarding flooding and offshore water quality. On July 9, 1997, the Commission found that the appeal raised a substantial issue. Therefore, on February 3, 1998, the Commission held a De Novo hearing on the item and approved the proposed project subject to several conditions. Since the Commission approved the project at the De Novo stage,

the Commission retains authority over the permit for condition compliance and amendment. An amendment to A-5-LGB-97-166 was required to authorize the proposed development to occur in 1999 and 2000. Another amendment is necessary to authorize the proposed development to occur in 2001.

Second, permit amendment application 5-97-316-A4 covers only the portion of the proposed project within Coastal Commission jurisdiction. Basically, this is the portion of the proposed berm within the bed of Aliso Creek and the offshore discharge. Aliso Creek at the project location is submerged lands and thus is an area of retained Commission jurisdiction. The offshore discharge would be located seaward of the mean high tide line and thus is also in the Commission's area of retained permit jurisdiction. Similar to Coastal Development Permit A-5-LGB-97-166, Coastal Development Permit 5-97-316 has special conditions which restrict the diversion to May 1st through October 15th and must be amended to authorize the diversion to occur in 2001.

Third, another amendment to permit A-61-76 (a.k.a. 5-83-959¹) is necessary. On May 5, 1976, the California Coastal Zone Conversation Commission, the Commission's predecessor, approved on appeal permit A-61-76 for the construction of the 48-inch AWMA ocean outfall. The approved outfall discharges secondary treated effluent into the ocean. The permit was conditioned to limit effluent as a means to regulate development served by the outfall. In the early 1980's, several amendments to the permit were approved to increase effluent limits. However, the type of discharge proposed into the outfall is not covered under the previously approved permit and three previous permit amendments. Therefore, in 1998 the Commission approved an amendment, 5-83-959-A4, authorizing the discharge of summertime flows from Aliso Creek into the outfall during 1998. Another permit amendment was required to change the period of authorized activity to 1999 and 2000. The applicant again is applying for another amendment to authorize the proposed development to occur in 2001.

The outfall's outlet has a diffuser to slow and diffuse the discharge from the outfall, minimizing the erosive force of the discharge. The outfall pipe is 1.5 miles long from shore to the nearshore end of the diffuser. At this point, the diffuser is 170 feet below Mean Lowest Low Water ("MLLW") level. The diffuser extends from this point another 1,200 feet seaward, at a depth of 195 feet MLLW. The outfall's capacity is 50 million gallons per day ("MGD"). The current monthly discharge typically does not exceed 20 MGD. Therefore, the outfall typically operates below capacity.

The applicant is proposing this project to temporarily remedy a problem of polluted water ponding at Aliso Creek County Beach, where Aliso Creek outlets into the ocean. The low flows of Aliso Creek during the dry summertime are not strong enough to breach the sand at the beach, resulting in water ponding at the beach. The concentration of pollutants in the water is higher during the summer than in the winter, due to the lower flows during the dry summer season. Thus, the ponding water becomes stagnant and, in combination with higher concentrations of pollutants, poses a health hazard to beachgoers. The number of beachgoers is generally higher in the summer than in the winter, increasing the number of people at risk. Therefore, contamination levels pose an adverse effect on recreational use of the beach.

¹ There is no permit 5-83-959. Rather, this number was created to allow for amendments to the original permit, since it was a Proposition 20 Appeal, which does not follow the Commission's current numbering system.

B. WATER QUALITY

Section 30230 of the Coastal Act states:

Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.

Section 30231 of the Coastal Act states:

The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

City of Laguna Beach Certified Local Coastal Program Policy 4-H states (standard of review for A-5-LGB-166-A4 and upland portions of 5-83-959-A8):

Oppose activities which degrade the quality of offshore waters.

The proposed project would result in the diversion of polluted, low flow summertime discharges from Aliso Creek into an existing outfall owned by the Aliso Water Management Agency ("AWMA") which outlets 1.5 miles offshore. This would result in diversion of the polluted water from the beach to the offshore waters.

Due to littoral drift, sand from areas adjacent to the mouth of Aliso Creek drifts into the creek's mouth. This results in the creation of berms across the creek's mouth, which prevents the creek's water from entering the ocean. Therefore, the creek's polluted water ponds behind the berm at the creek's mouth, right on the popular and heavily used Aliso Creek County Beach. In a March 4, 1997 letter to the San Diego Regional Water Quality Control Board, the Orange County Health Care Agency indicated that the mouth of Aliso Creek ". . . is regarded as chronically contaminated and is therefore permanently posted with . . . signs stating, 'Keep Out', 'Contaminated Water.'" In addition, the mouth of Aliso Creek is listed as a Clean Water Act Section 303(d) impaired water body.

Also, more stringent water quality testing and posting/closure requirements were implemented by the State of California through the passage of AB411 in 1999. A log of these postings and closures maintained by the Orange County Health Care Agency indicates that Aliso Beach was posted or closed 22 times between July 28, 1999 and April 10, 2001 because recreational waters exceeded California Ocean Water-Contact Sports Standards.

The problem of ponding polluted water and the attendant public health risks are greater during the summer, when creek flows are low and use of the beach by the public is at its highest. Low flows mean that the concentration of pollution in the water is higher. This contrasts with heavy winter flows in which the pollution is diluted because of the high volume water from heavy rainfall. Low creek flows also mean that the water is not forceful enough to cut through the sand berms at the creek's mouth, so the water collects behind the berm. This pool of fresh water on the beach tends to attract use by beach goers. In the past, County beach staff attempted to fix the problem by breaching the berm to allow the ponded water to drain into the ocean. However, this method simply released the contaminated water into the surfzone where more people were exposed to contaminated water. More recently (1998 to present), the County has implemented the subject creek diversion project which captures the creek flows at a location inland of PCH (away from beach users) and diverts the water 1.5 miles offshore. The proposed amendments would authorize this diversion to occur in 2001.

1. Water Contamination – Sources and Allowable Limits
 - a. Bacteriological pollutants

Section 7958 of the California Code of Regulations (Title 17, Chapter 5, Subchapter 1, Group 10, Article 4), as amended by AB411 in 1999, contains prescribed standards for maximum allowable concentrations of coliform organisms at public beaches or water-contact sports areas as follows:

- (a) The minimum protective bacteriological standards for waters adjacent to public beaches and public water-contact sports areas shall be as follows:*
- (1) Based on a single sample, the density of bacteria in water from each sampling station at a public beach or public water contact sports area shall not exceed:*
 - (A) 1,000 total coliform bacteria per 100 milliliters, if the ratio of fecal/total coliform bacteria exceeds 0.1; or*
 - (B) 10,000 total coliform bacteria per 100 milliliters; or*
 - (C) 400 fecal coliform bacteria per 100 milliliters; or*
 - (D) 104 enterococcus bacteria per 100 milliliters.*
 - (2) Based on the mean of the logarithms of the results of at least five weekly samples during any 30-day sampling period, the density of bacteria in water from any sampling station at a public beach or public water contact sports area, shall not exceed:*
 - (A) 1,000 total coliform bacteria per 100 milliliters; or*
 - (B) 200 fecal coliform bacteria per 100 milliliters; or*
 - (C) 35 enterococcus bacteria per 100 milliliters.*

Section 116070 of the California Health and Safety Code (Division 104, Chapter 5, Article 6) defines "water-contact sport" as:

...water-contact sport means any sport in which the body of a person comes into physical contact with water, including but not limited to swimming, surfboarding, paddleboarding, skin diving, and water-skiing. It does not include boating or fishing.

The ocean waters off Aliso Creek County Beach spanning both sides of the mouth of Aliso Creek are water-contact sports areas which are tested for coliform. Coliform is a bacteriological agent which indicates the presence of pathogens that pose a risk to human health. The proposed

project would be undertaken primarily to reduce the problem of high levels of coliform at Aliso Creek County Beach. As noted earlier, these high levels of coliform have required 22 postings and/or beach closures since summer of 1999.

There are at least two possible sources of water contamination at Aliso Beach. During the substantial issue phase of appeal A-5-LGB-97-166 and the Commission's initial approval of Coastal Development Permit 5-97-316 and Amendment 5-83-959, it was suggested that high coliform levels at Aliso Beach may, in large part, be attributable to discharges from Aliso Creek. Data from 1996 and 1997 provided by the Orange County Health Care Agency demonstrated that, in many instances, coliform organism concentration found at the mouth of Aliso Creek, where the present pollution problem occurs, exceeds the limit of 1,000 per 100 ml., and was sometimes double the allowable limit. On the other hand, the coliform organisms in the surf zone waters off Aliso Beach rarely exceed 100 per 100 ml., well below the prescribed standard. Only at the Aliso-Middle station near the creek did the concentrations rise above 100 per 100 ml., and then not by much. Accordingly, data obtained in 1996 and 1997 indicate that coliform levels are generally lower at points farther from, rather than nearer to, Aliso Creek. Since the only high levels of coliform in the ocean occurred at the creek's mouth, and testing of the creek's waters also indicated high levels of coliform, the major source of coliform in the ocean is likely discharges from Aliso Creek. Additional data –which provides results of surfzone and creek water testing through October 11, 2000 (Exhibits 13-15)- suggests that, similar to the observations made regarding the data from 1996 and 1997, Aliso Creek is the primary contributor to coliform contamination at Aliso Beach.

Another possible source of pollution at Aliso Beach could be discharges from the AWMA outfall (which discharged 1.5 miles offshore) washing back to the beach through tidal action. Due to the nature of treated sewage, concentrations of pollutants at the outfall are high. However, data from 1997 and 1998 regarding effluent from the AWMA outfall, indicated that bacteriological water quality in the nearshore zone (i.e., 1,000 feet offshore) and above the outfall at a depth of 25-50 feet below the surface of the ocean, met State Ocean Water-Contact Sports standards. Meanwhile, as noted above, water quality in the surf zone (i.e., the water area immediately adjacent to the beach) was poor. This information suggested, once again, that high coliform levels at Aliso Beach could be attributable to discharges from Aliso Creek rather than discharges from the AWMA outfall.

Monitoring data from the AWMA outfall for May 2000 through October 2000 suggest that conditions observed from the 1997 and 1998 data have not changed (Exhibit 15). Between May 2000 and October 2000 coliform concentrations closest to the outfall were in conformance with AWMA's NPDES Order No. 95-107 (Exhibit 4) and State Ocean Water-Contact Sports standards. Meanwhile, coliform concentrations in the surfzone at the mouth of Aliso Creek exceeded State standards. Letters from the RWQCB dated July 31, 2000, August 22, 2000, September 25, 2000, and April 12, 2001 to AWMA –which respond to AWMA's monthly outfall monitoring reports- indicate the RWQCB's opinion that the high coliform concentrations observed in the surfzone are not being caused by discharges from the outfall (Exhibit 3). This opinion suggests that the high coliform concentrations at Aliso Beach are more likely from sources such as Aliso Creek rather than the outfall.

b. Pollutants Other Than Coliform

The diversion of Aliso Creek's flows is being proposed primarily to resolve the problem of coliform trapped at the beach, which poses a human health risk. However, because Aliso Creek's flows contain general storm runoff from a 36 square mile watershed drainage area, it contains other pollutants besides bacteriological pollutants. At high levels, these other pollutants which wash off from streets through storm drains and from agricultural lands also pose a risk to human health and marine life.

The RWQCB has imposed limitations in its NPDES permit for the AWMA outfall for a variety of pollutants (Exhibit 4). Limitations are imposed on: 1) major constituents and properties of wastewater such as total suspended solids, pH balance, turbidity, and oil & grease.; 2) materials such as ammonia, arsenic, copper, lead, mercury, and zinc which are toxic to marine life, 3) non-carcinogenic materials which are toxic to humans, and 4) carcinogenic (i.e., cancer-causing) materials such as benzene, chloroform, and DDT which are toxic to humans.

Similar to prior years (1998 and 1999), data obtained for the year 2000 monitoring period indicate that pH levels and levels of non-coliform pollutants in the outfall, such as total suspended solids, are within the limits prescribed by the RWQCB's NPDES permit for the AWMA outfall. Accordingly, since prior diversions did not cause State water quality standards to be exceeded at the outfall it is not anticipated that the proposed diversion would result in a significant increase in pollutant concentrations other than coliform at the outfall.

2. Diversion as an Interim Measure

The pipeline into which Aliso Creek's flows are proposed to be diverted discharges secondary sewage at an outfall located 1.5 miles offshore. The pipeline and outfall are operated by the Aliso Water Management Agency ("AWMA"). Secondary sewage is not raw sewage. Secondary sewage has been treated for removal of suspended solids but has not been chlorinated or otherwise treated to kill bacteriological contaminants such as coliform and enterococcus.

In order to authorize the diversion of summertime flows from Aliso Creek into the pipeline and outfall the RWQCB approved an addendum to its Order N. 95-107, NPDES ("National Pollutant Discharge Elimination System") Permit No. CA0107611 (Exhibit 4). The NPDES permit regulates discharges from the AWMA outfall. The addendum approves the proposed diversion. In addition, the addendum sets a limit on the proposed diversion of Aliso Creek flows into the outfall at 4.52 million gallons per day. The addendum also prohibits diversion of the creek between October 16th and April 30th. The addendum further requires the normal outfall-monitoring program to include the diverted creek flows. The addendum does not raise the limits on the types of pollutants which can be discharged through the outfall. Therefore, even with the addition of the pollution from the creek, AWMA is still responsible for ensuring that the effluent discharged from its outfall are within the limits currently prescribed by the RWQCB for the effluent without the creek flows. The NPDES requirements, as amended by the addendum, remain in place for the proposed 2001 diversion season.

RWQCB staff has indicated that the current levels of coliform and bacteriological pollutants in the secondary treated sewage discharged from the outfall are already significantly higher than that detected in the creek. This is because secondary treated sewage is not required to be treated to kill bacteriological contaminants. RWQCB staff has indicated that the addition of bacteriological

contaminants from the creek's flows would not result in a significant proportionate increase in bacteriological contaminants being discharged from the outfall. Given this fact along with the fact that, except at the creek's mouth, levels of coliform in ocean waters are currently within acceptable standards for human contact, the RWQCB staff does not believe the proposed diversion of creek flows would result in levels of coliform in the ocean increasing to levels above accepted standards for human contact.

The pollutants in the sewage effluent come out of the outfall, mix with the ocean water at the outlet and become diluted. Immediately around the outfall's outlet, pollutant levels are high. However, once the pollutants have been diluted and travel beyond the mixing zone, pollutant levels fall. Therefore, as noted above, the higher levels of bacteriological pollutants from the sewage coming out of the outfall 1.5 miles offshore has not translated into the same high levels at the surf zone and nearshore waters.

Water quality monitoring data from the year 2000 diversion suggests that, even though the creek's flows were diverted into the outfall, the coliform in the creek's flow which comes out of the outfall becomes diluted and does not translate into high levels of coliform closer to shore. This conclusion is reinforced by RWQCB letters to AWMA which state that coliform concentrations at the outfall –during both diversion and non-diversion periods- are not exceeding the standards established in the NPDES permit.

In fact, data from diversions during 1999 and 2000 suggest that the diversion does reduce the quantity of beach postings and closures. An analysis prepared by the Orange County Health Care Agency which is summarized in a letter dated March 21, 2001, reviewed surfzone water quality data when the diversion was operational and non-operational (Exhibit 12). The letter states "...[a]lthough enterococcus, total and fecal coliform bacterial levels remain elevated in Aliso Creek, the actual number of Ocean Water Contact Sports Single Sample Standards violations (for the three indicators combined) and subsequent posting of warning signs at selected surf zone monitoring locations along Aliso Beach were fewer during the times the diversion was operational during 1999 and 2000." According to the analysis, in 1999 water quality standards were exceeded 5 times when the diversion was not in operation and 2 times when the diversion was operational. In 2000, water quality standards were exceeded 8 times when the diversion was not operational and 3 times when it was operational. This information suggests that the diversion does reduce the quantity of water quality standard violations at Aliso Beach.

Meanwhile, the study does indicate that even when the diversion is in place, water quality standards at Aliso Beach are still occasionally exceeded. However, during a presentation by the applicant to the RWQCB in May 2001, the applicant explained that 3 high tide events breached the berm when it was in place during the 2000 summer season. These breachings released creek water from behind the berm to the surfzone, causing the 3 water quality standard violations. This suggests that, if the berm had not been accidentally breached, water quality standards would not have been exceeded. However, there has been no explanation of the reason water quality standards were exceeded in 1999 when the berm was in place. Therefore, the berm appears to reduce the number of occurrences of water quality standard violations at Aliso Beach. However, it cannot be conclusively stated that the berm is wholly responsible for reducing postings and closures at Aliso Beach. Thus, at the creek's mouth where coliform levels currently exceed acceptable levels, the proposed project can be expected to reduce coliform counts and increase water quality at Aliso Beach but it may not completely address the water contamination issue.

If nothing else, the proposed project will not make the current situation at Aliso Beach worse. If the project were not to be implemented, the County would breach the mouth of Aliso Creek and the coliform contaminated water would enter the ocean anyway. If the same coliform were to be discharged into the outfall and wash back onshore, the situation would be no different. However, the RWQCB's analysis of the situation indicates that coliform is not washing back onshore. Meanwhile, another question is whether discharge of the creek's flows, with its levels of coliform which exceed Health and Safety Code standards for safe human contact, reduce the human health risk if those contaminants were moved away from the recreational beach area at the mouth of Aliso Creek and discharged 1.5 miles offshore. Given the information about the reduction of beach postings and closures when the diversion is operational, it appears that the diversion does reduce human health risk at Aliso Beach. In addition, given the information which suggests that water quality standards are not exceeded at the outfall when the diversion is operational, it appears that the diversion does not increase human health risk at the outfall.

Furthermore, since the diversion of the polluted creek water to the outfall hasn't noticeably changed the quality of water at the outfall, it is not anticipated that the diversion has any significant adverse effect upon marine life in the vicinity of the outfall. However, detailed biological monitoring –which has not been submitted to the Commission- would be necessary to make a conclusive statement regarding biological impacts at the outfall. Meanwhile, it is notable that the regulatory requirements under which the RWQCB operate requires the RWQCB to determine where shellfish harvesting areas exist in coastal waters and to monitor the coliform in those areas. The RWQCB has determined that no shellfish harvesting areas exist in the coastal waters affected by the AWMA outfall. Therefore, there are no shellfish in the area which would be adversely affected by the proposed addition of coliform from the diverted creek flows.

3. Status of Efforts to Clean Up the Aliso Creek Watershed & Future Need for the Diversion

The applicant has chosen the proposed project in part because it is inexpensive (\$8,500 versus \$100,000 for treatment) and is only intended to be a temporary solution until an overall watershed management plan for reducing pollutants in Aliso Creek can be formulated. The County characterizes the proposed diversion as the short term method of addressing the water contamination problem at Aliso Beach while the mid-term and long-term plans are devised and implemented.

The Aliso Creek Watershed contains approximately 35 square miles, a portion of which is within the coastal zone (Exhibit 1). This watershed is comprised of a variety of sub-watersheds including J03P02, Dairy Fork, and Munger (Exhibit 1). The water quality problems experienced at Aliso Beach are a result of contamination generated throughout the watershed. Elimination of the need for an "end of pipe" or, in this case, "end of stream" solution such as the diversion will be dependent upon addressing the water quality issues throughout the watershed. A variety of events suggest that progress is occurring toward this end.

a. RWQCB Clean Up and Abatement Order 99-211 for J03P02 Sub-Watershed in Laguna Niguel

On December 28, 1999, the RWQCB issued Clean Up and Abatement Order 99-211 to the County of Orange, the Orange County Flood Control District, and the City of Laguna Niguel for the discharge waste with high fecal coliform bacteria levels from municipal storm drain outfall "J03P02"

into Sulphur Creek, a tributary to Aliso Creek (Exhibit 5). In response, the municipalities have been trying to identify the source of the contamination and implement measures to clean up the contamination. According to the JO3P02 Workplan Fourth Quarterly Progress Report (November 2000 – January 2001) dated February 28, 2001 these responses include (Exhibit 6): 1) extensive sampling in the JO3P02 sub-watershed to identify sources; 2) construction and implementation of a diversion system to divert low flows discharging from the JO3P02 outfall to the treatment plant for treatment; 3) construction of the "East Alicia Water Quality Wetland"; 4) testing of an end-of-pipe filtration and ultraviolet treatment system known as a "Clear Creek System"; 5) weekly street sweeping within the sub-watershed; 6) completion of design and seeking funding for a wetland system (known as the WETCAP project) designed to capture and treat 100% of low flows discharging from the JO3P02 sub-watershed; 7) public outreach and education; among other efforts. Bacteriological monitoring results indicate that the quality of water being discharged from JO3P02 is improving, but additional progress is needed. Improvements in the quality of discharges from JO3P02 will have a positive affect on the quality of water in Aliso Creek. However, since the quantity of water discharging from this location is about 1% of the total volume of water passing through Aliso Creek, clean up of this single discharge point will not by itself eliminate the need for the creek diversion at the mouth of Aliso Creek. However, it is anticipated that the cumulative effect of cleaning up these individual locations will eventually eliminate the need for an "end of stream" solution.

b. Dairy Fork Basin Project and Munger Storm Drain Project

There are two projects within the Dairy Fork sub-watershed and the Munger sub-watershed nearing implementation (once permits are obtained) which are designed to enhance the assimilative capacity of the receiving waters at those points. The projects include the construction of a biofiltration basin in Dairy Fork and an infiltration/filtration basin at the outfall of the Munger storm drain. These measures essentially filter urban runoff prior to discharge into Aliso Creek.

c. RWQCB "13225" Directive

On March 2, 2001, the Executive Director of the RWQCB issued a Clean Water Code Section 13225 Directive to the municipalities located within the Aliso Creek Watershed including the County of Orange (Exhibit 7). This directive requires the various municipalities to implement an extensive water quality monitoring program throughout the watershed which is designed to identify contamination 'hot spots' (such as JO3P02). The monitoring program was approved at the May 2001 RWQCB meeting and will be implemented immediately (Exhibit 8). Quarterly reports must be submitted to the RWQCB. Once any 'hot spots' are identified, the municipalities are required to implement structural and non-structural measures to address the contamination source. RWQCB staff anticipate relatively rapid identification of sources and implementation of projects from this directive.

d. U.S. Army Corps of Engineers *Aliso Creek Watershed Management Study*

As noted in previous Commission findings, the U.S. Army Corps of Engineers is in charge of an overall effort, the *Aliso Creek Watershed Management Study*, which is moving forward on its feasibility phase of the project to evaluate methods of reducing the amount of runoff and pollutants entering Aliso Creek. The Corps has identified preliminary solutions including the implementation of a detention basin and wetlands complex in the lower portions of Aliso creek to provide water filtration to improve water quality. The most recent update from the Corps on the Aliso Creek

Watershed Management Study is that they are finalizing the Feasibility Report, which should be in draft form by summer of 2001 and finalized in the fall of 2001. Implementation of the recommendations from the Corps study will require federal and local government cost-sharing. It is anticipated that it will be several years before actual projects identified in the study are in place.

4. Monitoring the Effects of the Diversion and Clean-Up of the Watershed

The RWQCB requires AWMA to monitor water at various surf zone (i.e., water area adjacent to the beach) monitoring stations, nearshore water (i.e., 1,000 feet offshore) monitoring stations, offshore water (i.e., below the ocean surface, above the outfall's outlet 1.5 miles offshore) monitoring stations, and creekside monitoring stations for bacteriological pollutants such as coliform which are hazardous to human health. This information can assist the Commission in evaluating the progress of clean up in the watershed and analysis of the effectiveness of the diversion and the impacts the diversion may have.

a. Within Aliso Creek Watershed

Water quality monitoring is occurring throughout the watershed. As noted above, this monitoring includes the sampling and analysis of water quality at J03PO2 required under the RWQCB Clean Up and Abatement Order 99-211. In addition, the RWQCB 13225 Directive includes sampling and analysis on various tributaries and in Aliso Creek.

b. At the Berm

The RWQCB NPDES Permit for the AWMA outfall and the diversion into the outfall requires monitoring at a location within the creek and inland of the berm to provide data about the quantity and quality of the water which is being put into the AWMA outfall line. Elements monitored are flowrate (continuous monitoring), CBOD (daily monitoring), Suspended Solids (daily monitoring), pH (daily monitoring), and total and fecal coliform (weekly).

c. Surfzone Monitoring

The RWQCB NPDES Permit for the AWMA outfall and the diversion into the outfall requires monitoring of the quality of water in the surfzone. There are 17 shoreline (surfzone) monitoring stations (known as S1 through S16). These stations monitor the quality of water in the surfzone radiating up and down the coast at 1,000 foot intervals from the intersection of the outfall line and the shoreline. Elements monitored are total and fecal coliform and enterococcus (at least twice weekly). According to the NPDES Monitoring and Reporting Program the purpose of the surf zone monitoring is "...to assess bacteriological conditions in areas used for body-contact activities (e.g. swimming); and to assess aesthetic conditions for general recreational uses (e.g. picnicking)." In addition, this monitoring data can potentially indicate whether the effluent being discharged 1.5 miles offshore is washing back to the shoreline.

Due to the monitoring requirements of the California Health and Safety Code, as amended by AB411, the surfzone monitoring locations are monitored more frequently than required by the NPDES permit. The County's program includes monitoring at least once per week and up to five times per week. The frequency of monitoring depends upon whether California Ocean Water-Contact Sports Standards are exceeded. If standards are exceeded, monitoring occurs more frequently.

d. Nearshore Monitoring

The RWQCB NPDES Permit for the AWMA outfall and the diversion into the outfall requires monitoring of the quality of water in the nearshore (1,000 feet offshore). There are 7 nearshore monitoring stations (known as N1 through N7). These nearshore stations also radiate up and down coast from the alignment of the outfall line including at the intersection of the outfall line and 1,000 feet offshore and from there at 500, 1,000, and 2,500 foot intervals. Elements monitored are total and fecal coliform and enterococcus. Under the NPDES permit, the reporting is normally monthly but can be suspended at the discretion of the RWQCB's Executive Officer. According to the NPDES Monitoring and Reporting Program the purpose of the near shore monitoring is "...to assess bacteriological conditions in areas used for body-contact activities (e.g. scuba diving) and where shellfish and/or kelp may be harvested; and to assess aesthetic conditions for general boating and recreational uses." Once again, this monitoring data can also potentially indicate whether the effluent being discharged 1.5 miles offshore is washing back to the shoreline.

e. Monitoring Offshore in the Vicinity of the Outfall

The RWQCB NPDES Permit for the AWMA outfall and the diversion into the outfall requires monitoring of the quality of water offshore in the vicinity of the outfall. There are 7 offshore monitoring stations (known as A1-A5, B1 and B2). These offshore stations are at the corners of a 1,000 foot by 1,000 foot square and at the center of the square centered above the outfall and 1 mile upcoast and one mile downcoast of this square. Elements monitored are total and fecal coliform and enterococcus, suspended solids, oil and grease, salinity, temperature, dissolved oxygen, light transmittance, and pH. All monitoring occurs monthly. According to the NPDES Monitoring and Reporting Program the purpose of the near shore monitoring is "...to determine compliance with the Ocean Plan; and to determine if the discharge causes significant impacts on the water quality within the ZID [zone of initial dilution] and beyond the ZID as compared to reference areas."

The NPDES permit also requires benthic monitoring around the outfall. Benthic monitoring is to occur annually, however, the frequency and form of the monitoring can be altered by the Executive Officer of the RWQCB. Monitoring includes dissolved sulfides, temperature, BOD, COD, particle size distribution, and 20 other chemical constituents. There is also an annual Kelp Bed monitoring requirement to assess whether wastes affect the areal extent and health of kelp beds.

5. Special Conditions and Conclusions

The Commission finds that it is necessary to limit the duration of the project to one summer season as proposed; specifically, between May 1, 2001 and October 15, 2001. The purpose of this limitation is to avoid long-term impacts to coastal resources, including stream ecology, and to ensure that the proposed diversion does not become the permanent response to elevated water contamination levels at the beach.

In addition, the proposed project involves the temporary diversion of polluted creek water offshore. Re-location of polluted water, rather than clean-up and/or treatment of the polluted water is not the preferred mid or long term solution to addressing water quality problems at Aliso Beach. Continued re-location of polluted water from the surfzone to the offshore environment could have

cumulative or long term impacts upon water quality and biological resources. In addition, if the Aliso Creek Watershed is not cleaned up and development within the watershed continues, pollution levels in the waters of Aliso Creek could intensify. Increases in the concentration of pollutants in the creek waters could change the effectiveness of the diversion and/or change offshore impacts. Therefore, the Commission requires that certain monitoring (some of which already occurs under other regulatory programs) occur as a condition of this approval. Accordingly, Special Condition 3 of Coastal Development Permit Amendments 5-97-316-A4, A-5-LGB-97-166-A4, and 5-83-959-A8 require the applicant to provide to the Commission monitoring data and analysis (which may also be required by the San Diego Regional Water Quality Control Board and the California Health & Safety Code (i.e. AB411)) for the project period and for comparative periods when the project was not in place (e.g. 3 months before project implementation and 3 months after project implementation) for (1) the quantities and types of pollutants (both organic and heavy metals) being discharged from the outfall, (2) the quantities and types of pollutants (both organic and heavy metals) present in the waters of Aliso Creek, the surf zone and vicinity where Aliso Creek discharges to coastal waters, and in near shore waters, and (3) the effects of the project on the marine environment in the vicinity of the outfall and Aliso Creek County Beach, including beneficial/adverse effects on human health and marine life. The Commission is also requiring the applicant to submit copies of monitoring, analysis and other regulatory activity related to the outfall and the Aliso Creek Watershed in order that the Commission may understand other regulatory responses which may relate to the impact of the diversion and the future need for the diversion. Finally, Special Condition 3 requires the applicant to submit the results of the monitoring to the Executive Director by March 15, 2002 in order that the data and analysis may be reviewed prior to any request for diversion in 2002. The monitoring results are to be accompanied by an analysis which demonstrates whether applicable water quality standards (e.g. in stream Basin Plan objectives for Aliso Creek and Ocean Plan standards) were met during the project period and when the project was not operational. The analysis must determine if any beach posting or closures occurred during the diversion and whether any reduction in the quantity of postings or closures may be attributable to the diversion. The analysis is to also contain a determination of whether the proposed project had any beneficial/adverse impacts upon human health and marine life including any such impacts at the outfall, in near shore waters, in the surf zone or in Aliso Creek. This condition is similar to , but more specific than, the condition previously imposed by Emergency Coastal Development Permit 5-00-272-G that was issued on July 20, 2000 and under Coastal Development Permit Amendments 5-97-316-A3, A-5-LGB-166-A3 and 5-83-959-A7.

It is possible that monitoring may show that, even with the proposed project, bacteriological pollutants in the ocean water at the creek's mouth and adjoining beach are still above maximum levels for safe human contact. The NPDES permit requires AWMA to ensure that discharges from its outfall do not result in levels of bacteriological pollutants which are unsafe for human contact. As a result, if the monitoring data show that bacteriological pollutants at the creek mouth have not decreased, AWMA will have to determine if the bacteriological pollutants are washing back onshore from its outfall, or if there is a different source. If the cause is bacteriological pollutants from the outfall, then AWMA will have to further determine if the source is from the creek's flows or from one of its sewage treatment plants. If the source of the pollutants causing any violation of water quality standards at the outfall is the creek's flows, then AWMA must discontinue diverting the creek flows into the pipeline and outfall. Section 3.4 "Violations of Regulations" of the agreement between AWMA and the County of Orange allows AWMA to terminate the agreement and halt the diversion if AWMA is in non-compliance with water quality regulations as a result of the proposed project. Therefore, if a water quality problem occurs as a result of the proposed

project, AWMA would have to discontinue the project, eliminating the water quality problem at the outfall, or be in violation of its NPDES permit.

Addendum No. 1 to AWMA's NPDES permit approved by the RWQCB requires AWMA to continue its monitoring program, taking into consideration the additional discharge from the creek (Exhibit 10). The addendum does not raise the allowable limits for pollutants to accommodate the increase discharge from the creek. Therefore, compliance with the RWQCB's NPDES permit for the outfall would ensure that the discharge from the creek would not result in either coliform or non-coliform pollutants from rising to levels above that considered safe for marine life or human contact. Meanwhile, Condition No. 6 of permit A-61-76 contained standards for the effluent discharged from the AWMA outfall. Special Condition 6 was amended by 5-83-959-A5 to require compliance with RWQCB standards as specified in the RWQCB's Order No. 95-107 for the subject outfall, rather than a specific numerical standard which may not be consistent with RWQCB standards. Special Condition 2 of Coastal Development Permit Amendment 5-83-959-A8 re-iterates, but does not change, the Commission's previously imposed requirement that any discharges from the AWMA outfall must not exceed the standards specified in RWQCB's Order No. 95-107. Accordingly, even with the diversion in place, AWMA is required by the RWQCB and Coastal Development Permit A-61-76 (5-83-959) to comply with the standards established in Order No. 95-107. This requirement will assure that coastal waters are not degraded by the proposed project.

As will be noted more fully under "Streambed Alteration and Biological Resources" the proposed project will cause temporary changes to a stream bed and stream bank. In addition, the project would discharge polluted water offshore. Due to the temporary nature of the project, adverse impacts upon biological resources are not anticipated. However, in order to assure that the project does not contribute to any degradation of any creek habitat, Special Condition 3 requires the applicant to restore the creek to its pre-project condition, to eliminate invasive exotic plants in the project area, and re-vegetate for erosion control purposes any upland areas adjacent to the creek disturbed by construction activity. Meanwhile, if the project were to continue, long term cumulative adverse impacts could occur. In order to monitor for such impacts Special Condition 3 of Coastal Development Permit Amendments 5-97-316-A4, A-5-LGB-97-166-A4, and 5-83-959-A8 requires the applicant to monitor and provide data and analysis regarding the effects of the project on riparian vegetation and other biological resources (including, but not limited to, tidewater goby and/or their habitat) along the banks and within Aliso Creek in the area of the creek affected by the proposed berm. Special Condition 3 also requires the applicant to monitor the effects of the project upon biological resources at the outfall. Finally, Special Condition 2 of Coastal Development Permit Amendments 5-97-316-A4 and A-5-LGB-97-166-A4 (which pertain to the berm itself) requires restoration of the creek to pre-project conditions after removal of the berm.

Thus, as conditioned to: 1) limit the proposed project to the summer season of 2001; 2) require submittal of water quality monitoring data and conclusions regarding the data, 3) ensure the diversion does not result in pollution levels at the outfall which exceed State standards, 4) monitoring for biological impacts at the creek and the outfall; and 5) restoration of the creek to pre-project conditions, the Commission finds that the proposed project would maintain the quality of coastal waters appropriate to maintain optimum populations of marine organisms and for the protection of human health. Therefore, as conditioned, the Commission finds that the development proposed under Coastal Development Permit Amendment 5-97-316-A4 and 5-83-959-A8 would be consistent with Sections 30230 and 30231 of the Coastal Act. In addition, as conditioned, the Commission finds that the development proposed under Coastal Development Permit Amendment A-5-LGB-166-A4 and 5-83-959-A8 would be consistent with LCP Policy 4-H.

C. STREAMBED ALTERATION AND BIOLOGICAL RESOURCES

Section 30236 of the Coastal Act states:

Channelizations, dams, or other substantial alterations of rivers and streams shall incorporate the best mitigation measures feasible, and be limited to (1) necessary water supply projects, (2) flood control projects where no other method for protecting existing structures in the floodplain is feasible and where such protection is necessary for public safety or to protect existing development, or (3) developments where the primary function is the improvement of fish and wildlife habitat.

Certified Laguna Beach Local Coastal Program ("LCP") Policy 1-J states (standard of review for A-5-LGB-166-A4 and upland portions of 5-83-959-A8):

In order to maintain stable channel sections and the present level of beach sand replenishment, sediment movement in natural drainage channels shall not be significantly changed.

Certified Laguna Beach Local Coastal Program ("LCP") Policy 4-A states (standard of review for A-5-LGB-166-A4 and upland portions of 5-83-959-A8):

Protect fresh water lakes, streams, waterways and riparian habitats, and preserve the borders and banks of lakes and streams in their natural state, where possible.

Certified Laguna Beach LCP Policy 9-B states (standard of review for A-5-LGB-166-A4 and upland portions of 5-83-959-A8):

Prohibit filling and substantial alteration of streams and/or diversion or culverting of such streams except as necessary to protect existing structures in the proven interest of public safety, where no other methods for protection of existing structures in the floodplain are feasible or where the primary function is to improve fish and wildlife habitat. This provision does not apply to channelized sections of streams without significant habitat value.

Certified Laguna Beach Local Coastal Program ("LCP") Policy 9-U states (standard of review for A-5-LGB-166-A4 and upland portions of 5-83-959-A8):

Restore and retain Aliso Creek in a natural state and protect the Creek from infringement of new development.

The upper reaches of the Aliso Creek watershed are relatively undisturbed and contain a variety of native vegetation typical of a riparian environment. However, the lower reaches of Aliso Creek, where the proposed project is located, has been degraded by erosion and attendant attempts to stabilize the creek bank with hard structures. The creek in the project area has also been extensively invaded by non-native plant species. In addition, according to a study titled Aliso Creek Water Quality Planning Study dated June 2000, habitat degradation and very large flood events in the early 1980's eliminated all remaining large fish from the creek. Aquatic wildlife is present within the creek waters, however, degradation of creek morphology, high water

temperatures, bacteriological contamination, and/or aquatic toxicity affect the persistence and potential reintroduction of desirable aquatic species.

While the lower reach of Aliso Creek is degraded, it was recently designated as Critical Habitat for the federally endangered tidewater goby (*Eucyclogobius newberryi*). This designation became effective on December 20, 2000. The tidewater goby is a small fish which is found in coastal streams and associated wetlands, flood plains and estuaries along the northern and southern California coastline. The Critical Habitat Designation applies to 10 coastal stream segments in Orange and San Diego counties. At Aliso Creek, the designation applies to approximately 0.6 miles of the portion of the creek upstream of the Pacific Ocean. The proposed berm is located within the designated area.

However, according to the published critical habitat designation (Federal Register, Vol. 65, No. 224) Aliso Creek is not presently occupied by tidewater goby. Aliso Creek was historically occupied, however, the species is not present there now. The purpose of designating Aliso Creek as critical habitat is to reserve the area for future re-introduction of the species to the creek (Federal Register, Vol. 65, No. 224, Monday, November 20, 2000 p. 69699).

The applicant has consulted with the U.S. Army Corps of Engineers and the U.S. Fish and Wildlife Service regarding the impacts the proposed project may have upon tidewater goby and the future potential for tidewater goby to be re-introduced to Aliso Creek. In a letter dated May 9, 2001, the USFWS states "...that the impacts will be temporary in nature provided that the project site is restored to its pre-project contours and conditions immediately following the berm's removal at the end of each beach season." Furthermore, the letter states "...we have no immediate plans or funding for a recovery action that includes translocation of goby into Aliso Creek." The USFWS reserved the right to reconsider the determination if additional information revealed that impacts to goby may occur. In addition, the USFWS only concurred with the project if it were to occur for a period of 1 to 3 years (Exhibit 10). Also, the USACE has conditioned their approval for a single year extension rather than a multiple year extension (Exhibit 9).

The construction of the sand berm in Aliso Creek will result in the alteration of the creek bed. Ponding of water upstream of the proposed berm would flood riparian vegetation upstream from the berm. Riparian vegetation seaward of the proposed berm would be deprived of water and may die. However, because the proposed construction would be temporary (i.e., not more than six months in duration) and last for the 2001 summer season only, it is not substantial alteration. The proposed project is not a permanent solution for managing pollutants in Aliso Creek. Prior information that was discussed in this report show that the proposed project has been effective, but this diversion project will only be temporary until an overall watershed management plan for reducing pollutants in Aliso Creek can be formulated. Furthermore, the one season limitation ensures the proposed project will not become a permanent channelization.

In addition, the proposed project would occur during the dry summer season, when there is not much water in Aliso Creek and therefore the amount of riparian vegetation which grows would likely be less than during the rainy season. Thus, the amount of riparian vegetation which would be temporarily impacted would be less than during the rainy season. The riparian vegetation located in the proposed project area consists of non-native invasive species. The predominant vegetation consists of iceplant (*Carpobrotus* spp.) and giant reed (*Arundo donax*). Further, the applicant has received a streambed alteration agreement from the California Department of Fish and Game approving the proposed project (Exhibit 11). Under the Streambed Alteration

Agreement, the Department of Fish and Game required that eradication of giant reed (*Arundo donax*) take place at Whiting Ranch Wilderness Park as a mitigation measure. Whiting Ranch Wilderness Park is within a mile of the headwaters of Aliso Creek and is the first stand of giant reed in the upper watershed. The Department of Fish and Game determined that to eradicate giant reed, it is best to begin eradication at the top of the watershed so to prevent the lower distribution of giant reed. The Department of Fish and Game did not impose eradication of giant reed and revegetation of the project site with native vegetation, but this eradication at the top of the watershed would be beneficial to the stream ecosystem as it would remove an invasive non-native plant. The Department of Fish and Game believes that eradicating it at the top of the watershed would reduce the ability of the giant reed from progressing down the watershed. With continued eradication, the watershed, as well as the project area, would eventually be free of giant reed.

Still, the Commission finds that it is necessary to require that the proposed berm be removed after one summer season, as proposed by the applicant, and further that the bed of Aliso Creek be restored to its natural state, as it previously existed prior to construction of the berm. Removal of the berm would re-establish surface area for riparian vegetation. In addition, the Commission requires the applicant to remove non-native invasive plants species from the project area. Removal of exotic invasive plants and restoration would return riparian vegetation to the creek corridor, which was eliminated or otherwise affected by the proposed project, to its previously existing condition or better. The special condition describes both the banks and bed of Aliso Creek, even though the banks are within the certified area of the City, because of the physically integrated nature of the proposed berm. In addition, the Commission is requiring monitoring and documentation of any biological impacts in order to identify whether recurring implementation of the diversion would have any adverse impact upon biological resources.

The project, as proposed and conditioned, is temporary and would be limited to the summer 2001 season. Due to the temporary nature of the project it is not considered substantial alteration of a stream and is thus consistent with Section 30236 of the Coastal Act and Policy 9-B of the Laguna Beach certified Local Coastal Program. In addition, since the berm is temporary and will be removed it will not significantly change sediment movement in the creek. Therefore, the project as proposed and conditioned is consistent with Policy 1-J of the Laguna Beach certified Local Coastal Program. In addition, as conditioned, the project will result in removal of exotic invasive vegetation from the creek and restore the habitat within the creek. Therefore, the Commission finds the project, as conditioned, to be consistent with Policy 4-A and 9-U of the Laguna Beach certified Local Coastal Program.

D. PUBLIC ACCESS AND RECREATION

Section 30604(c) of the Coastal Act states:

Every coastal development permit issued for any development between the nearest public roadway and the sea or the shoreline of any body of water located within the coastal zone shall include a specific finding that the development is in conformity with the public access and public recreation policies of Chapter 3 (commencing with Section 30200) [of the Coastal Act].

Policy 3-A of the Open Space and Conservation policies of the Laguna Beach certified local coastal program states:

Retain and improve existing public beach accessways in the City, and protect and enhance the public rights to use dry sand beaches of the City.

Section 30210 of the Coastal Act states:

In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.

Construction of the proposed project will require the staging and storage of equipment and materials in the public parking lot adjacent to the creek. This public parking lot provides parking for Aliso Beach. Access to the beach from the parking lot is available via a tunnel which passes under Pacific Coast Highway. Public access to the beach may be interrupted if construction of the proposed project interferes with the public's ability to access and park in the parking lot, especially during peak summer use of the beaches, generally between Memorial Day and Labor Day each year. Accordingly, Special Condition 5 of this amendment requires that construction of the proposed project not interfere with the public's ability to access and park in the public parking lot during the period of Memorial Day to Labor Day. Therefore, as conditioned, the Commission finds the proposed development conforms with the public access requirements of the certified local coastal program.

In addition, the proposed project would temporarily resolve the problem of ponding polluted water at Aliso Creek County Beach, a popular beach. This would encourage greater use of the beach.

In addition, the proposed project does not involve any alteration to the existing Aliso Water Management Agency Ocean Outfall. Rather, an existing subsurface pipe (constructed under the underlying permits which are now being amended) is being used to transport the creek water to the outfall line. Use of the existing pipe avoids any need to trench in the public parking lot. Accordingly, other than the construction outlined above, the proposed development does not result in any change to existing access. Therefore, the Commission finds that the proposed project is consistent with policy 3-A of the certified local coastal program and Section 30210 of the Coastal Act.

E. FLOOD HAZARDS

Section 30253 of the Coastal Act states, in relevant part:

New development shall:

- (l) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.*

The construction of a berm within Aliso Creek would result in ponding of water upstream of the proposed berm. Excessive ponding could result in the creek overflowing its banks which could flood development inland of the berm. However, the proposed berm is designed to minimize the threat of flooding by incorporating a spillway which allows water to flow over the berm into the creek seaward of the berm if water elevations become too high. In fact, in a letter dated March 21, 2001, the applicant indicates that no flooding of any kind occurred when the berm was in place in

1999 and 2000. In addition, the Commission is requiring that the proposed berm be removed by October 15, 2001, which is the normal start of the rainy season. Therefore, the berm would not be in place when rainfall is typically heaviest.

However, an abnormal summer storm could cause water to rise much more quickly than can be pumped to the sewage outfall or released by the spillway, flooding properties located inland of the proposed berm. Therefore, should the National Weather Service forecast a strong storm (i.e., one inch or more of rainfall during a 24 hour period) prior to October 15, 2001, the Commission finds it necessary to require the applicant to remove the proposed berm before the forecasted start of the storm to prevent flooding of properties inland of the proposed berm. Therefore, the Commission finds that the proposed project, as conditioned, is consistent with Section 30253 of the Coastal Act.

F. GROWTH INDUCEMENT/AIR QUALITY

Section 30254 of the Coastal Act states:

New or expanded public works facilities shall be designed and limited to accommodate needs generated by development or uses permitted consistent with the provisions of this division; provided, however, that it is the intent of the Legislature that State Highway Route 1 in rural areas of the coastal zone remain a scenic two-lane road. Special districts shall not be formed or expanded except where assessment for, and provision of, the service would not induce new development inconsistent with this division. Where existing or planned public works facilities can accommodate only a limited amount of new development, services to coastal dependent land use, essential public services and basic industries vital to the economic health of the region, state, or nation, public recreation, commercial recreation, and visitor-serving land uses shall not be precluded by other development.

City of Laguna Beach LCP Policy 2-Q states:

New development shall be compatible or phased with the carrying capacity of the transportation network, public works systems and other municipal services.

City of Laguna Beach LCP Policy 14-A states:

Monitor activities of adjacent jurisdiction [sic] regarding population growth and identify their impacts on City services and environmental quality.

When the Commission approved the AWMA outfall under Coastal Development Permit A-61-76 (a.k.a. 5-83-959) a primary concern was its potential to induce growth. The outfall, as proposed, would have allowed a five-fold increase in population, raising issues with public access and air quality. In order to address this issue, effluent flows were restricted as a way of limiting growth. Since approval of the outfall in 1976, the Commission has granted amendments to the permit which have increased effluent flows to accommodate development that it determined would be adequately mitigated.

Original concerns with the approved outfall included whether the outfall would induce growth, and whether that growth would have adverse air quality impacts. The proposed amendment involves diversion of existing flows of Aliso Creek into the outfall. No increase in the capacity of the outfall

is proposed. Therefore, the proposed amendment would not induce growth nor result in development which would have adverse air quality impacts. In addition, the outfall currently operates well below capacity. The proposed project, which is temporary, would not be a burden on the capacity of the outfall. Therefore, the Commission finds that the proposed amendment would be consistent with Section 30254 of the Coastal Act and Policy 2-Q and 14-A of the Laguna Beach certified LCP.

G. LOCAL COASTAL PROGRAM

Section 30604 of the Coastal Act states, in relevant part:

(b) After certification of the local coastal program, a coastal development permit shall be issued if the issuing agency or the commission on appeal finds that the proposed development is in conformity with the certified local coastal program.

The City of Laguna Beach local coastal program was effectively certified on January 13, 1993. The portions of the proposed project within the certified areas of the City of Laguna Beach have been conditioned to be consistent with the provisions of the certified local coastal program.

H. CALIFORNIA ENVIRONMENTAL QUALITY ACT

Section 13096 of Title 14 of the California Code of Regulations requires Commission approval of Coastal Development Permits to be supported by a finding showing the permit, as conditioned, to be consistent with any applicable requirements of the California Environmental Quality Act (CEQA). Section 21080.5(d)(2)(i) of CEQA prohibits a proposed development from being approved if there are feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse impact which the activity may have on the environment.

The proposed project has been conditioned in order to be found consistent with the water quality, streambed alteration, and hazards policies of Chapter Three of the Coastal Act and policies of the certified Local Coastal Program. Mitigation measures: 1) limit the proposed project to one summer season and limit the quantity of the diversion, 2) require restoration of the stream after the development is removed, 3) require submittal of water quality, biological and flood hazard monitoring data and conclusions regarding the data, 4) require removal of the berm before October 15, 2001 in the event of significant storm event; 5) require avoidance of adverse impacts upon the public's ability to use parking spaces adjacent to the project site and 6) require that the water diverted through the outfall conform with State water quality standards. These measures will minimize all significant adverse impacts.

As conditioned, there are no feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse impact which the activity may have on the environment. Therefore, the Commission finds that the proposed project, as conditioned, can be found consistent with the requirements of the Coastal Act to conform to CEQA.

Glossary of Selected Acronyms

AWMA = Aliso Water Management Agency
CDP = coastal development permit
LCP = local coastal program
NPDES = National Pollution Discharge Elimination System
RWQCB = California Regional Water Quality Control Board - San Diego Region

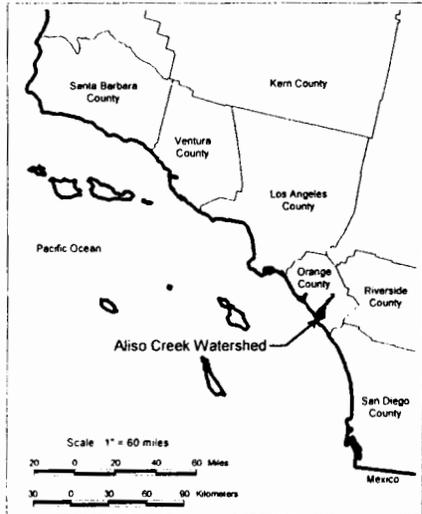
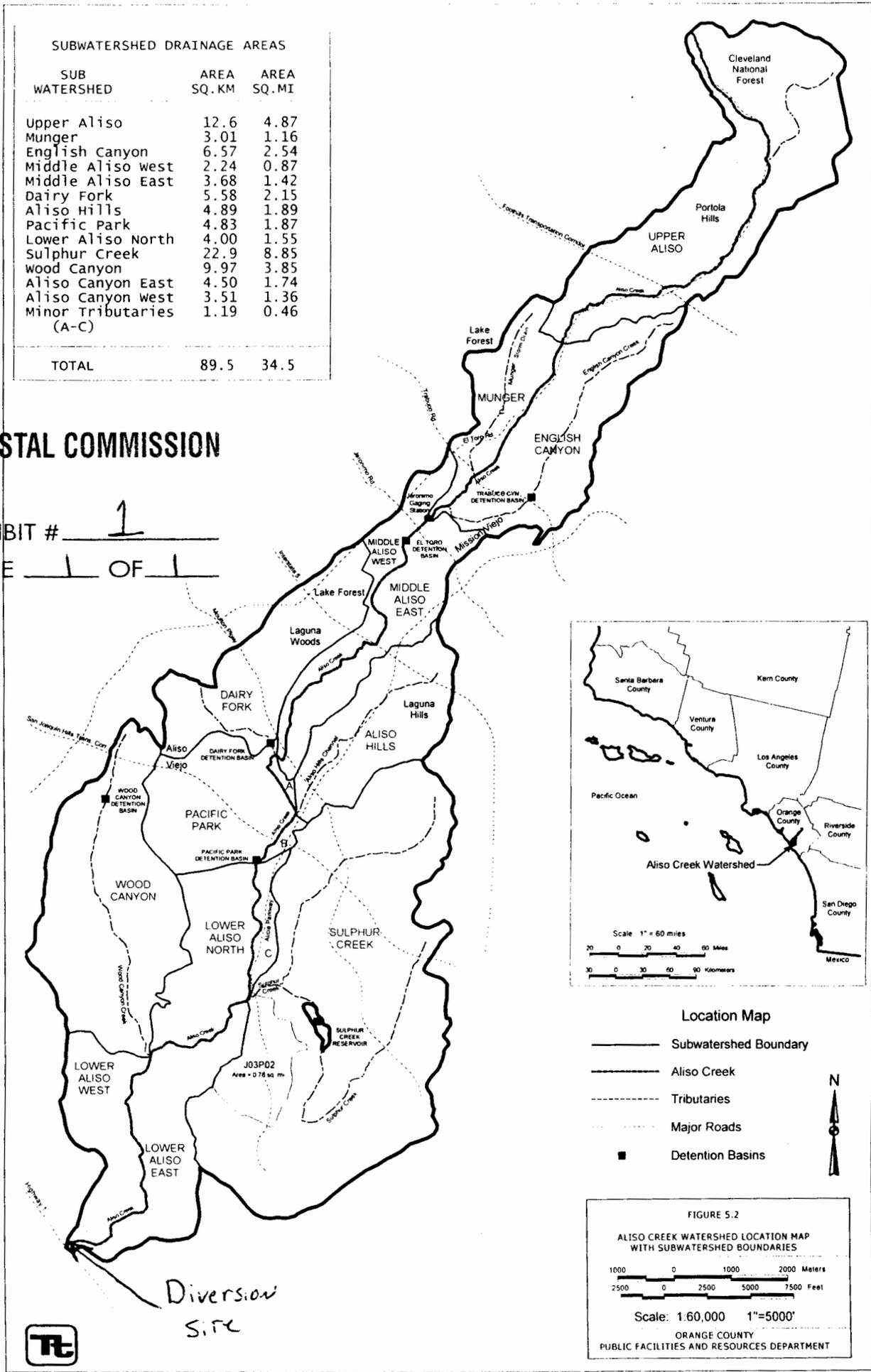
Appendix A
Substantive File Documents

Coastal Commission Substantial Issue Report dated June 20, 1997 for Appeal No: A-5-LGB-97-166; Coastal development permit A-5-LGB-97-166 and amendments, City of Laguna Beach Certified Local Coastal Program; Emergency Permit 5-97-219-G, Emergency Permit 5-00-272-G; Coastal development permit 5-97-316 and amendments; Coastal Development Permit A-61-76/5-83-959 and amendments; Federal Register, Vol. 65, No. 224, Monday, November 20, 2000; 8) Cleanup Abatement Order No. 99-211 issued by the San Diego Regional Water Quality Control Board, 9) City of Laguna Beach coastal development permit CDP97-19; U.S. Army Corps of Engineers Permit 96-00072-LTM; California Department of Fish and Game *Agreement Regarding Proposed Stream or Lake Alteration* dated March 11, 1996; California Regional Water Quality Control Board *Monitoring and Reporting Program* No. 95-107 for NPDES No. CA0107611; California Regional Water Quality Control Board, San Diego Region, Order No. 95-107, NPDES No. CA0107611; Addendum No. 1 to Order No. 95-107, NPDES No. CA0107611 titled *Waste Discharge Requirements for the Aliso Water Management Agency, Orange County, Discharge to the Pacific Ocean through the Aliso Water Management Agency Ocean Outfall; Agreement between Aliso Water Management Agency on Behalf of Project Committee No. 24 and the County of Orange (EMA) for County's Use of AWMA Ocean Outfall and Other AWMA Facilities for County's Aliso Creek Diversion Project*; Regional Water Quality Control Board San Diego Region 13225 Directive dated March 2, 2001.

| SUBWATERSHED DRAINAGE AREAS | | |
|-----------------------------|-------------|-------------|
| SUB WATERSHED | AREA SQ. KM | AREA SQ. MI |
| Upper Aliso | 12.6 | 4.87 |
| Munger | 3.01 | 1.16 |
| English Canyon | 6.57 | 2.54 |
| Middle Aliso west | 2.24 | 0.87 |
| Middle Aliso East | 3.68 | 1.42 |
| Dairy Fork | 5.58 | 2.15 |
| Aliso Hills | 4.89 | 1.89 |
| Pacific Park | 4.83 | 1.87 |
| Lower Aliso North | 4.00 | 1.55 |
| Sulphur Creek | 22.9 | 8.85 |
| Wood Canyon | 9.97 | 3.85 |
| Aliso Canyon East | 4.50 | 1.74 |
| Aliso Canyon west | 3.51 | 1.36 |
| Minor Tributaries (A-C) | 1.19 | 0.46 |
| TOTAL | 89.5 | 34.5 |

COASTAL COMMISSION

EXHIBIT # 1
PAGE 1 OF 1



Location Map

- Subwatershed Boundary
- Aliso Creek
- - - Tributaries
- Major Roads
- Detention Basins

N
↑

FIGURE 5.2

ALISO CREEK WATERSHED LOCATION MAP WITH SUBWATERSHED BOUNDARIES

1000 0 1000 2000 Meters
2500 0 2500 5000 7500 Feet

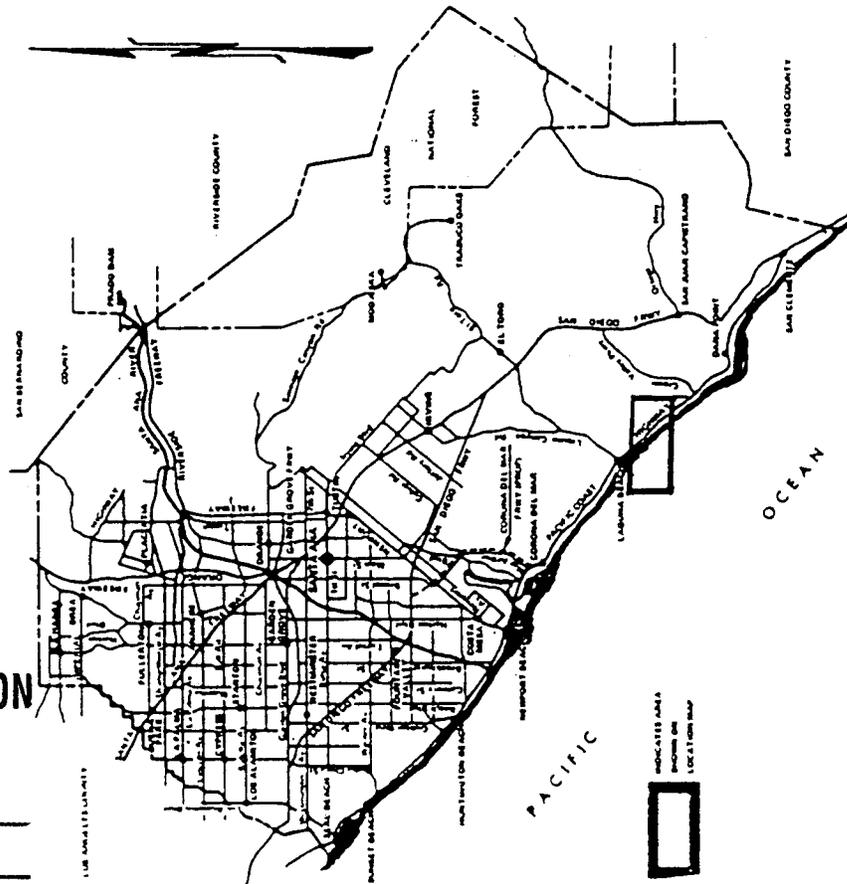
Scale: 1"=60,000 1"=5000'

ORANGE COUNTY
PUBLIC FACILITIES AND RESOURCES DEPARTMENT

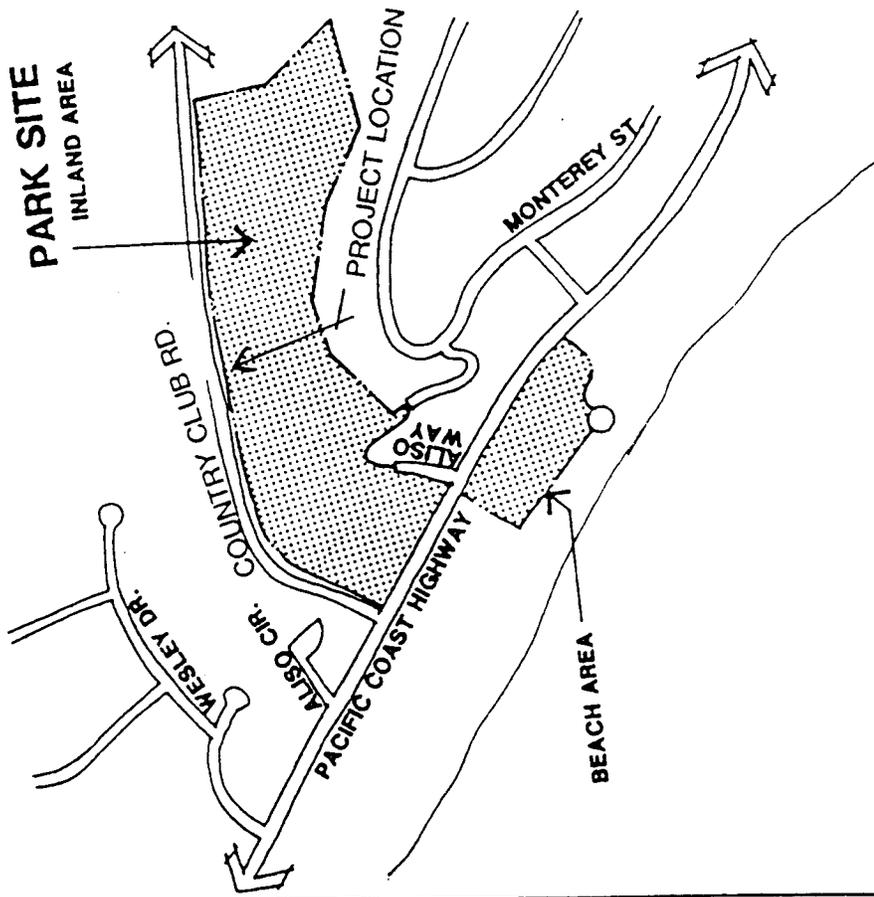


COASTAL COMMISSION

EXHIBIT # 2
 PAGE 1 OF 3



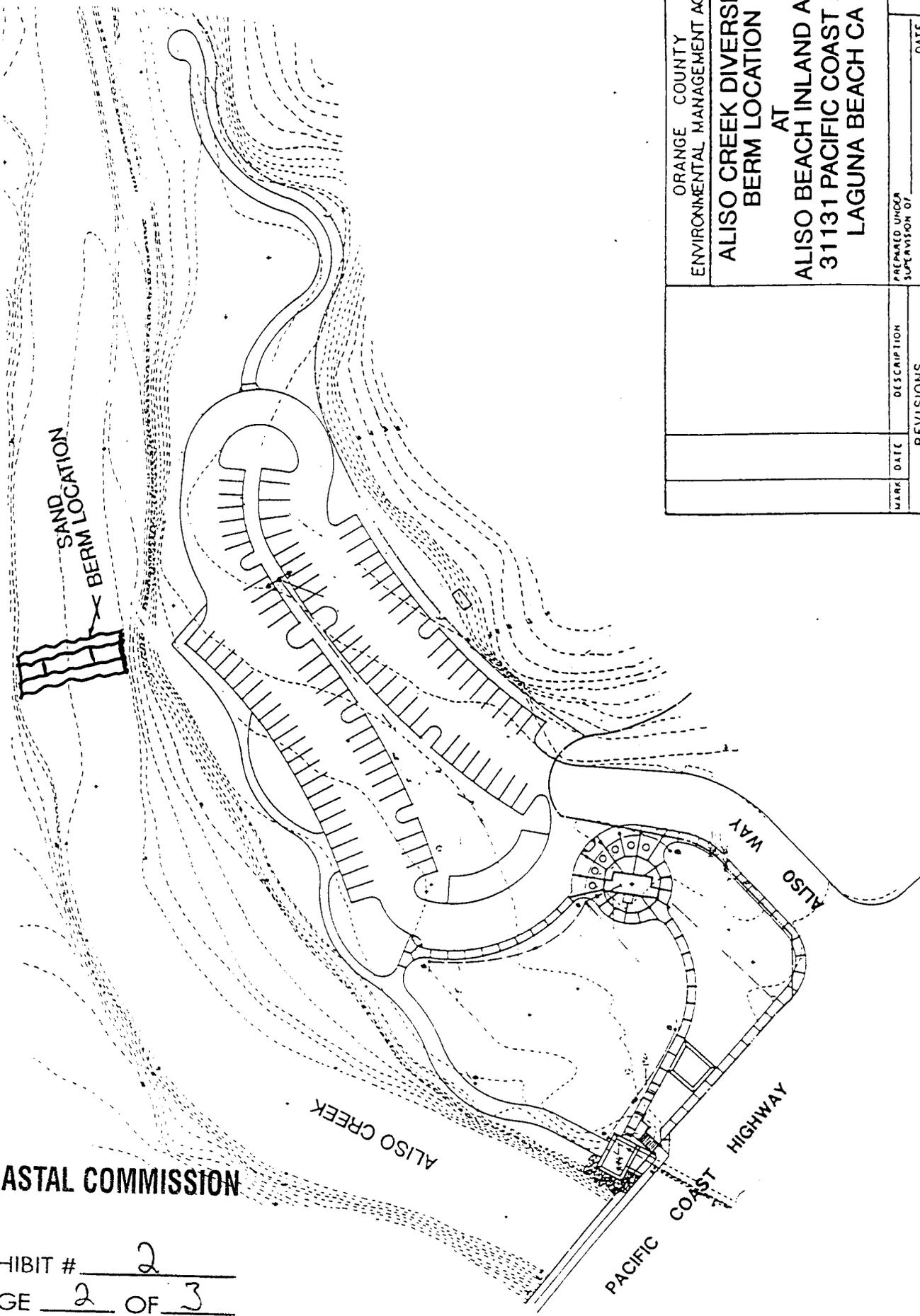
VICINITY MAP



LOCATION MAP

| | | | |
|---|------|---|----------|
| ORANGE COUNTY ENVIRONMENTAL MANAGEMENT AGENCY | | PROJECT LOCATION FOR ALISO CREEK DIVERSION BERM AT ALISO BEACH PARK 31131 PACIFIC COAST HWY LAGUNA BEACH CA | |
| PREPARED UNDER SUPERVISION OF | DATE | SCALE | DWG. NO. |
| REVISIONS | DATE | NTS | 1 |
| MARK | DATE | DESCRIPTION | |
| DESIGNED | | | |
| DRAWN | | CHECKED | |

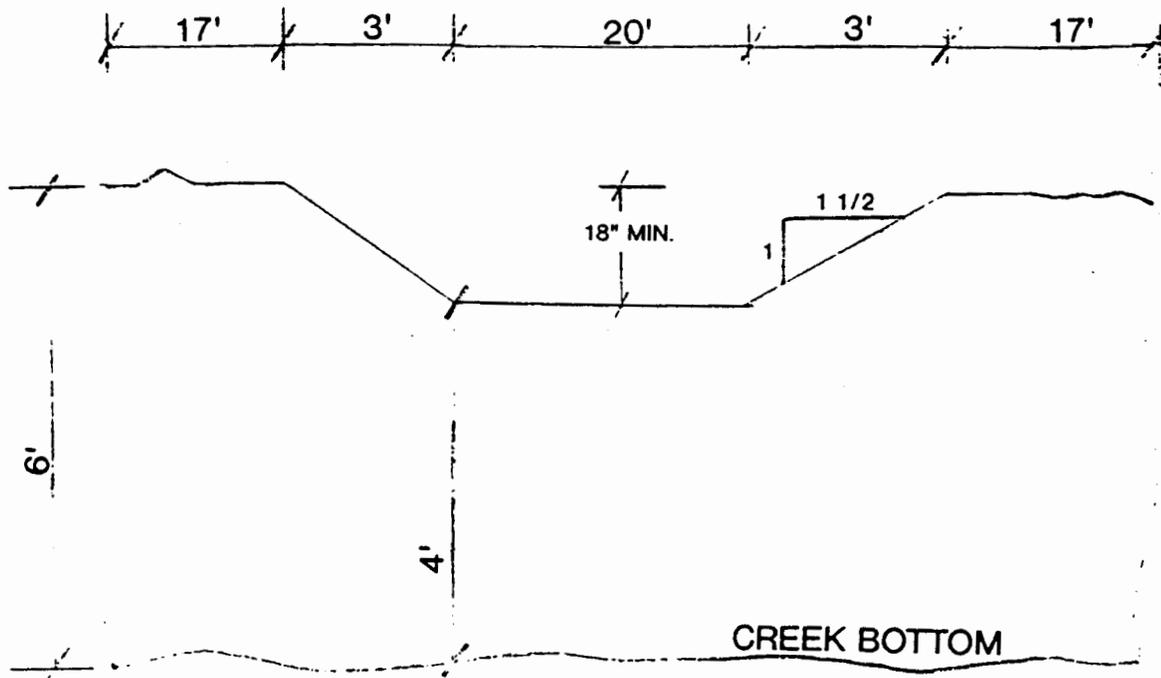
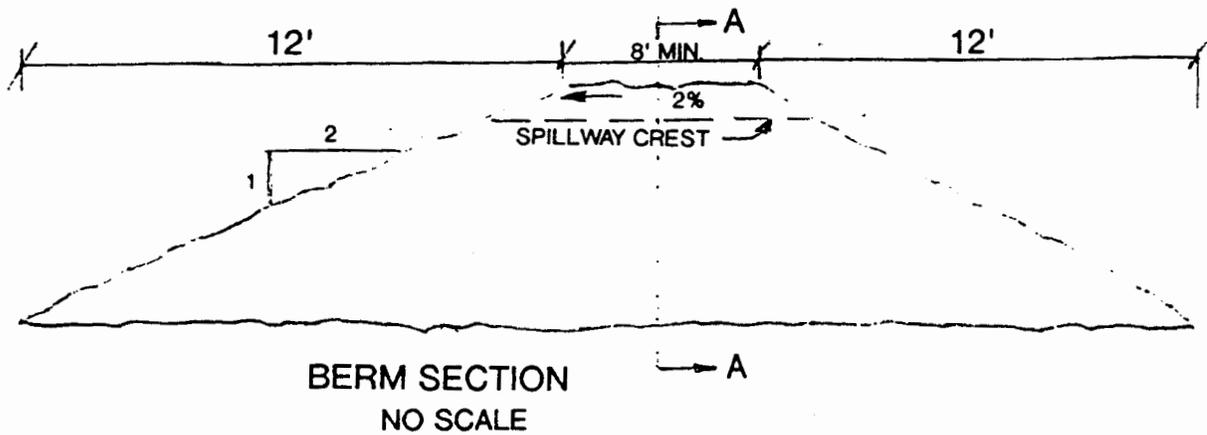
ALISO CREEK BEACH INLAND AREA



COASTAL COMMISSION

EXHIBIT # 2
 PAGE 2 OF 3

| | | | |
|--|-------------|-------------------|----------|
| ORANGE COUNTY ENVIRONMENTAL MANAGEMENT AGENCY | | SHEET 2 | |
| ALISO CREEK DIVERSION BERM LOCATION | | DATE | DWG. NO. |
| AT ALISO BEACH INLAND AREA | | DATE | DWG. NO. |
| 31131 PACIFIC COAST HWY LAGUNA BEACH CA | | DATE | DWG. NO. |
| PREPARED UNDER SUPERVISION OF | DESCRIPTION | DATE | DWG. NO. |
| DESIGNED | REVISIONS | DATE | DWG. NO. |
| DRAWN | CHECKED | DATE | DWG. NO. |



SECTION AA

COASTAL COMMISSION

EXHIBIT # 2
PAGE 3 OF 3

ORANGE COUNTY
ENVIRONMENTAL MANAGEMENT AGENCY

ALISO CREEK DIVERSION BERM
CROSS SECTION

AT
ALISO CREEK BEACH
31131 PACIFIC COAST HWY
LAGUNA BEACH CA

FIGURE 3

California Regional Water Quality Control Board

San Diego Region

Winston H. Hickox
Secretary for
Environmental
Protection

Internet Address: <http://www.swrcb.ca.gov/~rwqcb9/>
9771 Clairemont Mesa Boulevard, Suite A, San Diego, California 92124-1324
Phone (619) 467-2952 • FAX (619) 571-6972

Gray Davis
Governor

July 31, 2000

Mr. David A. Carretto
Aliso Water Management Agency
30290 Rancho Viejo Road
San Juan Capistrano, CA 92675

Dear Mr. Carretto:

RECEIPT OF MONITORING REPORT FOR ORDER NO. 95-107
FACILITY: ALISO WATER MANAGEMENT AGENCY
NPDES NO. CA0107611

This will acknowledge receipt of the May 2000 monthly monitoring report for the Aliso Water Management Agency discharge to the ocean outfall.

According to Order No. 95-107, the June 2000 monthly report is due no later than July 31, 2000 and the July 2000 monthly report is due no later than August 31, 2000. In addition, the quarterly monitoring report is due no later than August 30, 2000.

Comments referring to the May 2000 Monthly Monitoring Report:

- Total coliform, fecal coliform, and enterococcus values exceeded permit limits at station C1. At the present time, however, the Regional Board does not believe that the discharger's effluent is causing the coliform exceedances. Coliform concentrations closest to the outfall are within the limits established in Order No. 95-107.
- Effluent dissolved oxygen and temperature were not reported on a weekly basis as required in Order No. 95-107. Regardless of how many samples are collected in the month, if a facility does not report a weekly sample result for *any* 7-day period when there is flow, it will be considered an omission of information.

General Comments:

- Please report mass emission rate (MER) values for all constituents with MER limits established in Order No. 95-107 (e.g. ammonia and oil and grease).
- If only one value for oil and grease is reported per month, the monthly average permit limit will be applied to that value as stated in F.19 of Order 95-107.
- The six-month median value for ammonia should also be included in the monthly monitoring report as stated in Discharge Specification B.2.b of Order 95-107.
- Please include the monthly average value for turbidity in each monthly monitoring report.

Order No. 95-107 established the monthly average limit for turbidity as 75 NTU.

COASTAL COMMISSION

EXHIBIT # 3
PAGE 1 OF 9

Mr. David A. Carretto

- 2 -

July 31, 2000

- In order to assess compliance with Discharge Specification B.3 of Order 95-107, please begin to report the percent removal values for TSS and CBOD as running monthly values in your monitoring reports.

The omissions of data, as listed above, are violations of the Monitoring and Reporting Program No. 95-107. Please take all necessary steps to achieve compliance with the above mentioned violations.

Issues regarding this permit, and its renewal, have been transferred to Ms. Mona Dougherty of my staff. If you have any questions or matters to discuss, please contact her at (858) 492-1785 (dougmn@rb9.swrcb.ca.gov).

Sincerely,



 MICHAEL P. MCCANN
Supervising Water Control Engineer
San Diego Regional Water Quality Control Board

COASTAL COMMISSION

EXHIBIT # 3

PAGE 2 OF 9



**California Regional Water Quality Control Board
San Diego Region**



Winston E. Hickox
Secretary for
Environmental
Protection

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9771 Clairemont Mesa Boulevard, Suite A, San Diego, California 92124-1324
Phone (619) 467-2952 • FAX (619) 571-6972

Gray Davis
Governor

August 22, 2000

Mr. David A. Carretto
South East Regional Reclamation Authority
30290 Rancho Viejo Road
San Juan Capistrano, CA 92675

Dear Mr. Carretto:

RECEIPT OF MONITORING REPORTS FOR ORDER NO. 95-107
FACILITY: ALISO WATER MANAGEMENT AGENCY
NPDES NO. CA0107611

This will acknowledge receipt of the June 2000 monthly and April-June 2000 quarterly monitoring reports for the Aliso Water Management Agency discharge to the ocean outfall.

Comments referring to the June 2000 Monthly Monitoring Report:

- Total coliform, fecal coliform, and enterococcus values exceeded permit limits at station C1. Based on the compliance of the effluent, offshore, and nearshore monitoring, the exceedances appear to be unrelated to the discharge from the SERRA ocean outfall.
- In order to assess compliance with Discharge Specification B.3 of Order 95-107, please begin to report the percent removal values for TSS and CBOD as running monthly values in your monitoring reports.

Comments referring to the April-June 2000 Quarterly Monitoring Report:

- None at this time.

Please note that AWMA's next reports scheduled to be submitted are the July 2000 monthly monitoring report, which is due no later than August 31, 2000 and the August 2000 monthly monitoring report, which is due no later than September 30, 2000.

Issues regarding this permit have been transferred to Ms. Mona Dougherty of my staff. If you have any questions or matters to discuss, please contact her at (858) 492-1785 (dougmd@rb9.swrcb.ca.gov).

Respectfully,

for Robert Marris
Michael P. McCann
SUPERVISING WATER RESOURCE CONTROL ENGINEER
San Diego Regional Water Quality Control Board

COASTAL COMMISSION

EXHIBIT # 3
PAGE 3 OF 9



Winston H. Hickox
Secretary for
Environmental
Protection

California Regional Water Quality Control Board San Diego Region



Gray Davis
Governor

Internet Address: <http://www.swrcb.ca.gov/~rwqcb9/>
9771 Clairemont Mesa Boulevard, Suite A, San Diego, California 92124-1324
Phone (619) 467-2952 • FAX (619) 571-6972

September 25, 2000

Mr. David A. Caretto
Aliso Water Management Agency
30290 Rancho Viejo Road
San Juan Capistrano, CA 92675

Dear Mr. Caretto:

RECEIPT OF MONITORING REPORT FOR ORDER NO. 95-107, NPDES NO. CA0107611
FACILITY: ALISO WATER MANAGEMENT AGENCY

This will acknowledge receipt of the July 2000 monthly monitoring report for the Aliso Water Management Agency's discharge to the ocean outfall.

Comments referring to the July 2000 Monthly Monitoring Report:

- Total coliform and enterococcus values exceeded permit limits at station C1. Based on the compliance of the effluent, offshore, and nearshore monitoring, the exceedances do not appear to be related to the discharge from the AWMA ocean outfall.

The next report due is the August 2000 Monthly Monitoring Report.

If you have any questions regarding this matter, please contact Ms. Mona Dougherty at (858) 492-1785 (dougmn@rb9.swrcb.ca.gov).

Respectfully,

MICHAEL P. MCCANN
Supervising Water Resource Control Engineer
San Diego Regional Water Quality Control Board

01-17.01

COASTAL COMMISSION

EXHIBIT # 3
PAGE 4 OF 9

California Environmental Protection Agency



**California Regional Water Quality Control Board
San Diego Region**



Winston H. Hiecox
Secretary for
Environmental
Protection

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9771 Clairemont Mesa Boulevard, Suite A, San Diego, California 92124-1324
Phone (858) 467-2952 • FAX (858) 571-6972

Gray Davis
Governor

April 12, 2001

Mr. David A. Caretto
Aliso Water Management Agency
30290 Rancho Viejo Road
San Juan Capistrano, CA 92675

Dear Mr. Caretto:

**RECEIPT OF MONITORING REPORTS FOR ORDER NO. 95-107, NPDES NO.
CA0107611
FACILITY: ALISO WATER MANAGEMENT AGENCY
WDID NO.: 9 000000117**

This will acknowledge receipt of the August 2000 Monthly Monitoring Report, September 2000 Monthly Monitoring Report, July-September 2000 Quarterly Monitoring Report, May-October 2000 Semiannual Monitoring Report, November 2000 Monthly Monitoring Report, December 2000 Monthly Monitoring Report, October-December 2000 Quarterly Monitoring Report, and the January 2001 Monthly Monitoring Report.

Comments regarding the August 2000 Monthly Monitoring Report:

1. Total coliform values exceeded permit limits at receiving water sampling station C1 (total coliform density greater than 1000 organisms per 100 ml). Fecal coliform values exceeded permit limits at receiving water sampling station C1 (10% of the samples tested higher than 400 organisms per 100 ml). Enterococcus values exceeded permit limits at receiving water sampling station C1 (with a monthly geometric mean greater than 24 organisms per 100 ml). At the present time, the Regional Board does not believe that the discharger's effluent caused these exceedances. Coliform concentrations closest to the outfall were within the limits established in Order No. 95-107.
2. Diverted Aliso Creek flow exceeded the permitted flow rate of 4.52 MGD on August 6, 9-27, and 31.
3. Effluent dissolved oxygen concentration was not reported on a weekly basis as required by Monitoring and Reporting Program No. 95-107. If one sample result is not reported for any 7-day period when there is flow, it will be considered an omission of information. Please take the necessary action to prevent future reporting discrepancies from occurring.

COASTAL COMMISSION

EXHIBIT # 3

California Environmental Protection Agency

PAGE 5 The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our Web-site at <http://www.swrcb.ca.gov>.

Recycled Paper

- 4. Effluent temperature was not reported on a weekly basis as required by Monitoring and Reporting Program No. 95-107. If one sample result is not reported for any 7-day period when there is flow, it will be considered an omission of information. Please take the necessary action to prevent future reporting discrepancies from occurring.

Comments regarding the September 2000 Monthly Monitoring Report:

- 1. Total coliform values exceeded permit limits at receiving water sampling station C1 (total coliform density greater than 1000 organisms per 100 ml). Fecal coliform values exceeded permit limits at receiving water sampling station C1 (10% of the samples tested higher than 400 organisms per 100 ml). Enterococcus values exceeded permit limits at receiving water sampling station C1 (with a monthly geometric mean greater than 24 organisms per 100 ml). At the present time, the Regional Board does not believe that the discharger's effluent caused these exceedances. Coliform concentrations closest to the outfall were within the limits established in Order No. 95-107.
- 2. Diverted Aliso Creek flow exceeded the permitted flow rate of 4.52 MGD on September 1-5, 9-22, and 27-30.
- 3. Effluent settleable solids 7-day and 30-day moving averages have not been calculated correctly. When calculating any moving (running) average, only those days in which samples are collected and results are reported should be used to calculate the average. Days where no samples are collected or results are invalid should not be included in the calculation of the moving average. Also note that a 7-day running average uses the value for that day and the previous 6 days to calculate an average (a 30-day running average uses the value for that day and the previous 29 days). Please correct this error to prevent future reporting discrepancies from occurring.
- 4. Effluent total suspended solids 7-day running average has not been calculated correctly. For more information regarding the calculation of running averages, please refer to the comments above in Item No. 3. Please correct this error to prevent future reporting discrepancies from occurring.

Comments regarding the July-September 2000 Quarterly Monitoring Report:

- No comments at this time.

Comments regarding the May-October 2000 Semiannual Monitoring Report:

- No comments at this time.

WASTAL COMMISSION

EXHIBIT # 3
PAGE 6 OF 9

Comments regarding the October 2000 Monthly Monitoring Report:

1. Total coliform values exceeded permit limits at receiving water sampling stations C1 and S9 (total coliform density greater than 1000 organisms per 100 ml). Fecal coliform values exceeded permit limits at receiving water sampling stations C1, S9, and S8 (10% of the samples tested higher than 400 organisms per 100 ml). Enterococcus values exceeded permit limits at receiving water sampling stations S2, S3, S4, S6, S7, S16 and C1 (with a monthly geometric mean greater than 24 organisms per 100 ml). At the present time, the Regional Board does not believe that the discharger's effluent caused these exceedances. Coliform concentrations closest to the outfall were within the limits established in Order No. 95-107.
2. Diverted Aliso Creek flow exceeded the permitted flow rate of 4.52 MGD on October 1 and 2.
3. Effluent settleable solids 7-day and 30-day running averages have not been calculated correctly. For more information regarding the calculation of running averages, please refer to the comments above for September 2000, Item No. 3. Please correct this error to prevent future reporting discrepancies from occurring.

Comments regarding the November 2000 Monthly Monitoring Report:

1. Total coliform values exceeded permit limits at receiving water sampling station C1 (total coliform density greater than 1000 organisms per 100 ml). Fecal coliform values exceeded permit limits at receiving water sampling stations C1 and S15 (10% of the samples tested higher than 400 organisms per 100 ml). Enterococcus values exceeded permit limits at receiving water sampling stations S16 and C1 (with a monthly geometric mean greater than 24 organisms per 100 ml). At the present time, the Regional Board does not believe that the discharger's effluent caused these exceedances. Coliform concentrations closest to the outfall were within the limits established in Order No. 95-107.

Comments regarding the December 2000 Monthly Monitoring Report:

1. Enterococcus values exceeded permit limits at receiving water sampling station C1 (with a monthly geometric mean greater than 24 organisms per 100 ml). At the present time, the Regional Board does not believe that the discharger's effluent caused these exceedances. Coliform concentrations closest to the outfall were within the limits established in Order No. 95-107.

Comments regarding the October-December 2000 Quarterly Monitoring Report:

- No comments at this time.

COASTAL COMMISSION

EXHIBIT # 3
PAGE 7 OF 9

California Environmental Protection Agency

Comments regarding the January 2001 Monthly Monitoring Report:

1. Total coliform values exceeded permit limits at receiving water sampling station C1 (total coliform density greater than 1000 organisms per 100 ml). Fecal coliform values exceeded permit limits at receiving water sampling station C1 (with a monthly geometric mean greater than 200 organisms per 100 ml). Enterococcus values exceeded permit limits at receiving water sampling stations S9, S15, S16, and C1 (with a monthly geometric mean greater than 24 organisms per 100 ml). At the present time, the Regional Board does not believe that the discharger's effluent caused these exceedances. Coliform concentrations closest to the outfall were within the limits established in Order No. 95-107.
2. Effluent dissolved oxygen concentration was not reported on a weekly basis as required by Monitoring and Reporting Program No. 95-107. If one sample result is not reported for any 7-day period when there is flow, it will be considered an omission of information. Please take the necessary action to prevent future reporting discrepancies from occurring.
3. Effluent temperature was not reported on a weekly basis as required by Monitoring and Reporting Program No. 95-107. If one sample result is not reported for any 7-day period when there is flow, it will be considered an omission of information. Please take the necessary action to prevent future reporting discrepancies from occurring.
4. Effluent settleable solids 7-day and 30-day running averages have not been calculated correctly. For more information regarding the calculation of running averages, please refer to the comments above for September 2000, Item No. 3. Please correct this error to prevent future reporting discrepancies from occurring.

General Comments:

- Please report all mass emission rate (MER) values required by Monitoring and Reporting Program No. 95-107 (i.e. settleable solids, and oil & grease).
- Please report the 30-day geometric mean for fecal coliform and enterococcus at all surfzone monitoring stations as required by Monitoring and Reporting Program No. 95-107.
- Please report 6-month median values for ammonia as required by Monitoring and Reporting Program No. 95-107.

Please make the necessary changes in reporting format to include all data required by Monitoring and Reporting Program No. 2001-08.

COASTAL COMMISSION

California Environmental Protection Agency

EXHIBIT # 3
PAGE 8 OF 9

Mr. David A. Caretto

- 5 -

April 12, 2001

If you have any questions or comments, please contact Mr. Adam Laputz at (858) 467-2727, or via email at lapua@rb9.swrcb.ca.gov.

Respectfully,

Brian D. Kelley,
for MICHAEL P. McCANN
Supervising Water Resource Control Engineer

File: 01-117.01

COASTAL COMMISSION

EXHIBIT # 3
PAGE 9 OF 9

California Environmental Protection Agency

September 18, 1997



Pete Wilson
Governor

RECEIVED

SEP 24 1997

A.W.M.A.

Mr. David A. Caretto
General Manager
Aliso Water Management Agency
30290 Rancho Viejo Road
San Juan Capistrano, California 92675

Dear Mr. Caretto

ADDENDUM NO. 1 TO ORDER NO. 95-107, NPDES PERMIT NO. CA0107611, "WASTE DISCHARGE REQUIREMENTS FOR THE ALISO WATER MANAGEMENT AGENCY, ORANGE COUNTY, DISCHARGE TO THE PACIFIC OCEAN THROUGH THE ALISO WATER MANAGEMENT AGENCY OCEAN OUTFALL"

Enclosed is a copy of Addendum No. 1 to Order No. 95-107 which modifies the waste discharge requirements for the Aliso Water Management Agency (AWMA). The Addendum allows the discharge of Aliso Creek flows through the AWMA Ocean Outfall between May 1 and October 15.

Please note that the Addendum modifies the Reporting Period for the Semiannual Monitoring, and also modifies the Effluent Monitoring to include the Aliso Creek flow to the Ocean Outfall. If AWMA will divert creek flow to the Ocean Outfall this year, the quarterly and semiannual effluent monitoring must include sampling of the creek flow.

If you have any questions, please contact Mr. Paul J. Richter of my staff at (619) 627-3929.

Respectfully,

JOHN H. ROBERTUS
Executive Officer

NOV 24 1997 5-97-316

CALIFORNIA
COASTAL COMMISSION

Enclosure

PJR

File: AWMA, 01-0117.02

- cc: Mr. Larry Paul, County of Orange (w/enclosure)
- Mr. John T. Auyong, California Coastal Commission (w/enclosure)
- Mr. Mike Beanan & Mr. Ron Harris, South Laguna Civic Association
- Mr. John Youngerman, SWRCB (w/enclosure)
- Mr. Christopher Crompton, County of Orange (w/enclosure)
- Mr. Terry Oda, USEPA, Region 9 (w/enclosure)

COASTAL COMMISSION

EXHIBIT # 4a

PAGE 1 OF 5

ADDENDUM 3

Our mission is to preserve and enhance the quality of California's water resources, and ensure their proper allocation and efficient use for the benefit of present and future generations.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

ADDENDUM NO. 1
TO
ORDER NO. 95-107

NPDES NO. CA0107611

WASTE DISCHARGE REQUIREMENTS
FOR THE
ALISO WATER MANAGEMENT AGENCY
ORANGE COUNTY

DISCHARGE TO THE PACIFIC OCEAN
THROUGH THE ALISO WATER MANAGEMENT AGENCY
OCEAN OUTFALL

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

1. On December 14, 1995, this Regional Board adopted Order No. 95-107, NPDES No. CA0107611, Waste Discharge Requirements for the Aliso Water Management Agency, Orange County, Discharge to the Pacific Ocean Through the Aliso Water Management Agency Ocean Outfall. Order No. 95-107 established requirements for the discharge of up to 27 million gallons per day (MGD) of treated wastewater to the Pacific Ocean via the Aliso Water Management Agency (AWMA) Ocean Outfall.
2. On March 27, 1997, AWMA submitted an application to amend Order No. 95-107 to allow a diversion of summertime low flow from Aliso Creek to the Ocean Outfall. The diversion would occur from May through October 15th. The anticipated maximum flow rate would be 4.52 MGD and the anticipated average flow rate would be 3.23 MGD. The County of Orange would maintain the pumping and conveyance facilities.
3. Summertime flow in Aliso creek consists primarily of urban runoff. At the mouth of the creek, these flows pond behind a sand barrier. This ponded water contains high levels of coliform bacteria. Intermittently, the sand barrier is breached and the creek flows enter the Pacific Ocean. As a result, the adjacent ocean waters sometimes contain high levels of coliform bacteria. The presence of high levels of coliform bacteria is an indication that pathogens may be present. Consequently, water contact recreation in the creek and ocean waters near the mouth of the Aliso Creek ocean has been prohibited. The purpose of the creek diversion is to mitigate the threat to public health from the ponded water and any creek flow to the ocean.

COASTAL COMMISSION

EXHIBIT # 4a
PAGE 2 OF 5

4. The creek flow will be diverted to a small pump building and then pumped to the AWMA outfall. In the outfall, the creek flow will commingle with the treated secondary effluent from the AWMA treatment facilities.
5. AWMA has reported that the summertime flow diversion of the Aliso Creek to the ocean outfall is a temporary diversion for the protection of human health and that the summertime flow of Aliso Creek will be restored to its natural discharge channel in the future.
6. The issuance of this Addendum is exempt from the requirement for preparation of environmental documents under the California Environmental Quality Act (Public Resources Code, Division 13, Chapter 3, Section 21000 et seq.) in accordance with the California Water Code, Section 13389.
7. This Regional Board has notified AWMA and all known interested parties of its intent to modify Order No. 95-107.
8. This Regional Board, at a public meeting on August 13, 1997, has heard and considered all comments pertaining to the modification of Order No. 95-107.

IT IS HEREBY ORDERED THAT:

1. *Prohibition A.4* of Order No. 95-107 shall be replaced by the following:
 4. Discharge to the Pacific Ocean through the AWMA Ocean Outfall in excess of 27.0 MGD average dry weather flow rate is prohibited unless the discharger obtains revised waste discharge requirements authorizing an increased flowrate. The summertime stream flows diverted from the Aliso Creek to the AWMA Ocean Outfall shall be included when calculating the average dry weather flowrate discharged through the AWMA Ocean Outfall. The summertime stream flow diversion from the Aliso Creek to the AWMA Ocean Outfall shall not exceed 4.52 MGD unless the discharger obtains revised waste discharge requirements authorizing an increased flowrate.

JASTAL COMMISSION

EXHIBIT # 4a
PAGE 3 OF 5

2. Order No. 95-107 shall be amended to add the following *Prohibition A.10.*
 10. Diversion of Aliso Creek stream flows to the AWMA Ocean Outfall is prohibited between October 16, and April 30 each year.
3. Order No. 95-107 shall be amended to add the following *Discharge Specification B.11.*
 11. The stream flow diversion from Aliso Creek to the AWMA Ocean Outfall shall be included as a component of the *effluent limitations* as listed in *Discharge Specification B.2*
4. The *Semiannual Reporting Period* and the *Semiannual Report Due Date* as listed in *Monitoring Provision II.14* of *Monitoring and Reporting Program No. 95-107* shall be replaced by following:

| <u>Monitoring Frequency</u> | <u>Reporting Period</u> | <u>Report Due</u> |
|-----------------------------|-------------------------|-------------------|
| Semiannually | May -- October | November 30 |
| | November -- April | May 30 |

5. The following paragraph shall be added to *Monitoring and Reporting Program No. 95-107* in the IV. Effluent Monitoring section as the first paragraph in that section.

For the purposes of this Monitoring and Reporting Program, *effluent* includes Aliso Creek flows diverted to the AWMA Ocean Outfall as well as treatment plant effluent.

COASTAL COMMISSION

EXHIBIT # 4a
PAGE 4 OF 5

6. Monitoring and Reporting Program No. 95-107 shall be amended to add the following VI. Aliso Creek Monitoring.

VI. Aliso Creek Monitoring

The stream flow diversion from Aliso Creek to the AWMA Ocean Outfall shall be monitored for the following:

| Parameter | Unit | Type of Sample | Minimum Frequency |
|--------------------------|---------|--------------------|--------------------|
| Flowrate | MGD | recorder/totalizer | continuous |
| CBOD ₅ @20°C | mg/l | 24-hr composite | daily ³ |
| Suspended Solids | mg/l | 24-hr composite | daily ³ |
| pH | units | grab | daily ³ |
| Total and fecal coliform | #/100ml | grab | weekly |

I, John H. Robertus, Executive Officer of the San Diego Regional Water Quality Control Board, do hereby certify the foregoing is a full, true, and correct copy of Addendum No. 1 to Order No. 95-107 adopted by the California Regional Water Quality Control Board, San Diego Region, on September 17, 1997.


 JOHN H. ROBERTUS
 Executive Officer

COASTAL COMMISSION

EXHIBIT # 4a
PAGE 5 OF 5

5-97-316 file copy

December 15, 1995

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

MONITORING AND REPORTING PROGRAM NO. 95-107
NPDES NO. CA0107611
FOR THE
ALISO WATER MANAGEMENT AGENCY
DISCHARGE TO THE PACIFIC OCEAN
THROUGH THE ALISO WATER MANAGEMENT AGENCY
OCEAN OUTFALL

I. Purpose

This monitoring program is intended to:

- Document short-term and long-term effects of the discharge on receiving waters, sediments, biota, and on beneficial uses of the receiving water.
- Determine compliance with NPDES permit terms and conditions.
- Assess the effectiveness of industrial pretreatment and toxic control programs.

The monitoring data will be used to determine compliance with water quality standards.

COASTAL COMMISSION

II. Monitoring Provisions

EXHIBIT # 4b

PAGE 1 OF 17

1. Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. All samples shall be taken at the monitoring points specified in Order No. 95-107 or in this monitoring and reporting program and, unless otherwise specified, before the effluent joins or is diluted by any other waste stream, body of water, or substance. Monitoring points shall not be changed without notification to and the approval of the Executive Officer. Samples shall be collected at times representative of "worst case" conditions with respect to compliance with the requirements of Order No. 95-107.
2. Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed, calibrated and maintained to ensure that the accuracy of the measurements are consistent with the accepted capability of that type of device.

Devices selected shall be capable of measuring flows with a maximum deviation of less than ± 10 percent from true discharge rates throughout the range of expected discharge volumes.

3. Monitoring must be conducted according to United States Environmental Protection Agency (USEPA) test procedures approved under Title 40 of the Code of Federal Regulations Part 136 (40 CFR 136), "Guidelines Establishing Test Procedures for the Analysis of Pollutants" as amended, unless otherwise specified for sludge in 40 CFR 503, and unless other test procedures have been specified in Order No. 95-107 and/or in this monitoring and reporting program.
4. If the discharger monitors any pollutants more frequently than required by Order No. 95-107 or by this monitoring and reporting program, using test procedures approved under 40 CFR 136, or as specified in Order No. 95-107 or this monitoring and reporting program, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the discharger's monitoring report. The increased frequency of monitoring shall also be reported.
5. The discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by Order No. 95-107 and this monitoring and reporting program, and records of all data used to complete the application for Order No. 95-107. Records shall be maintained for a minimum of five years from the date of the sample, measurement, report, or application. This period may be extended during the course of any unresolved litigation regarding this discharge or when requested by the Regional Board Executive Officer or the United States Environmental Protection Agency.
6. Records of monitoring information shall include:
 - a. The date, exact location, and time of sampling or measurements;
 - b. The individual(s) who performed the sampling or measurements;
 - c. The date(s) analyses were performed;
 - d. The laboratory and individual(s) who performed the analyses;
 - e. The analytical techniques or methods used; and
 - f. The results of such analyses
7. Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in Order No. 95-107 or this monitoring and reporting program.

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8. All monitoring instruments and devices used by the discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary to ensure their continued accuracy. All flow measurement devices shall be calibrated at least once per year, or more frequently, to ensure continued accuracy of the devices
9. All analyses shall be performed in a laboratory certified to perform such analyses by the California Department of Health Services or a laboratory approved by the Regional Board Executive Officer.
10. The discharger shall have, and implement, an acceptable written quality assurance (QA) plan for laboratory analyses. An annual report shall be submitted by March 30 of each year which summarizes the QA activities for the previous year. Duplicate chemical analyses must be conducted on a minimum of ten percent of the samples or at least one sample per month, whichever is greater. A similar frequency shall be maintained for analyzing spiked samples. When requested by USEPA or the Regional Board, the discharger will participate in the NPDES discharge monitoring report QA performance study. The discharger should have a success rate equal or greater than 80 percent.
11. The discharger shall report all instances of noncompliance not reported under Provision D.1 (d), [40 CFR 122.41 (l) (6)] of Order No. 95-107 at the time monitoring reports are submitted. The reports shall contain the information listed in Provision D.1 (d), [40 CFR 122.41 (l) (6)] of Order No. 95-107.
12. By March 30 of each year, the discharger shall submit an annual report to the Regional Board and USEPA Region 9 which contains tabular and graphical summaries of the monitoring data obtained during the previous year. The discharger shall discuss the compliance record and corrective actions taken, or which may be needed to bring the discharge into full compliance with the requirements of Order No. 95-107 and this monitoring and reporting program.
13. Laboratory method detection limits (MDLs) and practical quantitation levels (PQLs) shall be identified for each constituent in the matrix being analyzed with all reported analytical data. Acceptance of data shall be based on demonstrated laboratory performance.
14. Monitoring results shall be reported at intervals and in a manner specified in Order No. 95-107 or in this monitoring and reporting program. Monitoring reports shall be submitted to the Regional Board and to EPA Region 9 according to the following schedule:

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| <u>Monitoring Frequency</u> | <u>Reporting Period</u> | <u>Report Due</u> |
|------------------------------------|-------------------------|--|
| Continuous, Daily, Weekly, Monthly | All | By the last day of the following month |
| Quarterly | January - March | May 30 |
| | April - June | August 30 |
| | July - September | November 30 |
| | October - December | February 28 |
| Semiannually | January - June | September 30 |
| | July - December | March 30 |
| Annually | January - December | March 30 |
| Once every five years | --- | March 30 |

III. Influent Monitoring

Influent monitoring is intended to:

- o Determine compliance with NPDES permit conditions and water quality standards.
- o Assess treatment plant performance.

Sampling stations shall be established at each point of inflow to all treatment plants and shall be located upstream of any in-plant return flows, and where representative samples of the influent can be obtained. Influent samples shall be collected on the same day as, and shortly before the collection of effluent samples.

During periods when no effluent from a particular treatment plant is discharged to the Pacific Ocean, no influent monitoring, except for flowrate monitoring, is required at that treatment plant, for purposes of this monitoring and reporting program.

The following shall constitute the influent monitoring program:

| <u>Parameter</u> | <u>Unit</u> | <u>Type of Sample¹</u> | <u>Minimum Frequency</u> |
|--------------------------|-------------|-----------------------------------|--------------------------|
| Flowrate | MGD | recorder/ totalizer | continuous |
| CBOD ₅ @ 20°C | mg/L | 24-hr composite | weekly |
| Suspended Solids | mg/L | 24-hr composite | weekly |

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IV. Effluent Monitoring

Effluent monitoring is intended to:

- Determine compliance with NPDES permit conditions and water quality standards.
- Identify operational problems in order to improve plant performance.
- Provide information on waste characteristics and flows for use in interpreting water quality and biological data.

The effluent sampling station shall be located downstream of any in-plant return flows, and disinfection units, where representative samples of the effluent discharged through the ocean outfall can be obtained.

During periods when no effluent from a particular treatment plant is discharged to the Pacific Ocean, no effluent monitoring, except for flowrate monitoring, is required at that treatment plant.

The following shall constitute the effluent monitoring program:

| <u>Parameter</u> | <u>Unit</u> | <u>Type of Sample</u> ¹ | <u>Minimum Frequency</u> |
|------------------------------------|-------------|------------------------------------|--------------------------|
| Flowrate | MGD | recorder/ totalizer | continuous |
| CBOD ₅ @ 20°C | mg/L | 24-hr composite | daily ³ |
| Suspended Solids | mg/L | 24-hr composite | daily ³ |
| pH | pH units | grab | daily ³ |
| Oil & Grease | mg/L | grab | monthly* |
| Settleable Solids | ml/L | grab | daily ³ |
| Turbidity | NTU | 24-hr composite | weekly* |
| Acute Toxicity | TUa | 24-hr composite | monthly |
| Dissolved Oxygen | mg/L | grab | weekly |
| Temperature | °C | -- | weekly |
| Arsenic | mg/L | 24-hr composite | quarterly*. ⁴ |
| Cadmium | mg/L | 24-hr composite | quarterly*. ⁴ |
| Chromium (hexavalent) ² | mg/L | 24-hr composite | quarterly*. ⁴ |
| Copper | mg/L | 24-hr composite | quarterly*. ⁴ |
| Lead | mg/L | 24-hr composite | quarterly*. ⁴ |
| Mercury | ug/L | 24-hr composite | quarterly*. ⁴ |

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| | | | |
|--|-------|-----------------|--------------------------|
| Nickel | mg/L | 24-hr composite | quarterly** ⁴ |
| Selenium | mg/L | 24-hr composite | quarterly** ⁴ |
| Silver | mg/L | 24-hr composite | quarterly** ⁴ |
| Zinc | mg/L | 24-hr composite | quarterly** ⁴ |
| Cyanide | mg/L | 24-hr composite | quarterly** ⁴ |
| Total Residual Chlorine | mg/L | grab | daily ⁵ |
| Ammonia (expressed as nitrogen) | mg/L | 24-hr composite | monthly* |
| Chronic Toxicity | TUc | 24-hr composite | monthly ⁶ |
| Phenolic Compounds (nonchlorinated) | mg/L | 24-hr composite | quarterly** ⁴ |
| Phenolic Compounds (chlorinated) | mg/L | 24-hr composite | quarterly** ⁴ |
| Endosulfan | ug/L | 24-hr composite | quarterly** ⁴ |
| Endrin | ug/L | 24-hr composite | quarterly** ⁴ |
| HCH | ug/L | 24-hr composite | quarterly** ⁴ |
| Radioactivity | pCi/L | 24-hr composite | quarterly* |
| acrolein | mg/L | grab | semiannually* |
| antimony | mg/L | 24-hr composite | semiannually* |
| bis(2-chloroethoxy) methane | ug/L | grab | semiannually* |
| bis(2-chloroisopropyl) ether | mg/L | grab | semiannually* |
| chlorobenzene | mg/L | grab | semiannually* |
| chromium (III) | g/L | 24-hr composite | semiannually* |
| di-n-butyl phthalate | mg/L | grab | semiannually* |
| dichlorobenzenes | g/L | grab | semiannually* |
| 1,1-dichloroethylene | g/L | grab | semiannually* |
| diethyl phthalate | g/L | grab | semiannually* |
| dimethyl phthalate | g/L | grab | semiannually* |
| 4,6-dinitro-2-methylphenol | mg/L | grab | semiannually* |
| 2,4-dinitrophenol | ug/L | grab | semiannually* |
| ethylbenzene | mg/L | grab | semiannually* |
| fluoranthene | mg/L | grab | semiannually* |
| hexachlorocyclopentadiene | mg/L | grab | semiannually* |
| isophorone | g/L | grab | semiannually* |
| nitrobenzene | mg/L | grab | semiannually* |
| thallium | mg/L | 24-hr composite | semiannually* |
| toluene | g/L | grab | semiannually* |
| 1,1,2,2-tetrachloroethane | mg/L | grab | semiannually* |
| tributyltin | ug/L | 24-hr composite | semiannually* |
| 1,1,1-trichloroethane | g/L | grab | semiannually* |
| 1,1,2-trichloroethane | g/L | grab | semiannually* |
| acrylonitrile | ug/L | grab | semiannually* |
| aldrin | ng/L | grab | semiannually* |

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| | | | |
|-----------------------------|------|-----------------|----------------------------|
| benzene | mg/L | grab | semiannually* |
| benzidine | ng/L | grab | semiannually* |
| beryllium | ug/L | 24-hr composite | semiannually* |
| bis(2-chloroethyl) ether | ug/L | grab | semiannually* |
| bis(2-ethylhexyl) phthalate | ug/L | grab | semiannually* |
| carbon tetrachloride | mg/L | grab | semiannually* |
| chlordan | ng/L | grab | semiannually* |
| chloroform | mg/L | grab | semiannually* |
| DDT | ng/L | grab | semiannually* |
| 1,4-dichlorobenzene | mg/L | grab | semiannually* |
| 3,3'-dichlorobenzidine | ug/L | grab | semiannually* |
| 1,2-dichloroethane | mg/L | grab | semiannually* |
| dichloromethane | mg/L | grab | semiannually* |
| 1,3-dichloropropene | mg/L | grab | semiannually* |
| dieldrin | ng/L | grab | semiannually* |
| 2,4-dinitrotoluene | ug/L | grab | semiannually* |
| 1,2-diphenylhydrazine | ug/L | grab | semiannually* |
| halomethanes | mg/L | grab | semiannually* |
| heptachlor | ng/L | grab | semiannually* |
| hexachlorobenzene | ng/L | grab | semiannually* |
| hexachlorobutadiene | mg/L | grab | semiannually* |
| hexachloroethane | ug/L | grab | semiannually* |
| N-nitrosodimethylamine | mg/L | grab | semiannually* |
| N-nitrosodiphenylamine | ug/L | grab | semiannually* |
| PAHs | ug/L | grab | semiannually* |
| PCBs | ng/L | grab | semiannually* |
| TCDD equivalents | pg/L | grab | semiannually* ⁷ |
| tetrachloroethylene | mg/L | grab | semiannually* |
| toxaphene | ng/L | grab | semiannually* |
| trichloroethylene | mg/L | grab | semiannually* |
| 2,4,6-trichlorophenol | ug/L | grab | semiannually* |
| vinyl chloride | mg/L | grab | semiannually* |

* The minimum frequency of monitoring for this constituent is automatically increased to twice the minimum frequency specified here if any analysis for this constituent yields a result higher than any effluent limit specified in Order No. 95-107 for this constituent. The increased minimum frequency of monitoring shall remain in effect until the result of a

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minimum of four consecutive analyses for this constituent are below all effluent limits specified in Order No. 95-107 for this constituent.

V. Solids Monitoring

Solids monitoring is intended to:

- o Assess the effectiveness of the pretreatment program.
- o Maintain a record of the volume of solids generated and disposal sites used.
- o Evaluate the character of sludge to ensure that appropriate disposal methods are employed.

A report identifying the volume of screenings, sludges, grit, and other solids removed from the wastewater and the point(s) at which these wastes were disposed of shall be submitted annually. A copy of all annual reports required by 40 CFR Part 503 shall be submitted to the Regional Board at the same time those reports are submitted to USEPA.

VI. Receiving Water Monitoring

To determine compliance with water quality standards, the receiving water quality monitoring program must document conditions in the vicinity of the "Zone of Initial Dilution" (ZID) boundary, at reference stations, and at areas beyond the ZID where discharge impacts might reasonably be expected. Monitoring must reflect conditions during all critical environmental periods.

Monitoring Station Locations

| <u>Station</u> | <u>Description</u> |
|---------------------------|--------------------------------|
| <u>Surf Zone Stations</u> | |
| S1 | Surf 20,000' south of outfall. |
| S2 | Surf 15,000' south of outfall. |
| S3 | Surf 10,000' south of outfall. |
| S4 | Surf 5,000' south of outfall. |
| S5 | Surf 4,000' south of outfall. |

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| | |
|-----|--------------------------------|
| S6 | Surf 3,000' south of outfall. |
| S7 | Surf 2,000' south of outfall. |
| S8 | Surf 1,000' south of outfall. |
| S9 | Surf at outfall. |
| S10 | Surf 1,000' north of outfall. |
| S11 | Surf 2,000' north of outfall. |
| S12 | Surf 3,000' north of outfall. |
| S13 | Surf 4,000' north of outfall. |
| S14 | Surf 5,000' north of outfall. |
| S15 | Surf 10,000' north of outfall. |
| S16 | Surf 15,000' north of outfall. |

Nearshore Stations

| | |
|----|---|
| N1 | 1,000 feet offshore, 2,500 feet south of the outfall. |
| N2 | 1,000 feet offshore, 1,000 feet south of the outfall. |
| N3 | 1,000 feet offshore, 500 feet south of the outfall. |
| N4 | 1,000 feet offshore, at the outfall. |
| N5 | 1,000 feet offshore, 500 feet north of the outfall. |
| N6 | 1,000 feet offshore, 1,000 feet north of the outfall. |
| N7 | 1,000 feet offshore, 2,500 feet north of the outfall. |

Offshore Stations

| | |
|---------|--|
| A1 - A4 | At the corners of a 1,000' x 1,000' square having one side parallel to shore and the intersection of the diagonals located at the center of the outfall diffuser section. Station A1 shall be located at the northeastern corner, and Stations A2 through A4 at successive corners in a clockwise direction. |
| A5 | At the intersection of the diagonals of the above square. |
| B1 | Approximately one mile downcoast from the outfall and over the same depth contour as A5. |
| B2 | Approximately one mile upcoast from the outfall and over the same depth contour as A5. |

It is recommended that stations be located using a land-based microwave positioning system, such as Mini-Ranger or trisponder, or a satellite positioning system such as Global Positioning System (GPS). The high levels of accuracy and precision afforded by this type of positioning system will ensure that stations are properly located with respect to the ZID. If an alternate navigation system (e.g., Loran C) is proposed, its accuracy should be compared to those of the systems recommended herein, and any compromises in accuracy should be justified.

Monitoring station locations may be modified with the approval of the Executive Officer,

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A. SURF ZONE WATER QUALITY MONITORING

Surf zone monitoring is intended to assess bacteriological conditions in areas used for body-contact activities (e.g., swimming); and to assess aesthetic conditions for general recreational uses (e.g., picnicking).

All "Surf Zone Stations" shall be monitored as follows:

1. Grab samples shall be collected and analyzed for total and fecal coliforms, and enterococcus at a minimum frequency of twice weekly.
2. Once per week, and at the same time samples are collected from "Surf Zone Stations," the following information shall be recorded: observations of wind (direction and speed), weather (e.g., cloudy, sunny, or rainy), current (e.g., direction), and tidal conditions; observations of water color, discoloration, oil and grease, turbidity, odor, and materials of sewage origin in the water or on the beach; and water temperature (°C).

B. NEARSHORE WATER QUALITY MONITORING

Nearshore monitoring is intended to assess bacteriological conditions in areas used for body-contact sports (e.g., scuba diving) and where shellfish and/or kelp may be harvested; and to assess aesthetic conditions for general boating and recreation.

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All "Nearshore Stations" shall be monitored as follows:

1. Reduced Monitoring

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If the Executive Officer determines that the effluent at all times complies with Discharge Specifications B.2, B.3, B.5 and B.6 of Order No. 95-107, only the reduced nearshore water quality monitoring program specified below is required.

| <u>Determination</u> | <u>Units</u> | <u>Type of Sample</u> | <u>Minimum Frequency</u> |
|--|--------------|-----------------------|--------------------------|
| Visual Observations | -- | -- | Monthly |
| Total and Fecal Coliforms, Enterococcus** | # /100 ml | Grab ^B | Monthly |

** If the discharger demonstrates to the satisfaction of the Executive Officer, by means of daily analyses, that the concentrations of total and fecal coliform bacteria in the effluent are consistently less than 1,000 per

100 milliliters, this monitoring may be suspended. The discharger shall conduct the monitoring as specified unless the Executive Officer provides written authorization to suspend it. If this monitoring is suspended, the discharger shall resume it at the request of the Executive Officer.

2. Intensive Monitoring

The intensive nearshore water quality monitoring specified below is required during the 12-month period immediately preceding the date of expiration of Order No. 95-107. The intensive nearshore water quality monitoring specified below is also required if the Executive Officer determines that the effluent does not at all times comply with Discharge Specifications B.2, B.3, B.5 and B.6 of Order No. 95-107.

| <u>Determination</u> | <u>Units</u> | <u>Type of Sample</u> | <u>Minimum Frequency</u> |
|--|--------------|-----------------------|--------------------------|
| Visual Observations | -- | -- | Monthly |
| Total and Fecal Coliforms, Enterococcus** | # /100 ml | Grab ⁸ | Monthly |

** If the discharger demonstrates to the satisfaction of the Executive Officer, by means of daily analyses, that the concentrations of total and fecal coliform bacteria in the effluent are consistently less than 1,000 per 100 milliliters, this monitoring may be suspended. The discharger shall conduct the monitoring as specified unless the Executive Officer provides written authorization to suspend it. If this monitoring is suspended, the discharger shall resume it at the request of the Executive Officer.

C. OFFSHORE WATER QUALITY MONITORING

Offshore monitoring is intended to determine compliance with the Ocean Plan; and to determine if the discharge causes significant impacts on the water quality within the ZID and beyond the ZID as compared to reference areas.

All "Offshore Stations" shall be monitored as follows:

The offshore water quality monitoring specified below is required during the 12-month period immediately preceding the date of expiration of Order No. 95-107. The offshore water quality monitoring specified below is also required if the Executive Officer determines that the effluent does not at all times comply with Discharge Specifications B.2, B.3, B.5 and B.6 of Order No. 95-107.

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| <u>Determination</u> | <u>Units</u> | <u>Type of Sample</u> | <u>Minimum Frequency</u> |
|---|---|-----------------------|--------------------------|
| Visual Observations ¹¹ | -- | -- | Monthly |
| Total and Fecal Coliforms, Enterococcus | # /100 ml | Grab | Monthly |
| Suspended Solids ⁹ | mg/l | Grab | Monthly |
| Oil and Grease | mg/l | Grab | Monthly |
| Salinity ¹⁰ | ppt | Grab | Monthly |
| Temperature ¹⁰ | °C | Grab | Monthly |
| Dissolved Oxygen ¹⁰ | mg/l | Grab | Monthly |
| Light Transmittance ⁹ | extinction coefficient or % transmittance | Instrument | Monthly |
| pH ¹⁰ | -- | Grab | Monthly |

D. BENTHIC MONITORING

Benthic monitoring is intended to assess the status of the benthic community, and to evaluate the physical and chemical quality of the sediments.

The sediment monitoring specified below is required during the 12-month period immediately preceding the date of expiration of Order No. 95-107. The sediment monitoring specified below is also required if the Executive Officer determines that the effluent does not at all times comply with Discharge Specifications B.2, B.3, B.5 and B.6 of Order No. 95-107. Sediment monitoring shall be conducted at all "Offshore Stations."

All benthic samples shall be taken using a 0.1m² modified Van Veen grab sampler. Separate grab samples shall be taken for sediment and infauna samples. Sediment samples shall be taken from the top 2 centimeters of the grab samples for chemical analysis of sediment samples shall be reported on a dry weight basis.

- The following shall constitute the sediment monitoring program. The sediment samples shall be collected during June or July.

| <u>Determination</u> | <u>Units</u> | <u>Type of Sample</u> | <u>Minimum Frequency</u> |
|----------------------------|------------------------|-----------------------|--------------------------|
| Dissolved Sulfides | mg/kg | 3 Grabs | Annually |
| Temperature | °C | 3 Grabs | Annually |
| BOD | mg/kg | 3 Grabs | Annually |
| COD | mg/kg | 3 Grabs | Annually |
| Particle Size Distribution | % weight each phi size | 3 Grabs | Annually |

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| | | | |
|--|--------|---------|----------|
| Arsenic | ug/kg | 3 Grabs | Annually |
| Cadmium | ug/kg | 3 Grabs | Annually |
| Total Chromium | ug/kg | 3 Grabs | Annually |
| Copper | ug/kg | 3 Grabs | Annually |
| Lead | ug/kg | 3 Grabs | Annually |
| Mercury | ug/kg | 3 Grabs | Annually |
| Nickel | ug/kg | 3 Grabs | Annually |
| Silver | ug/kg | 3 Grabs | Annually |
| Zinc | ug/kg | 3 Grabs | Annually |
| Cyanide | ug/kg | 3 Grabs | Annually |
| Phenolic Compounds (nonchlorinated) | ug/kg | 3 Grabs | Annually |
| Phenolic Compounds (chlorinated) | ug/kg | 3 Grabs | Annually |
| Aldrin and Dieldrin | ug/kg | 3 Grabs | Annually |
| Chlordane and Related Compounds | ug/kg | 3 Grabs | Annually |
| DDT and Derivatives | ug/kg | 3 Grabs | Annually |
| Endrin | ug/kg | 3 Grabs | Annually |
| HCH | ug/kg | 3 Grabs | Annually |
| PCB | ug/kg | 3 Grabs | Annually |
| Toxaphene | ug/kg | 3 Grabs | Annually |
| Radioactivity | pCi/kg | 3 Grabs | Annually |

2. Infauna

Organisms shall be sieved using a 1.0-mm (0.04-in) mesh screen, fixed in ten percent buffered formalin, and transferred to 70 percent ethanol within two to seven days for storage. Organisms may be stained using Rose Bengal to facilitate sorting.

Five replicate samples of bottom sediments shall be taken semiannually (once during late winter [February/March] and one during late summer [August/September]) from all "Offshore Stations." These samples shall be separate from those collected for sediment analyses.

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The following data shall be reported for benthic infauna:

- a. Total biomass of:
 - (1) Molluscs
 - (2) Echinoderms
 - (3) Polychaetes
 - (4) Crustaceans
 - (5) All other macroinvertebrates

- b. Community structure analysis for each station and each replicate. Community structure analysis consists of the wet weight of each taxonomic group in 2.a. above, number of species, number of individuals per species, total numerical abundance, species abundance per square meter per station, species richness, species diversity (i.e., Shannon-Wiener), similarity analyses (i.e., Bray-Curtis), and cluster analyses (using unweighted pair-group method).

- c. Station mean, range, standard deviation, and 95% confidence limits, if appropriate, for values determined above in b. The discharger may be required to conduct additional "statistical analyses" to determine temporal and spatial trends in the marine environment.

3. Biota Monitoring

All organisms, including infauna organisms, obtained during benthic monitoring shall be counted and identified to as low a taxon as possible. The enumeration and identification of organisms continues the historical data base developed by the discharger.

E. ADDITIONAL BIOLOGICAL MONITORING

"Kelp Bed" Monitoring

Kelp bed monitoring is intended to assess the extent to which the discharge of wastes may affect the areal extent and health of coastal kelp beds.

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The discharger shall participate with other ocean dischargers in the San Diego Region in an annual regional kelp bed photographic survey. Kelp beds shall be monitored annually by means of vertical aerial infrared photography to determine the maximum areal extent of the region's coastal kelp beds within the calendar year. Surveys shall be conducted as close as possible to the time when kelp bed canopies cover the greatest area. The entire San Diego Region coastline, from the International Boundary to the San Diego Region/Santa Ana Region boundary, shall be photographed on the same day.

The images produced by the surveys shall be presented in the form of a 1:24,000 scale photo-mosaic of the entire San Diego Region coastline. Onshore reference points, locations of all ocean outfalls and diffusers, and the 30-foot (MLLW) and 60-foot (MLLW) depth contours shall be shown.

The areal extent of the various kelp beds photographed in each survey shall be compared to that noted in surveys of previous years. Any significant losses which persist for more than one year shall be investigated by divers to determine the probable reason for the loss.

ENDNOTES

- ¹ For samples collected from the various treatment plants which are to be physically composited prior to analysis or for the results of analyses which are to be arithmetically composited, the basis for compositing shall be the rate of discharge from the various plants to the ocean, not the rate of inflow to the various plants. Metering and adding the flowrates of effluent discharge from individual plants through the ocean outfall rather than metering the combined discharge through the ocean outfall is acceptable.
- ² The discharger may at its option monitor for total chromium. If the measured total chromium concentration exceeds the hexavalent chromium limitation, it will be assumed that the hexavalent chromium limitation was exceeded, unless the results of a hexavalent chromium analysis of a replicate sample indicate otherwise. When analyzing for hexavalent chromium, the appropriate sampling and analytical method must be used (i.e., 24-hour composite sample cooled to 4° C and analyzed within 24 hours).
- ³ Five days per week, except seven days per week for at least one week in July or August of each year.

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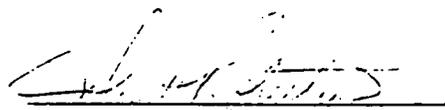
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- ⁴ The minimum frequency of monitoring for this constituent is automatically reduced to semiannually if the results of twelve consecutive analyses, representing each month of the year, or the results of twenty-four consecutive analyses, representing each quarter of the year, are below the Ocean Plan 6-month median water quality objective for this constituent or below the laboratory MDL for this constituent in the matrix being analyzed, whichever is higher.
- ⁵ Monitoring of total chlorine residual is not required on days when none of the treatment facilities which are subject to Order No. 95-107 use chlorine for disinfection. If only one sample is collected for total chlorine residual analysis on a particular day, that sample must be collected at the time when the concentration of total chlorine residual in the discharge would be expected to be greatest. The times of chlorine discharges on the days the samples are collected and the times at which samples are collected shall be reported.
- ⁶ A screening period for chronic toxicity shall be conducted every other year for a three month period using a minimum of three test species (one plant, one invertebrate, and one vertebrate) chosen from the list of approved chronic toxicity test protocols specified in the 1990 version of the Ocean Plan. After the screening period, the most sensitive species (i.e., the species exhibiting the lowest NOEL) shall be used for the monthly testing. Repeat screening periods may be terminated after the first month if the most sensitive species during the first month is the same as the species previously found to be most sensitive.
- Results for chronic toxicity shall be submitted on a 3.5 inch DOS-formatted, double-sided, high density diskette in the TOXIS Version 2.4 database format. After one year, the data will be evaluated by Regional Board staff to determine if a reduction in the minimum monitoring frequency is appropriate. If the Executive Officer determines that a reduction in the minimum monitoring frequency is appropriate, the minimum monitoring frequency will be specified by the Executive Officer.
- ⁷ EPA method 8280 shall be used to analyze for TCDD equivalents.
- ⁸ Surface, middepth, and bottom. Water depth at each station shall be recorded.
- ⁹ Suspended solids and light transmittance measurements shall be taken on the same day and as close together in time as possible.

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- ¹⁰ These parameters may be measured in situ using automatic probes (e.g., XBTs, CTDs, dissolved oxygen meters, and pH meters). If probes are not used, discrete measurements shall be taken at intervals of not more than ten feet.
- ¹¹ Visual observations of the surface water conditions at the designated receiving water stations shall be conducted in such a manner to enable the observer to describe and to report the presence, if any, of floatables of sewage origin. Observations of wind (direction and speed), weather (e.g., cloudy, sunny, or rainy), current (e.g., direction), and tidal conditions (e.g., high or low tide) shall be recorded. Observations of water color, discoloration, oil and grease, turbidity, odor, and materials of sewage origin in the water or on the beach shall be recorded.

I, John H. Robertus, Executive Officer of the San Diego Regional Water Quality Control Board, do hereby certify the foregoing is a full, true, and correct copy of Monitoring and Reporting Program No. 95-107 adopted by the California Regional Water Quality Control Board, San Diego Region, on December 14, 1995.



John H. Robertus
Executive Officer

COASTAL COMMISSION

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C. RECEIVING WATER LIMITATIONS

1. The discharge of waste through the AWMA Ocean Outfall shall not, by itself or jointly with any other discharge, cause violation of the following Ocean Plan ocean water quality objectives. Compliance with the water quality objectives shall be determined from samples collected at stations representative of the area within the waste field where initial dilution is completed.

- a. Bacterial Characteristics

- (1) Water-Contact Standards

Within a zone bounded by the shoreline and a distance of 1,000 feet from the shoreline or the 30-foot depth contour, whichever is further from the shoreline, and in areas outside this zone used for water-contact sports, as determined by the Regional Board, but including all kelp beds, the following bacterial objectives shall be maintained throughout the water column:

- (a) Samples of water from each sampling station shall have a density of total coliform organisms less than 1,000 per 100 ml (10 per ml); provided that not more than 20 percent of the samples at any sampling station, in any 30-day period, may exceed 1,000 per 100 ml (10 per ml), and provided further that no single sample when verified by a repeat sample taken within 48 hours shall exceed 10,000 per 100 ml (100 per ml).
 - (b) The fecal coliform density based on a minimum of not less than five samples for any 30-day period, shall not exceed a geometric mean of 200 per 100 ml nor shall more than 10 percent of the total samples during any 60-day period exceed 400 per 100 ml.

The "Initial Dilution Zone" of wastewater outfalls shall be excluded from designation as kelp beds for purposes of bacterial standards. Adventitious assemblages of kelp plants on waste discharge structures (e.g., outfall pipes and diffusers) do not constitute kelp beds for purposes of bacterial standards. Kelp beds, for the purpose of the bacterial standards of this Order, are significant aggregations of marine algae of the genera Macrocystis and Nereocystis. Kelp beds include the total foliage canopy of Macrocystis and Nereocystis plants throughout the water column.

COASTAL COMMISSIONEXHIBIT # 4c
PAGE 1 OF 7

(2) Shellfish Harvesting Standards

At all areas where shellfish may be harvested for human consumption, as determined by the Regional Board, the following bacterial objectives shall be maintained throughout the water column:

The median total coliform density shall not exceed 70 per 100 ml, and not more than 10 percent of the samples shall exceed 230 per 100 ml.

b. Bacterial Assessment and Remedial Action Requirements

The requirements listed below shall be used to 1) determine the occurrence and extent of any impairment of a beneficial use due to bacterial contamination; 2) generate information which can be used in the development of an enterococcus standard; and 3) provide the basis for remedial actions necessary to minimize or eliminate any impairment of a beneficial use.

Measurement of enterococcus density shall be conducted at all stations where measurement of total and fecal coliforms are required. In addition to the requirements of Receiving Water Limitation C.1.a. of this Order, if a shore station consistently exceeds a coliform objective or exceeds a geometric mean enterococcus density of 24 organisms per 100 ml for a 30-day period or 12 organisms per 100 ml for a six-month period, the Regional Board may require the discharger to conduct or participate in a survey to determine the source of the contamination. The geometric mean shall be a moving average based on no less than five samples per month, spaced evenly over the time interval. When a sanitary survey identifies a controllable source of indicator organisms associated with a discharge of sewage, the Regional Board may require the discharger and any other responsible parties identified by the Regional Board to take action to control the source.

c. Physical Characteristics

- (1) Floating particulates and grease and oil shall not be visible.
- (2) The discharge of waste shall not cause aesthetically undesirable discoloration of the ocean surface.
- (3) Natural light shall not be significantly reduced at any point outside the initial dilution zone as a result of the discharge of waste.
- (4) The rate of deposition of inert solids and the characteristics of inert solids in ocean sediments shall not be changed such that benthic communities are degraded.

COASTAL COMMISSIONEXHIBIT # 40PAGE 2 OF 7

d. Chemical Characteristics

- (1) The dissolved oxygen concentration shall not at any time be depressed more than 10 percent from that which occurs naturally, as a result of the discharge of oxygen-demanding waste materials.
- (2) The pH shall not be changed at any time more than 0.2 units from that which occurs naturally.
- (3) The dissolved sulfide concentration of waters in and near sediments shall not be significantly increased above that present under natural conditions.
- (4) The concentration of substances, set forth in Receiving Water Limitation C.3. of this Order, in marine sediments shall not be increased to levels which would degrade indigenous biota.
- (5) The concentration of organic materials in marine sediments shall not be increased to levels which would degrade marine life.
- (6) Nutrient materials shall not cause objectionable aquatic growths or degrade indigenous biota.

e. Biological Characteristics

- (1) Marine communities, including vertebrate, invertebrate, and plant species, shall not be degraded.
- (2) The natural taste, odor, and color of fish, shellfish, or other marine resources used for human consumption shall not be altered.
- (3) The concentration of organic materials in fish, shellfish, or other marine resources used for human consumption shall not bioaccumulate to levels that are harmful to human health.

f. Radioactivity

Discharge of radioactive waste shall not degrade marine life.

2. The discharge of waste through the AWMA Ocean Outfall shall not, by itself or jointly with any other discharge, cause violation of the following Basin Plan ocean water quality objectives:
 - a. The mean annual dissolved oxygen concentration shall not be less than 7.0 mg/l nor shall the minimum dissolved oxygen concentration be reduced below 5.0 mg/l at any time.
 - b. The pH value shall not be depressed below 7.0 nor raised above 8.6.

COASTAL COMMISSION

EXHIBIT # 4c
PAGE 3 OF 7

3. Toxic Materials

The discharge through the AWMA Ocean Outfall shall not by itself or jointly with any other discharge, cause the following Ocean Plan water quality objectives to be exceeded in the receiving water upon completion of initial dilution, except that limitations indicated for radioactivity shall apply directly to the undiluted waste effluent.

a. Water Quality Objectives for the Protection of Marine Aquatic Life

| Constituent | Units | 6 Month Median | Daily Maximum | Instantaneous Maximum |
|--------------------------------------|---|----------------|---------------|-----------------------|
| arsenic | ug/l | 8 | 32 | 80 |
| cadmium | ug/l | 1 | 4 | 10 |
| chromium (hexavalent) | ug/l | 2 | 8 | 20 |
| copper | ug/l | 3 | 12 | 30 |
| lead | ug/l | 2 | 8 | 20 |
| mercury | ug/l | 0.04 | 0.16 | 0.4 |
| nickel | ug/l | 5 | 20 | 50 |
| selenium | ug/l | 15 | 60 | 150 |
| silver | ug/l | 0.7 | 2.8 | 7 |
| zinc | ug/l | 20 | 80 | 200 |
| cyanide | ug/l | 1 | 4 | 10 |
| total chlorine residual | ug/l | 2 | 8 | 60 |
| ammonia (as N) | ug/l | 600 | 2,400 | 6,000 |
| chronic toxicity | TUc | — | 1 | — |
| phenolic compounds (non-chlorinated) | ug/l | 30 | 120 | 300 |
| chlorinated phenolics | ug/l | 1 | 4 | 10 |
| endosulfan ¹ | ng/l | 9 | 18 | 27 |
| endrin | ng/l | 2 | 4 | 6 |
| HCH ² | ng/l | 4 | 8 | 12 |
| radioactivity | Not to exceed limits specified in Title 17, Division 5, Chapter 4, Group 3, Article 3, Section 32069 of the California Code of Regulations. | | | |

COASTAL COMMISSION

EXHIBIT # 4c
PAGE 4 OF 7

b. Water Quality Objectives for the Protection of Human Health --
Noncarcinogens

| Chemical | Units | 30-Day Average |
|-------------------------------|-------|----------------|
| acrolein | ug/l | 220 |
| antimony | mg/l | 1.2 |
| bis(2-chloroethoxy)methane | ug/l | 4.4 |
| bis(2-chloroisopropyl)ether | mg/l | 1.2 |
| chlorobenzene | ug/l | 570 |
| chromium (III) | mg/l | 190 |
| di-n-butyl phthalate | mg/l | 3.5 |
| dichlorobenzenes ³ | mg/l | 5.1 |
| 1,1-dichloroethylene | mg/l | 7.1 |
| diethyl phthalate | mg/l | 33 |
| dimethyl phthalate | mg/l | 820 |
| 4,6-dinitro-2-methylphenol | ug/l | 220 |
| 2,4-dinitrophenol | ug/l | 4.0 |
| ethylbenzene | mg/l | 4.1 |
| fluoranthene | ug/l | 15 |
| hexachlorocyclopentadiene | ug/l | 58 |
| isophorone | mg/l | 150 |
| nitrobenzene | ug/l | 4.9 |
| thallium | ug/l | 14 |
| toluene | mg/l | 85 |
| 1,1,2,2-tetrachloroethane | mg/l | 1.2 |
| tributyltin | ng/l | 1.4 |
| 1,1,1-trichloroethane | mg/l | 540 |
| 1,1,2-trichloroethane | mg/l | 43 |

COASTAL COMMISSIC.

EXHIBIT # 4c

PAGE 5 OF 7

c. Water Quality Objectives for the Protection of Human Health --
Carcinogens

| Chemical | Units | 30-Day Average |
|----------------------------|-------|----------------|
| acrylonitrile | ug/l | 0.10 |
| aldrin | ng/l | 0.022 |
| benzene | ug/l | 5.9 |
| benzidine | ng/l | 0.069 |
| beryllium | ng/l | 33 |
| bis(2-chloroethyl)ether | ug/l | 0.045 |
| bis(2-ethylhexyl)phthalate | ug/l | 3.5 |
| carbon tetrachloride | ug/l | 0.90 |
| chlordane ⁴ | ng/l | 0.023 |
| chloroform | mg/l | 0.13 |
| DDT ⁵ | ng/l | 0.17 |
| 1,4-dichlorobenzene | ug/l | 18 |
| 3,3-dichlorobenzidine | ng/l | 8.1 |
| 1,2-dichloroethane | mg/l | 0.13 |
| dichloromethane | mg/l | 0.45 |
| 1,3-dichloropropene | ug/l | 8.9 |
| dieldrin | ng/l | 0.040 |
| 2,4-dinitrotoluene | ug/l | 2.6 |
| 1,2-diphenylhydrazine | ug/l | 0.16 |
| halomethanes ⁶ | mg/l | 0.13 |
| heptachlor ⁷ | ng/l | 0.72 |
| hexachlorobenzene | ng/l | 0.21 |
| hexachlorobutadiene | ug/l | 14 |
| hexachloroethane | ug/l | 2.5 |

COASTAL COMMISSION

EXHIBIT # 4c

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| Chemical | Units | 30-Day Average |
|--------------------------------|-------|----------------|
| N-nitrosodimethylamine | ug/l | 7.3 |
| N-nitrosodiphenylamine | ug/l | 2.5 |
| PAHs ⁸ | ng/l | 8.8 |
| PCBs ⁹ | ng/l | 0.019 |
| TCDD equivalents ¹⁰ | pg/l | 0.0039 |
| tetrachloroethylene | ug/l | 99 |
| toxaphene | ng/l | 0.21 |
| trichloroethylene | ug/l | 27 |
| 2,4,6-trichlorophenol | ug/l | 0.29 |
| vinyl chloride | ug/l | 36 |

mg/l = milligrams per liter
ug/l = micrograms per liter
ng/l = nanograms per liter
pg/l = picograms per liter
NTU = Nephelometric Turbidity Unit
TUc = toxic units chronic

COASTAL COMMISSION

EXHIBIT # 4c

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California Regional Water Quality Control Board

San Diego Region

Internet Address: <http://www.swrcb.ca.gov/~rwqcb9/>

9771 Clairmont Mesa Boulevard, Suite A, San Diego, California 92124-1324

Phone (858) 467-2952 • FAX (858) 571-6972

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Gray Davis
Governor

Curry
LN

Winston H. Hickox
Secretary for
Environmental
Protection

28 December 1999

Certified Mail - Return Receipt Requested

Vicki L. Wilson, Director
ATTN: Chris Crompton
County of Orange
Public Facilities & Resources Department
10852 Douglass Road
Anaheim, California 92806

Z 222 406 957

RECEIVED
JUN 30 2000

Herb Nakasone
Orange County Flood Control District
PO Box 4048
Santa Ana, California 92702-4048

Z 222 406 958

CALIFORNIA
COASTAL COMMISSION

Ken Montgomery, Director
City of Laguna Niguel
Public Works
27791 La Paz Road
Laguna Niguel, California 92677

Z 222 406 959

5-00-272-3

Cleanup and Abatement Order No. 99-211

Enclosed is a copy of California Regional Water Quality Control Board, San Diego Region (Regional Board) Cleanup and Abatement Order (CAO) No. 99-211 concerning the high coliform bacteria levels being discharged from storm drain outfall "J03P02" to Sulphur Creek. The discharge of urban runoff with high coliform bacteria levels threatens public health and creates a condition of pollution and/or nuisance.

The CAO is issued pursuant to Water Code § 13304 and directs you to clean up all wastes and abate the effects associated with the discharges from "J03P02." Note the deadlines contained within the CAO. Failure to meet the deadlines may subject you to substantial civil liability.

You may contest the issuance of this CAO by requesting a public hearing on the matter before the Regional Board. In order to schedule a hearing, this office must receive a written request at least 30 days prior to the Regional Board Meeting. The next regularly scheduled Regional Board Meeting is 9 February 2000. Be aware that a request for a hearing does not stay any of the deadlines in the CAO.

COASTAL COMMISSION

California Environmental Protection Agency

EXHIBIT # 5
PAGE 1 OF 4

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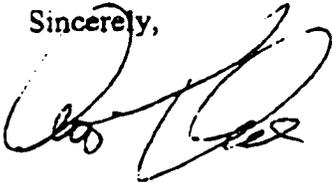
Vicki L. Wilson
Herb Nakasone
Ken Montgomery

- 2 -

28 December 1999

I strongly urge a prompt and complete response to each directive in CAO No. 99-211. Please contact Frank Melbourn of my staff at (858) 467-2973 if you have any questions regarding this matter.

Sincerely,



 JOHN H. ROBERTUS
Executive Officer

Enclosure: CAO No. 99-211

Copies to: Eugene Bromley, US EPA Region IX
Steve Fuller, US EPA Region IX
Bruce Fujimoto, SWRCB, DWQ, Regulatory
Laura Hunter, Environmental Health Coalition

ALC:mja:ftm

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California Environmental Protection Agency

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COASTAL COMMISSION

EXHIBIT # 5
PAGE 2 OF 4

**CLEANUP AND ABATEMENT ORDER NO. 99-211
FOR
COUNTY OF ORANGE
ORANGE COUNTY FLOOD CONTROL DISTRICT
AND
CITY OF LAGUNA NIGUEL**

The California Regional Water Quality Control Board, San Diego Region (Regional Board), finds that:

1. The County of Orange, the Orange County Flood Control District, and the City of Laguna Niguel (Co-Permittees) discharge waste with high fecal coliform bacteria levels from municipal storm drain outfall "J03P02" into Sulphur Creek, a tributary to Aliso Creek.
2. Co-Permittees cause or permit illicit/illegal discharges into the municipal storm water conveyance system which discharge from J03P02 in violation of Discharge Limitation No. 1 of Regional Board Order No. 96-03, NPDES No. CAS0108740, *Waste Discharge Requirements for Storm Water and Urban Runoff from the County of Orange, the Orange County Flood Control District, and the Incorporated Cities of Orange County Within the San Diego Region.*
3. The Co-Permittees' discharge impairs the ability of the water to support Non-Contact Recreation (REC-2) in violation of the Water Quality Control Plan for the San Diego Basin (9) Water Quality Objective, and creates a condition of pollution and/or nuisance.
4. This enforcement action is being taken for the protection of the environment and therefore, is exempt from the provisions of the California Environmental Quality Act (Public Resources Code § 21000 et seq.) in accordance with Administrative Code § 15108.
5. Pursuant to Water Code § 13304, the Regional Board is entitled to, and may seek reimbursement for, all reasonable costs actually incurred by the Regional Board to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this Order.

IT IS HEREBY ORDERED that, pursuant to Water Code § 13304:

1. The Co-Permittees immediately cleanup the wastes discharged and abate their effects.
2. The Co-Permittees monitor fecal coliform bacteria in Sulphur Creek and storm drain outfall "J03P02" weekly.
3. By 11 February 2000, the Co-Permittees submit in writing to the Regional Board a work plan with time schedule to cleanup the wastes and abate their effects, as well as

COASTAL COMMISSION

EXHIBIT # 15
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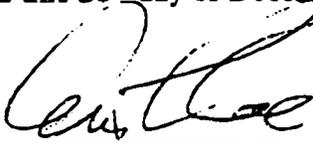
a monitoring plan. Furthermore, the Co-Permittees shall submit bacteriological monitoring results collected by the date of the submittal as well as interpretations and conclusions made from the results.

- 4. The Co-Permittees shall submit written quarterly progress reports including bacteriological monitoring results to the Regional Board according to the following schedule:

| <u>Reporting Period</u> | <u>Due Date</u> |
|--------------------------------|-----------------|
| February, March and April | 31 May |
| May, June and July | 31 August |
| August, September and October | 30 November |
| November, December and January | 28 February |

Pursuant to Water Code § 13350, any person who intentionally or negligently violates a cleanup and abatement order may be liable civilly in an amount which shall not exceed five thousand dollars (\$5,000), but shall not be less than five hundred dollars (\$500), for each day in which the cleanup and abatement order is violated.

Dated this 28th day of December, 1999



JOHN H. ROBERTUS
Executive Officer

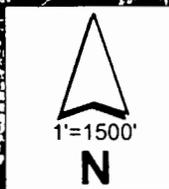
for

VICINITY MAP



LEGEND

| STORM SYSTEM | | LOW-FLOW CAPTURE SYSTEM | |
|--------------------|---------------------------|-------------------------|---|
| • | Existing storm inlets | — | Existing low-flow inlets |
| ▶ | Existing storm drain pipe | — | Existing low-flow pipe |
| LOW FLOW TREATMENT | | — | Proposed low-flow pipe |
| | East Wetland | ⊙ | Proposed low-flow diversion out of storm pipe |
| | North Wetland | ○ | Proposed low-flow inlets |
| | West Wetland | | |
| | East Watershed Boundary | | |
| | North Watershed Boundary | | |
| | West Watershed Boundary | | |



COASTAL COMMISSION

Wetland Capture And Treatment (WetCAT) Network

EXHIBIT # 6
PAGE 1 OF 1

City of Laguna Niguel

EXHIBIT M



California Regional Water Quality Control Board

San Diego Region



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San Diego Regional Water Quality Control Board

John H. Hickox
Secretary for
Environmental
Protection

Internet Address: <http://www.swrcb.ca.gov/rwqcb9/>
9771 Clairemont Mesa Boulevard, Suite A, San Diego, California 92124-1324
Phone (858) 467-2952 • FAX (858) 571-6972

MAY 21 2001

CALIFORNIA
COASTAL COMMISSION

CERTIFIED RETURN MAIL RECEIPT REQUESTED

March 2, 2001

Z 498 397 881

Mr. Chris Crompton
County of Orange
Public Facilities & Resources Department
10852 Douglass Road
Anaheim, CA 92806

A DIRECTIVE ISSUED PURSUANT TO CALIFORNIA WATER CODE SECTION 13225 TO COUNTY OF ORANGE, ORANGE COUNTY FLOOD CONTROL DISTRICT, CITY OF LAGUNA BEACH, CITY OF LAGUNA HILLS, CITY OF LAGUNA NIGUEL, CITY OF LAGUNA WOODS, CITY OF LAKE FOREST, AND CITY OF MISSION VIEJO FOR AN INVESTIGATION OF URBAN RUNOFF IN THE ALISO CREEK WATERSHED

The San Diego Regional Water Quality Control Board (SDRWQCB) finds that the County of Orange, the Orange County Flood Control District, and the Cities of Laguna Beach, Laguna Hills, Laguna Niguel, Laguna Woods, Lake Forest and Mission Viejo (Permittees) may be discharging waste with high bacteria levels from municipal storm drain outfalls into Aliso Creek and tributaries thereof. This finding is based on the review of monitoring data presented in the following reports 1) The NPDES Annual Report¹; 2) The Aliso Creek Water Quality Planning Study²; and the 3) The Report of Waste Discharge: Second Term Permit Program Summary³.

The Aliso Creek Mouth and the Laguna Beach hydrologic sub-area (HAS) to the Pacific Ocean are listed as Clean Water Act Section 303(d) impaired for high coliform levels. The Co-Permittees' discharge impairs the ability of the water to support Potential Contact Recreation (REC-1) in violation of the Water Quality Control Plan for the San Diego Basin (9) Water Quality Objective, and creates a condition of pollution and/or nuisance. On September 17, 1997 Addendum No. 1 to Order No. 95-107 modified the NPDES permit for Aliso Water Management Agency (AWMA) to allow the diversion of summertime flow of Aliso Creek to the AWMA Ocean Outfall. This interim diversion was established to temporarily protect human health at the beach but is an inadequate solution to correcting the nuisance leading to water quality impairment. Accordingly, it is important for the Co-Permittees to take all necessary measures to ensure that discharges into and from its storm water conveyance systems do not cause or

¹ NPDES Annual Progress Report, submitted by the County of Orange Public Facilities and Resources Department and received in this office on November 15, 2000.

² Orange County, et al. June 2000. Draft Final Report Aliso Creek 205(j) Water Quality Planning Quality.

³ Report of Waste Discharge: Second Term Permit Program Summary (ROWD) submitted by the County of Orange Public Facilities and Resources Department and received in this office on September 6, 2000.

COASTAL COMMISSION

California Environmental Protection Agency

EXHIBIT # 7

PAGE 1 OF 5

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contribute to impairment of the Aliso Creek Mouth or the Laguna Beach HSA. Federal Regulations require that water quality standards of downstream water must be considered and maintained [40 CFR 131.10(b)]. Therefore, no tributary may contribute to an incidence of pollution, which threatens the beneficial use of a receiving water body.

Order No. 96-03, NPDES No. CAS0108740, *Waste Discharge Requirements for Storm Water and Urban Runoff from the County of Orange, the Orange County Flood Control District, and the Incorporated Cities of Orange County Within the San Diego Region (Permit)* requires that corrective actions be taken when a contribution to impairment is identified. Upon review of your Report of Waste Discharge, the SDRWQCB has determined that throughout the second Permit term, the condition of impairment has not been adequately improved. Therefore, in accordance with Part IV.1.a.ii. of the Permit, the SDRWQCB has determined that implementation of the previously approved DAMP will not have a reasonable likelihood of preventing future impairment of the REC 1 beneficial use. Furthermore, SDRWQCB review of the Proposed DAMP⁴ finds that, in its current form, will be inadequate to serve as the foundation for a program to correct the impairment of Aliso Creek. Therefore, the SDRWQCB is stipulating that all Permittees in the Aliso Creek watershed must conduct an evaluation of the relative contribution of the urban storm water discharges to the impairment of beneficial uses or the exceedances of water quality objectives and where necessary take appropriate measures to eliminate the sources of pollution.

Pursuant to California Water Code Sections 13267, 13225, & 13383, the Permittees are hereby directed to submit detailed technical reports in accordance with the time schedule specified below. The technical reports include an initial report and subsequent quarterly status reports. The quarterly status reports shall be submitted by each Permittee until such time the SDRWQCB determines nuisance discharges have been prevented to the Maximum Extent Practicable by that Permittee. At a minimum, the reports shall include the following information pertaining to discharges from Permittee owned or operated municipal storm water sewer systems to Aliso Creek. If justified based upon monitoring conducted to date, a Permittee may submit a proposal for an alternative monitoring strategy than specified below. The Permittee must submit the proposal by March 31, 2001 and provide the rationale for alternative sampling and an explanation for how the alternative sampling achieves the objective of quantifying the bacteria discharged from the Permittee's MS4 system.

COASTAL COMMISSION

A. Initial Report

EXHIBIT # 7
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The initial report is due by April 30, 2001 and shall contain:

1. A brief summary of all investigations conducted to date by each permittee to address the persistence, the significance, and to the extent feasible, the causes of the impairment or exceedance, and the technical and economic feasibility of control actions available to the

⁴ The Drainage Area Management Plan was submitted by the County of Orange Public Facilities and Resources Department and received in this office on September 6, 2000

permittees to reduce or eliminate the impairment or exceedance.

2. Geographic Information System themes/layers in an ARCVIEW compatible format delineating the following:

- a) Aliso Creek watershed boundaries
- b) Storm drain outfalls
- c) Municipal boundaries
- d) Roadways
- e) Latitude / Longitude coordinates for each major direct outfall

Quarterly Reports

The quarterly reports are due as follows:

| <u>Reporting Period</u> | <u>Due Date</u> |
|--------------------------------|-----------------|
| April, May and June | 31 July |
| July, August, and September | 31 October |
| October, November and December | 31 January |
| January, February and March | 30 April |

Each quarterly report shall contain:

1. The results of weekly monitoring beginning during the week of April 1, 2001, for flow rate and fecal coliform, Enterococci and Escherichia coli bacteria concentrations in discharges from the 54 major direct inputs to Aliso Creek and the seven natural tributaries to Aliso Creek.⁵ *(It is understood by the SDRWQCB that the 54 major direct outfalls are identified as such on Permittee drainage maps of the Aliso Creek watershed.)* Sampling shall consist of grab samples and the reported data shall include:

- a. The date, exact places, and time of sampling or measurements;
- b. A description of climatic and receiving water characteristics at the time of sampling (weather observations, floating debris, discoloration, etc.);
- b. The individuals who performed the sampling or measurements;
- c. The date(s) analyses were performed;
- d. The laboratory and individual(s) who performed the analyses;
- e. The analytical techniques or methods used; and

COASTAL COMMISSION

EXHIBIT # 7
PAGE 3 OF 5

⁵ Once problem tributaries and major direct inputs have been established, a proposal may be submitted as part of a quarterly report for SDRWQCB approval, for an alternative monitoring strategy based upon the submitted quarterly monitoring data. The proposal must provide the rationale for alternative sampling and an explanation for how the alternative sampling achieves the objective of quantifying the bacteria discharged from the Permittee's MS4 system.

- f. The results of all laboratory analyses; and
 - g. The results of field analysis for chlorine residual, pH and flowrate.
2. A description of the Permittee's efforts during the quarter to identify the persistence, the significance, and to extent feasible, the causes of the impairment or exceedance, and to the extent feasible the technical and economic feasibility of control actions available to the permittees to reduce or eliminate the impairment or exceedance.
 3. A description and an evaluation of the effectiveness of the structural and non-structural BMPs currently being implemented to ensure that the discharge of bacteria and other pollutants to the storm water conveyance systems which discharges specifically to the Creek or its tributaries is prevented.
 4. Identification of future measures that would eliminate levels of high bacteria from storm water conveyance system outfalls.
 5. Any update of the time schedule and work plan for eliminating sources of bacteria and measures to prevent pollutants from contributing to any violation of the REC 1 standard.

Please note that sampling and analysis methods shall be those presented in the most recent edition of Standard Methods for the Examination of Water and Wastewater or any improved method approved by the Executive Officer. All analyses shall be performed in a laboratory certified to perform such analyses by the California Department of Health Service or a laboratory approved by the Executive Officer.

COASTAL COMMISSION

The technical reports submitted to the SDRWQCB shall contain the following signed certification statement:

EXHIBIT # 7
PAGE 4 OF 5

I certify under penalty of law that that this document and all attachments were prepared under my direction or supervision I accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

The certification statement shall be signed by either a principal executive officer or ranking elected official, or by a duly authorized representative of that person.

Failure to respond or late response to this request may subject the Co-Permittees to civil liability in an amount up to \$1,000 for each day the violation occurs (California Water Code Section 13268). Any request for an extension of the submittal date set forth above must be submitted in

writing. Such requests are denied, absent written approval from SDRWQCB staff. You are advised that the first quarterly report is due to the SDRWQB on May 31, 2001. Questions pertaining to this request should be directed to Bob Morris at 858-467-2962. Please direct written correspondence to me at the letterhead address.

Respectfully,



JOHN H. ROBERTUS
Executive Officer
San Diego Regional Water Quality Control Board

- cc: The County of Orange
- The Orange County Flood Control District
- The City of Laguna Beach
- The City of Laguna Hills
- The City of Laguna Niguel
- The City of Laguna Woods
- The City of Lake Forest
- The City of Mission Viejo
- Seema Mehta, The Los Angeles Times
- Roger Van Butow, Clean Water Now!
- Michael Hazard, Clean Aliso Creek Association
- Michael Beanan, South Laguna Civic Association

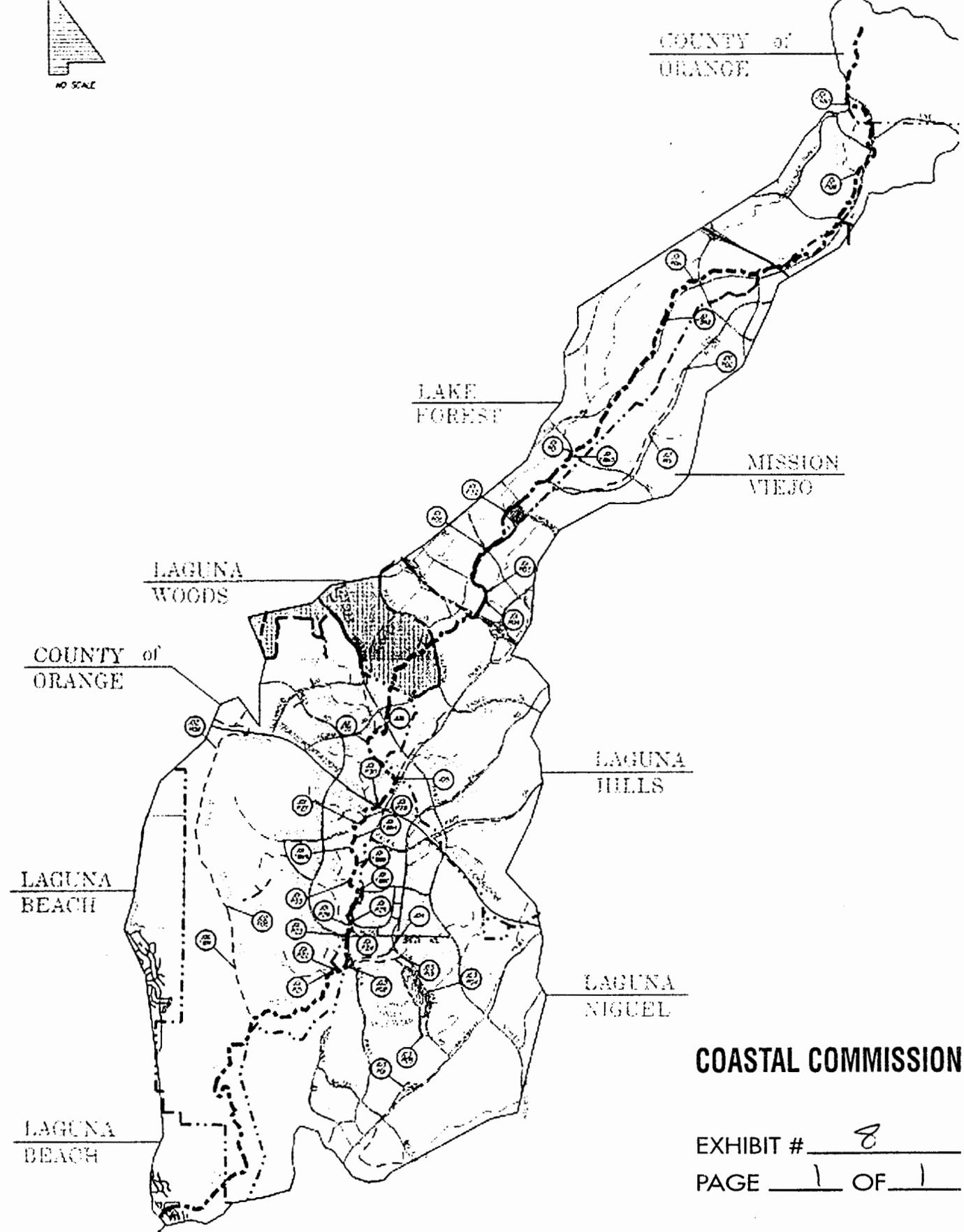
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COASTAL COMMISSION

EXHIBIT # 7
PAGE 5 OF 5



COUNTY of
ORANGE



COASTAL COMMISSION

EXHIBIT # 8

PAGE 1 OF 1

| LEGEND | |
|--------|----------------------------|
| | Storm, Mainwater & Lateral |
| | Drainage Channel |
| | Storm Drain |
| | White Creek Channel |
| | Fire Res. Waterline |
| | City Boundary |
| | Monitoring Station |

ORANGE COUNTY PUBLIC FACILITIES & RESOURCES DEPARTMENT

FLOOD PROGRAM ADVANCE PLANNING

**ALISO CREEK WATERSHED
MONITORING LOCATIONS**

APR 04 2008 File: AlisoCreek.dwg



DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT, CORPS OF ENGINEERS
P.O BOX 532711
LOS ANGELES, CALIFORNIA 90053-2325

April 26, 2001

REPLY TO

Office of the Chief
Regulatory Branch

Carlsbad Fish and Wildlife Office
Attention: David Zoutendyk
2730 Loker Ave. West
Carlsbad, California 92008

SUBJECT: Aliso Creek Diversion Individual Permit Time Extension (File No. 960007200-SMS) – Request for Concurrence to Unlikely Adversely Affect Unoccupied Critical Habitat of the Tidewater Goby

Dear Mr. Zoutendyk:

Per our telephone conversation on April 25, 2001, this letter constitutes a request for concurrence that the project time extension will not adversely affect the Federally-endangered tidewater goby (*Eucyclogobius newberryi*) nor its critical habitat as long as the permittee adheres to additional special conditions. Below I have included project information and the proposed special conditions for your consideration.

Project Description: Orange County requested a three-year extension for a Department of the Army permit (Permit No. 96-0072-LTM, now referred to as Permit No. 960007200-SMS) that is scheduled to expire on May 8, 2001. The permit authorized Orange County to temporarily divert contaminated (high coliform bacterial counts) creek water during summer beach season by constructing a sand berm in Aliso Creek and pumping the creek water into an Aliso Water Management Agency ocean outfall line in Laguna Beach, Orange County, California. The activity is to discharge approximately 240 cubic yards of material in Aliso Creek to create a berm, which is lined with plastic, to pond water that is then pumped into the Aliso Water Management Agency ocean outfall. The berm itself is temporary in nature, constructed each summer at the beginning of beach season, on or about May 1, and is removed at the end of beach season, on or about October 31. The berm has served as an interim solution to public health and safety concerns so that a popular public beach may remain open until such time that a long-term solution is implemented. The current authorization has only been utilized for two weeks during summer 1999 and for a full season in 2000.

Project Area: The project area is located in that portion of Aliso Creek approximately 300 feet upstream of the Pacific Coast Highway Bridge. The berm construction and placement will temporarily impact waters of the U.S. receiving the 240 cubic yards of fill material to create the sand berm.

COASTAL COMMISSION

EXHIBIT # 9
PAGE 1 OF 3

Listed Species or Critical Habitat in Project Vicinity: On November 20, 2000, critical habitat for the tidewater goby was designated in portions of southern California. Critical habitat was also designated in areas outside the geographical area currently occupied by tidewater gobies, as these areas are determined essential to the conservation of the species. Tidewater gobies historically occupied Aliso Creek, but have been absent from the creek for several years with the habitat parameters remaining reportedly unchanged since the species' occupancy. The U.S. Fish and Wildlife Service (Service) designated the mouth of Aliso Creek (Orange County) to a point located approximately 0.6 mile upstream of the mouth as unoccupied critical habitat for the tidewater goby.

It is the Corps' understanding that the Service does not plan to transplant tidewater goby into Aliso Creek within the next year, although any future reintroduction plans beyond that time may be affected by the current proposal. For the past several months, the Service, the Corps, and Mr. Michael Wellborn of Orange County have discussed the appropriateness of the current project design as an interim solution until such time that a long term solution is in place. As a long-term solution, the interagency Aliso Creek Watershed Management Study provides a strategy to create a watershed management plan and implement several structural and non-structural projects to improve the overall health of the watershed, including solutions specific to water quality. Concerns remain over the diversion's effectiveness to address water quality as a temporary solution, the long-term effects on tidewater goby critical habitat, and the berm's actual longevity. The Regulatory Branch is still uncertain as to whether three years serve as a suitable timeframe for the long-term plan to improve water quality and no longer require the diversion to prevent beach closures. The California Coastal Commission also has concerns with the current project proposal and indicates the County's Coastal Development Permit request remains incomplete in letters to the County dated March 23 and April 20, 2001. **The Corps will continue its effort to work with and support the California Coastal Commission and other regulatory agencies to address project concerns.**

At this time, considering that: 1) the tidewater goby will not be transplanted to Aliso Creek within the next year; 2) the project is a temporary fill in waters of the U.S. and that the sand berm will be removed and restored by October 31, 2001; 3) the County will continue to investigate other interim solutions and move forward toward the long term solution; and 4) beach season is quickly approaching for 2001 and there is not adequate time to fully analyze and implement alternative solutions for the full three-year extension request prior to May 1, 2001, the Corps has preliminarily determined that the project may be **extended for one year from the current expiration date** if the following proposed non-discretionary special conditions are incorporated into the permit:

1. Any future time extension requests for Permit No. 960007200-SMS may require a Formal Consultation with the Service under Section 7 of the Endangered Species Act and will require a complete alternatives analysis to the current project design.

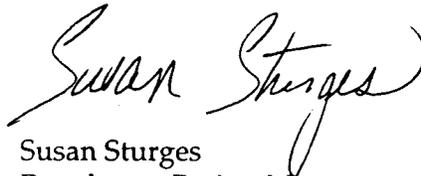
COASTAL COMMISSION

EXHIBIT # 9
PAGE 2 OF 3

2. The Permittee obtains a Coastal Development Permit (CDP) prior to any work in waters of the U.S. in order to comply with the federal consistency requirement under the Coastal Zone Management Act. If the proposed project changes as a result of obtaining the CDP and continuing discussions between the Service, Corps, California Coastal Commission, and Regional Water Quality Control Board, and a new project design successfully resolves all Corps concerns for an extended interim solution, then the Permittee shall submit the project changes to the Corps. **The Corps is fully committed to expediting any approved changes for the 2001 beach season and considering the possibly for an extension beyond one year.**
3. The Permittee recognizes that the original general and special conditions for Permit No. 960007200-SMS remain in full effect except for what is changed herein.
4. The Permittee shall restore the project site to its pre-project contours and conditions immediately following the berm's removal at the close of the 2001 beach season.

The Permittee requested that an extension be authorized in time for this summer beach season (on or about May 1, 2001) to prevent any public health risks that may prompt a beach closure that inhibits safe recreational use of Aliso Beach. The Corps would appreciate your timely response in this situation. If you have any questions, please contact me at (213) 452-3418. Please refer to this letter and 960007200-SMS in your reply. Thank you for your time and consideration.

Sincerely,



Susan Sturges
Regulatory Project Manager
South Coast Section
Regulatory Branch

CC: Karl Schwing, California Coastal Commission
Stephen Rynas, AICP, California Coastal Commission

COASTAL COMM. 3310..

EXHIBIT # 9
PAGE 3 OF 3



United States Department of the Interior
Fish and Wildlife Service
Ecological Services
Carlsbad Fish and Wildlife Office
2730 Loker Avenue West
Carlsbad, California 92008



Colonel John P. Carroll
District Engineer
U.S. Army Corps of Engineers
Los Angeles District
P.O. Box 532711
Los Angeles, California 90053-2325

MAY 09 2001

Attn: Susan M. Sturges, Regulatory Branch

Re: Informal Section 7 Consultation, Aliso Creek Berm Project (Corps Permit No. 96-00072-LTM), City of Laguna Beach, Orange County, California

Dear Colonel Carroll:

This letter responds to your April 26, 2001, request for concurrence that the proposed time extension of U.S. Army Corps of Engineers (Corps) Permit No. 96-00072-LTM for the Aliso Creek Berm Project is not likely to adversely affect designated critical habitat for the federally endangered tidewater goby (*Eucyclogobius newberryi*, "goby"). The permit expired on May 8, 2001. At issue is a request from the Orange County Environmental Management Agency (OCEMA) to extend the permit for three years. The original permit was issued on May 8, 1996, and since that time, the Fish and Wildlife Service has designated critical habitat in Aliso Creek for the goby (65 FR 69693).

As proposed, the project would dredge and discharge approximately 240 cubic yards of material in Aliso Creek to form a berm, which would be lined with plastic. Water ponded behind the berm would then be pumped into the Aliso Water Management Agency ocean outfall. The berm would be constructed around May 1 and removed around October 31, annually. The purpose of the project is to prevent beach closures by removing water contaminated with high coliform counts from Aliso Creek before they flow into the Pacific Ocean.

It is our understanding that the OCEMA is pursuing long-term solutions that will more effectively address the water contamination problem. In the interim, the Corps is proposing to extend the permit for one or more years based on human health concerns, the temporary nature of the impacts to designated critical habitat for the goby, and the fact that long-term solutions to improve water quality within the Aliso Creek watershed are still being evaluated.

We have considered the effects of the project on designated critical habitat for the goby and concur with your assessment that the impacts will be temporary in nature provided that the project site is restored to its pre-project contours and conditions immediately following the berm's removal at the

COASTAL COMMISSION

EXHIBIT # 10
PAGE 1 OF 4

end of each beach season. In view of this, we concur with your determination that the proposed action to extend the permit for a period of 1-3 years is not likely to adversely affect designated critical habitat for the goby. This determination satisfies the interagency consultation requirements of section 7 of the Endangered Species Act of 1973, as amended. Should project plans change, or if additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered.

For clarification, we have no immediate plans or funding for a recovery action that includes translocation of goby into Aliso Creek. Any such plans would require National Environmental Policy Act compliance and an out-year funding request, which may extend beyond a three-year time period.

If you have any questions regarding these comments, please contact me or David Zoutendyk of my staff at (760) 431-9440.

Sincerely,



Karen A. Evans
Acting Assistant Field Supervisor

I-1021.2

COASTAL COMMISSION

EXHIBIT # 10
PAGE 2 OF 4



United States Department of the Interior
Fish and Wildlife Service
Ecological Services
Carlsbad Fish and Wildlife Office
2730 Loker Avenue West
Carlsbad, California 92008



DEC 05 2000

Colonel John P. Carroll
District Engineer
U.S. Army Corps of Engineers
Los Angeles District
P.O. Box 532711
Los Angeles, California 90053-2325

Attn: Susan M. Sturges, Regulatory Branch (Permit No. 96-00072-LTM)

Re: Informal Section 7 Consultation, Aliso Creek Berm Project, Laguna Beach, Orange County, California

Dear Colonel Carroll:

This letter responds to a September 12, 2000, verbal request from Susan Sturges of your staff for our comments on the proposed time extension of permit number 96-00072-LTM for the Aliso Creek Berm Project in Laguna Beach, Orange County, California. The Orange County Environmental Management Agency has applied for a 3-year extension of the permit, which was issued on May 8, 1996, and expires on May 8, 2001. However, since the original permit was issued we designated critical habitat in Aliso Creek for the federally endangered tidewater goby (*Eucyclogobis newberryi*, "goby") on November 20, 2000 (65 FR 69693).

As proposed, the project would dredge and discharge approximately 240 cubic yards of material in Aliso Creek to form a berm, which would be lined with plastic. Water ponded behind the berm would then be pumped into the Aliso Water Management Agency ocean outfall. The berm would be constructed around May 1 and removed around November 30, annually. The purpose of the project is to prevent beach closures by removing water contaminated with high coliform counts from Aliso Creek before they flow into the Pacific Ocean.

We understand that permanent solutions to the ongoing non-point source pollution problem are being pursued by the permit applicant. We encourage serious pursuit of a long-term solution that would not adversely affect critical habitat for the goby. In the interim, project alternatives should be pursued that avoid critical habitat, including: 1) berming further upstream outside of designated critical habitat (in an area devoid of wetland vegetation) and allowing only limited stream flows to pass such that flows do not overtop the beach berm and are not of a magnitude

COASTAL COMMISSION

EXHIBIT # 10
PAGE 3 OF 4

that would require subsequent beach closures; or 2) pumping only, without constructing a berm, to the point of preventing topping of the beach berm and subsequent beach closures.

We recommend that the Corps strongly encourage the applicant to explore project alternatives that, like the two alternatives mentioned above, avoid adversely affecting critical habitat for the goby. If the Corps determines that no practicable alternative exists that avoid impacts to critical habitat, formal consultation in accordance with section 7 of the Endangered Species Act of 1973, as amended, should be initiated with this office.

If you have any questions regarding these comments or would like to set up a meeting to discuss our concerns, please contact David Zoutendyk of my staff at (760) 431-9440.

Sincerely,



Jim A. Bartel
Assistant Field Supervisor

1-6-01-I-1021.1

COASTAL COMMISSION

EXHIBIT # 10
PAGE 4 OF 4

CALIFORNIA DEPARTMENT OF FISH AND GAME

Terri Dickerson
P.O. Box 6657
Laguna Niguel, CA 92607-6657

RECEIVED
South Coast Region

FEB 21 2001

CALIFORNIA
COASTAL COMMISSION

Attn: Tom Rossmiller
Larry Paul
County of Orange
EMA - HB&P
300 N. Flower St.
Santa Ana, CA 92702

April 19, 1996

Dear Larry Paul:

Enclosed are two copies of Streambed Alteration Agreement 5-107-96. If you agree with the conditions/measures set forth in the agreement, please sign both copies and return both to our office for signature, at the above address. Written notice of your intent to commence project activities needs to be provided to the Department at least five days in advance of commencing project activities.

The California Fish and Game Code requires that you notify the Department in writing within 14 days of receipt of this Proposal as to its acceptability. If you do not respond within this time period you will lose your right to request binding arbitration. For minor changes we suggest you contact the person responsible for writing your agreement prior to sending the written response.

If you have any questions regarding the proposed conditions please contact me at (714) 363-7538.

Thank you for your cooperation in this matter.



Terri Dickerson
Environmental Specialist III
Environmental Services, Region 5

COASTAL COMMISSION

EXHIBIT # 11
PAGE 1 OF 5

RECEIVED
South Coast Region

CALIFORNIA DEPARTMENT OF FISH AND GAME
330 Golden Shore, Suite 50
Long Beach, California 90802

FEB 21 2001

CALIFORNIA
COASTAL COMMISSION

Notification No. 5-107-96

Page 1 of 3

AGREEMENT REGARDING PROPOSED STREAM OR LAKE ALTERATION

THIS AGREEMENT, entered into between the State of California, Department of Fish and Game, hereinafter called the Department, and Larry Paul of County of Orange; EMA - HB&P; 300 N. Flower St.; Santa Ana, CA 92702; (714) 586-4200; (714) 489-9473; (714) 834-2486, State of California, hereinafter called the Operator, is as follows:

WHEREAS, pursuant to Section 1601 of California Fish and Game Code, the Operator, on the 11th day of March, 1996, notified the Department that they intend to divert or obstruct the natural flow of, or change the bed, channel, or bank of, or use material from the streambed(s) of, the following water(s): Aliso Creek, Orange County, California, Section 6 Township 8S Range 8W.

WHEREAS, the Department (represented by Terri Dickerson has made an inspection of subject are, and) has determined that such operations may substantially adversely affect existing fish and wildlife resources including: songbirds, waterfowl and all aquatic resources and wildlife in the area.

THEREFORE, the Department hereby proposes measures to protect fish and wildlife resources during the Operator's work. The Operator hereby agrees to accept the following measures/conditions as part of the proposed work.

If the Operator's work changes from that stated in the notification specified above, this Agreement is no longer valid and a new notification shall be submitted to the Department of Fish and Game. Failure to comply with the provisions of this Agreement and with other pertinent code sections, including but not limited to Fish and Game Code Sections 5650, 5652, 5937, and 5948, may result in prosecution.

Nothing in this Agreement authorizes the Operator to trespass on any land or property, nor does it relieve the Operator of responsibility for compliance with applicable federal, state, or local laws or ordinances. A consummated Agreement does not constitute Department of Fish and Game endorsement of the proposed operation, or assure the Department's concurrence with permits required from other agencies.

This Agreement becomes effective the date of Department's signature and terminates October 31, 2001 for project construction only. This Agreement shall remain in effect for that time necessary to satisfy the terms/conditions of this Agreement.

COASTAL COMMISSION

EXHIBIT # 11
PAGE 2 OF 5

1. The following provisions constitute the limit of activities agreed to and resolved by this Agreement. The signing of this Agreement does not imply that the Operator is precluded from doing other activities at the site. However, activities not specifically agreed to and resolved by this Agreement shall be subject to separate notification pursuant to Fish and Game Code Sections 1600 et seq.
2. The Operator proposes to alter the streambed to annually construct a temporary berm during the summer at the mouth of the stream near the ocean outlet, then divert the water (which may have high coliform counts) to the Aliso Water Management Agency. This would impact 1930 ft' of stream on an annual, temporary basis. The project is located approximately 300' upstream of the Pacific Coast Highway bridge in the City of Laguna Beach.
3. The agreed work includes activities associated with No. 2 above. The project area is located in Aliso Creek, Orange County. Specific work areas and mitigation measures are described on/in the plans and documents submitted by the Operator and shall be implemented as proposed unless directed differently by this agreement.
4. The Operator shall request an extension of this agreement prior to its termination. Extensions may be granted for up to 12 months from the date of termination of the agreement and are subject to Departmental approval. The extension request and fees shall be submitted to the Department's Region 5 Office at the above address. If the Operator fails to request the extension prior to the agreement's termination then the Operator shall submit a new notification with fees and required information to the Department. Any activities conducted under an expired agreement is a violation of Fish and Game Code Section 1600 et. seq. The Operator may request up to a maximum of 5 extensions of this agreement.
5. The Operator shall not impact more than 1930 ft' of stream on an annual, temporary basis. The area to be impacted is currently vegetated with cattails, Arundo and iceplant. The area immediately downstream of the berm will be subject to tidal flushing. The sand berm will be approximately 3'-4', and shall not exceed 5' high, and will be plastic-lined on the upstream side. The berm width will be between 12'-20'.
6. The berm shall be constructed no sooner than May 1 of each year, and dismantled, with creek contours restored, no later than October 15 of each year. Any vegetation which may be impacted by the construction process shall be surveyed annually to ensure no impacts to nesting birds occur. If any nesting birds are found, the vegetation shall not be disturbed until the young have fledged.
7. The Operator shall mitigate with the eradication of 2000 ft' of Arundo in the Whiting Ranch Wilderness Park near the McFadden Ranch House. This site is within a mile of the headwaters of Aliso Creek and is the first stand of Arundo in the upper watershed and the removal of the 2000 ft' constitutes all the Arundo in the immediate area. The Arundo shall be removed by hand crews and disposed of offsite properly, away from any stream or where it may be washed into a stream. The stumps/sprouts shall be sprayed with an herbicide approved for use in an aquatic environment. The Arundo eradication program shall continue for a minimum of 5 years to ensure effectiveness.
8. If a stream's low flow channel, bed or banks have been altered, these shall be returned as nearly as possible to their original configuration and width.
9. Disturbance or removal of vegetation shall not exceed the limits approved by the Department.
10. Structures and associated materials not designed to withstand high seasonal flows shall be removed to areas above the high water mark before such flows occur.
11. Equipment shall not be operated in ponded or flowing areas.

COASTAL COMMISSION

EXHIBIT # 11
PAGE 3 OF 5

12. The perimeter of the work site shall be adequately flagged to prevent damage to adjacent riparian habitat.

13. An annual letter shall be submitted to the Department by October 31 of each year for 5 years after beginning the berm project and the Arundo eradication. This letter shall reference this Agreement number, document the removal of the berm, and include an overview of the status/success of the eradication effort.

14. Staging/storage areas for equipment and materials shall be located outside of the stream/lake.

15. Spoil sites shall not be located within a stream, where spoil shall be washed back into a stream, or where it will cover aquatic or riparian vegetation.

16. No debris, soil, silt, sand, bark, slash, sawdust, rubbish, cement or concrete or washings thereof, oil or petroleum products or other organic or earthen material from any construction, or associated activity of whatever nature shall be allowed to enter into or placed where it may be washed by rainfall or runoff into, waters of the State. When operations are completed, any excess materials or debris shall be removed from the work area. No rubbish shall be deposited within 150 feet of the high water mark of any stream.

17. The Operator shall comply with all litter and pollution laws. All contractors, subcontractors and employees shall also obey these laws and it shall be the responsibility of the operator to ensure compliance.

18. No equipment maintenance shall be done within or near any stream channel or lake margin where petroleum products or other pollutants from the equipment may enter these areas under any flow.

19. The Operator shall provide a copy of this Agreement to all contractors, subcontractors, and the Operator's project supervisors. Copies of the Agreement shall be readily available at work sites at all times during periods of active work and must be presented to any Department personnel, or personnel from another agency upon demand.

20. The Department reserves the right to enter the project site at any time to ensure compliance with terms/conditions of this Agreement.

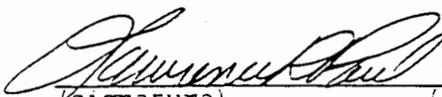
21. The Department reserves the right to suspend and/or revoke this Agreement if the Department determines that the circumstances warrant. The circumstances that could require a reevaluation include, but are not limited to, the following:

- a. Failure to comply with the terms/conditions of this Agreement.
- b. The information provided by the Operator in support of the Notification is determined by the Department to be incomplete, or inaccurate.
- c. When new information becomes available to the Department representative(s) that was not known when preparing the original terms/conditions of this Agreement.
- d. The project as described in the Notification/Agreement has changed, or conditions affecting fish and wildlife resources change.

CONCURRENCE

(Operator's name)

California Dept. of Fish and Game

 4-25-96
 (signature) (date)

(signature) (date)

MANAGER COASTAL FACILITIES
(title)

Environmental Specialist
(title)

COASTAL COMMISSION

12. The perimeter of the work site shall be adequately flagged to prevent damage to adjacent riparian habitat.

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15. Spoil sites shall not be located within a stream, where spoil shall be washed back into a stream, or where it will cover aquatic or riparian vegetation.

16. No debris, soil, silt, sand, bark, slash, sawdust, rubbish, cement or concrete or washings thereof, oil or petroleum products or other organic or earthen material from any construction, or associated activity of whatever nature shall be allowed to enter into or placed where it may be washed by rainfall or runoff into waters of the State. When operations are completed, any excess materials or debris shall be removed from the work area. No rubbish shall be deposited within 150 feet of the high water mark of any stream.

17. The operator shall comply with all litter and pollution laws. All contractors, subcontractors and employees shall also obey these laws and it shall be the responsibility of the operator to ensure compliance.

18. No equipment maintenance shall be done within or near any stream channel or lake margin where petroleum products or other pollutants from the equipment may enter these areas under any flow.

19. The Operator shall provide a copy of this Agreement to all contractors, subcontractors, and the Operator's project supervisors. Copies of the Agreement shall be readily available at work sites at all times during periods of active work and must be presented to any Department personnel, or personnel from another agency upon demand.

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- a. Failure to comply with the terms/conditions of this Agreement.
- b. The information provided by the Operator in support of the Notification is determined by the Department to be incomplete, or inaccurate.
- c. When new information becomes available to the Department representative(s) that was not known when preparing the original terms/conditions of this Agreement.
- d. The project as described in the Notification/Agreement has changed, or conditions affecting fish and wildlife resources change.

CONCURRENCE
(Operator's name)

California Dept. of Fish and Game

Lawrence P. Hill 4-26-96
(signature) (date)

Teri Dickerson 5/9/96
(signature) (date)

COASTAL COMMISSION

MANAGER COASTAL FACILITIES
(title)

Environmental Specialist III
(title)

EXHIBIT # 11
PAGE 5 OF 5



COUNTY OF ORANGE
HEALTH CARE AGENCY

REGULATORY HEALTH SERVICES
ENVIRONMENTAL HEALTH

JULIETTE A. POULSON, RN, MN
DIRECTOR

MIKE SPURGEON
DEPUTY AGENCY DIRECTOR
REGULATORY HEALTH SERVICES

STEVEN K. WONG
INTERIM DIRECTOR
ENVIRONMENTAL HEALTH

MAILING ADDRESS:
2009 EAST EDINGER AVENUE
SANTA ANA, CA 92705-4720

TELEPHONE: (714) 667-3600
FAX: (714) 972-0749

E-MAIL: environhealth@hca.co.orange.ca.us

MAR 23 2001

COASTAL COMMISSION

March 21, 2001

Karl Schwing
California Coastal Commission
South Coast Area Office
200 Oceangate, 10th Floor
Long Beach, CA 90802-4302

RE: Permit No. 5-97-316, Aliso Creek Diversion Project

Dear Mr. Schwing:

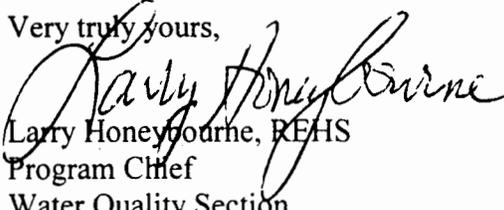
Pursuant to Special Condition No. 3 for the Aliso Creek Diversion Project, the Orange County Health Care Agency/Environmental Health Division has reviewed the Aliso Beach surf zone water quality monitoring data for the time frame when the diversion project was operational and not operational. The monitoring data reviewed represents Aliso Beach bacterial water quality samples taken for the indicated dry weather periods in 1999 and 2000 (see attached).

Although enterococcus, total and fecal coliform bacterial levels remain elevated in Aliso Creek, the actual number of Ocean Water Contact Sports Single Sample Standards violations (for the three indicators combined) and subsequent posting of warning signs at selected surf zone monitoring locations along Aliso Beach were **fewer** during the times the diversion was operational during 1999 and 2000.

Since the levels of indicator bacteria in Aliso Creek are typically three to five orders of magnitude lower than the treated undisinfected effluent discharged from the Aliso Water Management Agency outfall, this Agency would not anticipate any significant or incrementally measurable microbial impacts to the ocean receiving waters near the outfall diffuser when the diversion is operational.

If you have any further questions, please feel free to call me at (714) 667-3750.

Very truly yours,


Larry Honeybourne, REHS
Program Chief
Water Quality Section
Environmental Health Division

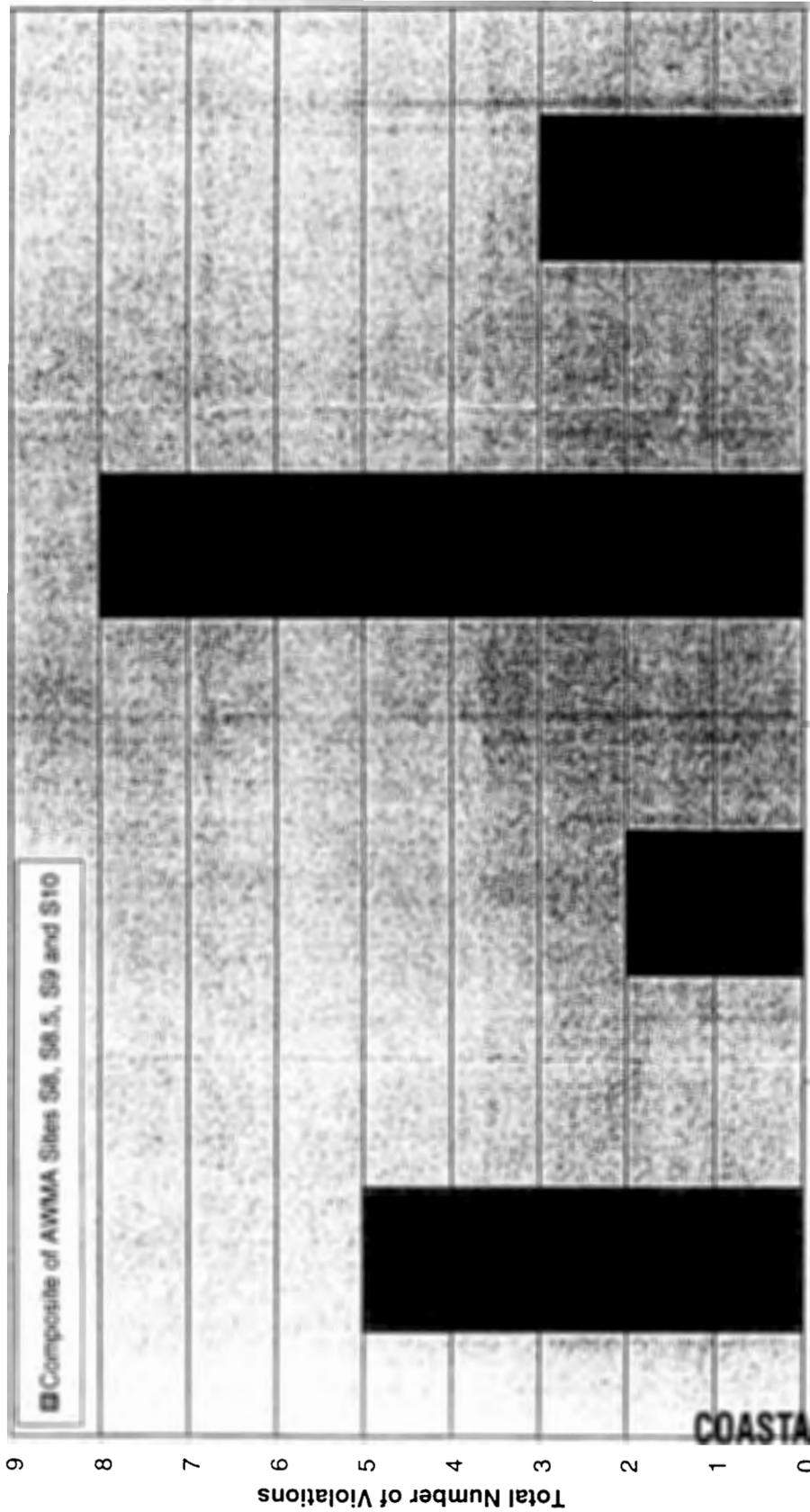
COASTAL COMMISSION

EXHIBIT # 12
PAGE 1 OF 2

Cc: Vicki Wilson, County of Orange, Public Facilities & Resources Department
Larry Paul, County of Orange, County Executive Office
Michael Wellborn, County of Orange, Planning and Development Services Department
David Caretto, Aliso Water Management Agency
Ken Frank, City of Laguna Beach

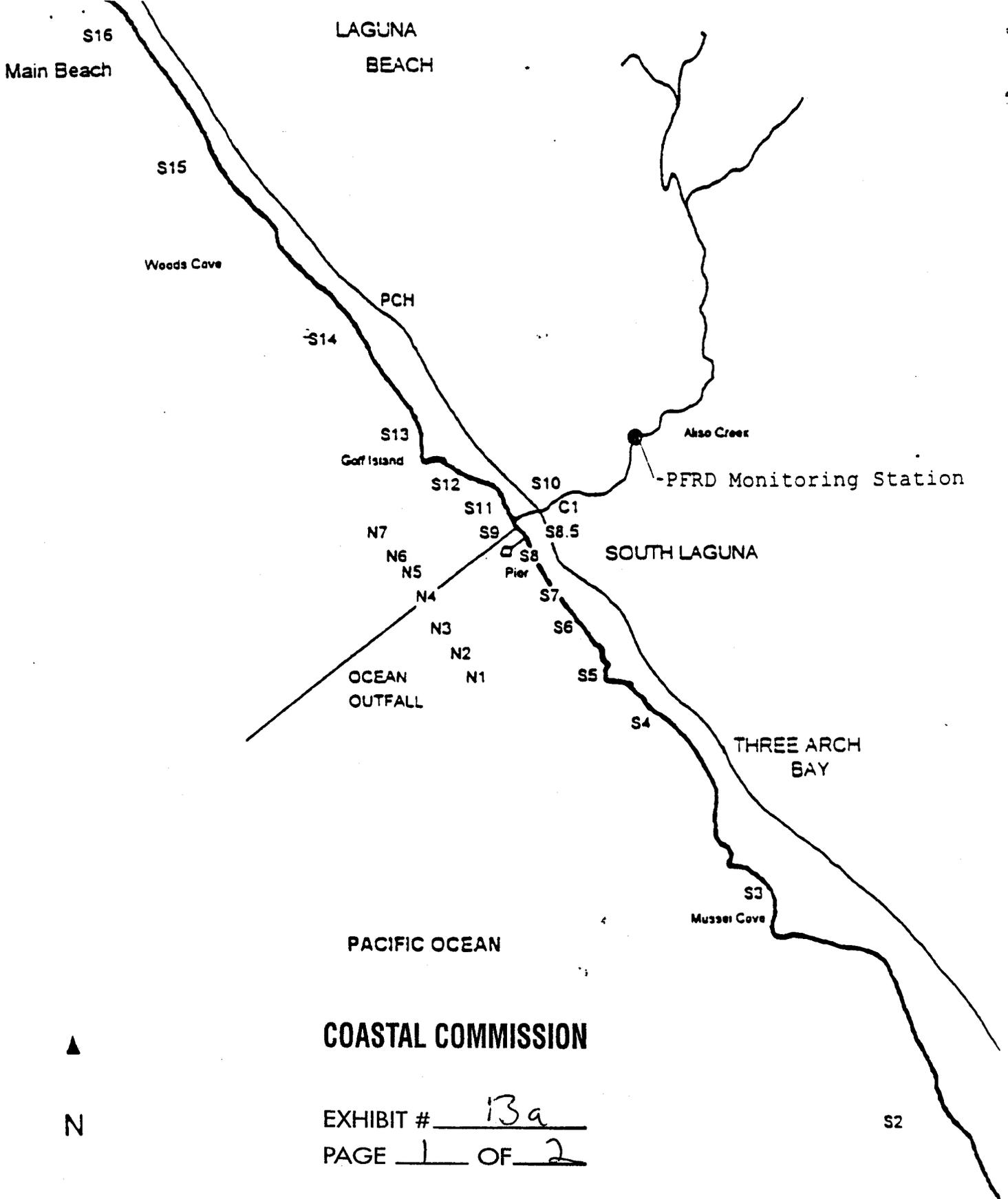
Attachment

**COUNTY OF ORANGE - HCA/ENVIRONMENTAL HEALTH
 ALISO CREEK DIVERSION ANALYSIS - ALISO BEACH RECEIVING WATERS
 COMPARISON OF AB411 SINGLE SAMPLE STANDARDS VIOLATIONS FOR 1999 & 2000**



1999 Not Diverted (N=128) 1999 Diverted (N=24) 2000 Not Diverted (N=78) 2000 Diverted (N=60)
 Samples taken from 6/15/99 - 10/15/99 Samples taken from 6/15/00 - 10/15/00

COASTAL COMMISSION



AWMA RECEIVING WATER
 MONITORING STATIONS

Figure 1

AWMA Shoreline Stations

AWMA's NPDES discharge permit requires surfzone samples be collected at these stations and tested for total and fecal coliform and enterococcus. The test results are located on the following pages.

| Station | Location |
|---------|---|
| S1* | 20,000' south of outfall - south Dana Strands at bottom of Selva ramp |
| S2* | 15,000' south of outfall - Salt Creek beach; north of beach access road |
| S3 | 10,000' south of outfall - Three Arch Bay; straight down street at end, then left; access across from #5 house. |
| S4 | 5,000' so. of outfall-1000 steps beach, across from 9th St.; so. end |
| S5 | 4,000' south of outfall - Laguna Lido Apt; take elevator at end of hall, push "B" (use floor "1" in winter when "B" boarded up) |
| S6 | 3,000' south of outfall - Table Rock, across from West St.; park on PCH; sample at south end |
| S7 | 2,000' south of outfall - Access from S6; sample at south end of apartment complex on beach |
| S8 | 1,000' so. of outfall-Aliso Beach; sample 100' no. of camel point |
| S8.5 | Voluntary - sample just north of where pier used to be. |
| S9 | Surf at outfall; down from 4th palm tree -row-nearest to beach- left from creek. |
| C1 | Voluntary - In Aliso Creek above surfzone influence |
| S10 | 1,000' no. of outfall- Treasure Isl. down from rock stairs about 100' south of gray pillar house |
| S11 | 2,000' no. of outfall-Treasure Isl. straight down from south ramp |
| S12 | 3,000' no. of outfall - Treasure Isl., sample right of old pier |
| S13 | 4,000' no.- Blue Lagoon, no. end of condos; access from Dumond |
| S14* | 5,000' no. of outfall-Dumond Street; just north of alley |
| S15* | 10,000' no. of outfall - Bluebird Canyon; at alley south of Surf & Sand |
| S16 | 15,000' north of outfall - Laguna Ave.; park at cul-de-sac near Main Beach, sample in front of Hotel Laguna |

*Sampling location changed 9/1/99

COASTAL COMMISSION

EXHIBIT # 139
PAGE 2 OF 2

AWMA

7/1/1999 TO 10/31/2000

| Date | AlisoCrk Q MGD | AlisoCrTSS mg/L | AlisoCcBOD mg/L | AlisoCr pH | AWMAC1 TC CFU/100M | AWMAC1 FC CFU/100M |
|------------|-------------------|--------------------|--------------------|------------|-----------------------|-----------------------|
| 7/5/1999 | | | | | 3,700 | 260 |
| 7/6/1999 | | | | | 3,600 | 50 |
| 7/7/1999 | | | | | 2,900 | 610 |
| 7/12/1999 | | | | | 900 | 270 |
| 7/13/1999 | | | | | 300 | 170 |
| 7/14/1999 | | | | | 800 | 550 |
| 7/19/1999 | | | | | 1,300 | 120 |
| 7/20/1999 | | | | | | 100 |
| 7/21/1999 | | | | | 1,300 | 110 |
| 7/26/1999 | | | | | 520 | 270 |
| 7/27/1999 | | | | | 2,200 | 200 |
| 7/28/1999 | | | | | 3,800 | 1,300 |
| 8/2/1999 | | | | | 1,400 | 140 |
| 8/3/1999 | | | | | 1,500 | 10 |
| 8/4/1999 | | | | | 3,000 | 230 |
| 8/9/1999 | | | | | 2,000 | 220 |
| 8/10/1999 | | | | | 1,200 | 10 |
| 8/11/1999 | | | | | 1,400 | 180 |
| 8/16/1999 | | | | | 910 | 200 |
| 8/17/1999 | | | | | 1,100 | 200 |
| 8/18/1999 | | | | | 1,500 | 73 |
| 8/23/1999 | | | | | 960 | 410 |
| 8/24/1999 | | | | | 1,700 | 300 |
| 8/25/1999 | | | | | 2,700 | 260 |
| 8/30/1999 | | | | | 2,100 | 2,400 |
| 8/31/1999 | | | | | 2,500 | 1,000 |
| 9/1/1999 | | | | | 1,100 | 110 |
| 9/7/1999 | | | | | 4,100 | 120 |
| 9/8/1999 | | | | | 2,800 | 370 |
| 9/13/1999 | | | | | 3,800 | 340 |
| 9/14/1999 | | | | | 3,100 | 800 |
| 9/15/1999 | | | | | 2,500 | 190 |
| 9/20/1999 | | | | | 2,100 | 330 |
| 9/21/1999 | | | | | 2,200 | 101 |
| 9/22/1999 | | | | | 5,300 | 470 |
| 9/23/1999 | 2.02 | 3.1 | 2.800 | 8.0 | | |
| 9/24/1999 | 3.36 | | | 8.0 | | |
| 9/25/1999 | 3.36 | | | | | |
| 9/26/1999 | 3.00 | 11.6 | 3.500 | 8.0 | | |
| 9/27/1999 | 0.00 | | | | 8,100 | 4,400 |
| 9/28/1999 | 0.00 | | | | 920 | 230 |
| 9/29/1999 | 0.00 | | | | 2,300 | 300 |
| 9/30/1999 | 1.82 | 8.0 | < 1 | 8.1 | | |
| 10/1/1999 | 3.36 | | | 8.0 | | |
| 10/2/1999 | 3.36 | | | | | |
| 10/3/1999 | 3.36 | 1.5 | < 1 | | | |
| 10/4/1999 | 3.36 | 2.4 | < 1 | 8.1 | 250 | 50 |
| 10/5/1999 | 3.36 | 4.1 | 1.400 | 8.0 | 1,800 | 80 |
| 10/6/1999 | 3.36 | 1.4 | 1.400 | 8.0 | 3,000 | 2,500 |
| 10/7/1999 | 3.36 | 1.8 | 4.700 | 8.0 | | |
| 10/8/1999 | 3.36 | | | 8.0 | | |
| 10/9/1999 | 3.36 | | | | | |
| 10/10/1999 | 3.36 | 2.4 | 1.400 | | | |
| 10/11/1999 | 3.36 | 4.0 | 1.700 | 8.0 | | |
| 10/12/1999 | 3.36 | 2.6 | 1.100 | 8.0 | 1,300 | |
| 10/13/1999 | 3.36 | 2.6 | 2.200 | 8.1 | | |
| 10/14/1999 | 1.54 | | | 8.0 | | |

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COASTAL COMMISSION

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 EXHIBIT # 136
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AWMA

7/1/1999 TO 10/31/2000

| Date | AlisoCrk Q MGD | AlisoCrTSS mg/L | AlisoCcBOD mg/L | AlisoCr pH | AWMAC1 TC CFU/100M | AWMAC1 FC CFU/100M |
|------------|-------------------|--------------------|--------------------|------------|-----------------------|-----------------------|
| 10/18/1999 | | | | | 670 | 130 |
| 10/19/1999 | | | | | 1,100 | 200 |
| 10/25/1999 | | | | | 580 | 390 |
| 10/26/1999 | | | | | 1,200 | 100 |
| 10/27/1999 | | | | | 2,400 | 220 |
| 11/1/1999 | | | | | 2,400 | 390 |
| 11/2/1999 | | | | | 1,300 | 200 |
| 11/8/1999 | | | | | 970 | 590 |
| 11/9/1999 | | | | | 20,001 | 20,001 |
| 11/10/1999 | | | | | 16,000 | 1,100 |
| 11/15/1999 | | | | | 2,001 | 260 |
| 11/16/1999 | | | | | | 100 |
| 11/17/1999 | | | | | 4,900 | 400 |
| 11/22/1999 | | | | | 900 | 150 |
| 11/23/1999 | | | | | 800 | 240 |
| 11/29/1999 | | | | | 3,300 | 30 |
| 11/30/1999 | | | | | 3,600 | 200 |
| 12/1/1999 | | | | | 2,500 | 260 |
| 12/7/1999 | | | | | 1,800 | 120 |
| 12/9/1999 | | | | | 1,100 | 91 |
| 12/13/1999 | | | | | 500 | 220 |
| 12/14/1999 | | | | | 920 | 73 |
| 12/15/1999 | | | | | 1,700 | 100 |
| 12/20/1999 | | | | | 980 | 210 |
| 12/21/1999 | | | | | 72 | 20 |
| 12/22/1999 | | | | | 800 | 99 |
| 12/27/1999 | | | | | 900 | 140 |
| 12/28/1999 | | | | | 2,100 | 130 |
| 12/29/1999 | | | | | 1,400 | 99 |
| 1/3/2000 | | | | | 18,000 | 800 |
| 1/4/2000 | | | | | 13,000 | 410 |
| 1/5/2000 | | | | | 2,800 | 10 |
| 1/10/2000 | | | | | 1,100 | 18 |
| 1/11/2000 | | | | | 800 | 100 |
| 1/13/2000 | | | | | 300 | 100 |
| 1/18/2000 | | | | | 1,000 | 50 |
| 1/19/2000 | | | | | 550 | 82 |
| 1/24/2000 | | | | | 1,400 | 50 |
| 1/26/2000 | | | | | 20,001 | |
| 1/31/2000 | | | | | 200,000 | 4,800 |
| 2/2/2000 | | | | | 3,500 | 200 |
| 2/7/2000 | | | | | 3,500 | 260 |
| 2/8/2000 | | | | | 3,100 | 100 |
| 2/9/2000 | | | | | 2,500 | 70 |
| 2/14/2000 | | | | | 18,000 | 1,200 |
| 2/15/2000 | | | | | 23,000 | 640 |
| 2/17/2000 | | | | | 23,000 | 2,800 |
| 2/22/2000 | | | | | 42,000 | 6,400 |
| 2/23/2000 | | | | | 41,000 | 4,600 |
| 2/28/2000 | | | | | 5,001 | 4,900 |
| 2/29/2000 | | | | | 9,900 | 600 |
| 3/1/2000 | | | | | 9,999 | 3,300 |
| 3/6/2000 | | | | | 20,000 | 4,900 |
| 3/7/2000 | | | | | 6,800 | 200 |
| 3/13/2000 | | | | | 3,500 | 450 |
| 3/14/2000 | | | | | 1,000 | 170 |
| 3/15/2000 | | | | | 1,200 | 100 |

COASTAL COMMISSION

EXHIBIT # 13b

PAGE 2 OF 5

AWMA

7/1/1999 TO 10/31/2000

| Date | AlisoCrk Q MGD | AlisoCrTSS mg/L | AlisoCcBOD mg/L | AlisoCr pH | AWMAC1 TC CFU/100M | AWMAC1 FC CFU/100M |
|-----------|-------------------|--------------------|--------------------|------------|-----------------------|-----------------------|
| 3/20/2000 | | | | | 750 | 340 |
| 3/21/2000 | | | | | 5,400 | 520 |
| 3/22/2000 | | | | | 190 | 60 |
| 3/27/2000 | | | | | 540 | 30 |
| 3/29/2000 | | | | | 630 | 120 |
| 4/3/2000 | | | | | 1,500 | 72 |
| 4/4/2000 | | | | | 5,900 | 480 |
| 4/5/2000 | | | | | 160 | 50 |
| 4/10/2000 | | | | | 3,000 | 720 |
| 4/11/2000 | | | | | 1,100 | 320 |
| 4/12/2000 | | | | | 900 | 100 |
| 4/17/2000 | | | | | 9,600 | 530 |
| 4/18/2000 | | | | | 130,000 | 5,800 |
| 4/19/2000 | | | | | 12,000 | 5,200 |
| 4/24/2000 | | | | | 3,200 | 220 |
| 4/25/2000 | | | | | 160 | 50 |
| 4/26/2000 | | | | | 2,600 | 290 |
| 5/1/2000 | | | | | 2,900 | 370 |
| 5/2/2000 | | | | | 2,300 | 620 |
| 5/3/2000 | | | | | 600 | 100 |
| 5/8/2000 | | | | | 2,000 | 770 |
| 5/9/2000 | | | | | 1,500 | 50 |
| 5/10/2000 | | | | | 2,600 | 280 |
| 5/15/2000 | | | | | 510 | 100 |
| 5/16/2000 | | | | | 170 | 50 |
| 5/17/2000 | | | | | 2,000 | 280 |
| 5/22/2000 | | | | | 2,100 | 170 |
| 5/23/2000 | | | | | 370 | 150 |
| 5/24/2000 | | | | | 1,100 | 130 |
| 5/30/2000 | | | | | 6,000 | 2,200 |
| 5/31/2000 | | | | | 1,600 | 620 |
| 6/5/2000 | | | | | 1,700 | 300 |
| 6/6/2000 | | | | | 3,100 | 60 |
| 6/8/2000 | | | | | 2,100 | 600 |
| 6/12/2000 | | | | | 1,100 | 80 |
| 6/13/2000 | | | | | 3,300 | 500 |
| 6/14/2000 | | | | | 2,200 | 370 |
| 6/19/2000 | | | | | 1,300 | 590 |
| 6/21/2000 | | | | | 2,600 | 160 |
| 6/26/2000 | | | | | 2,200 | 250 |
| 6/27/2000 | | | | | 1,300 | 330 |
| 7/3/2000 | | | | | 370 | 130 |
| 7/4/2000 | | | | | 800 | 180 |
| 7/5/2000 | | | | | 1,000 | 70 |
| 7/10/2000 | | | | | 1,200 | 760 |
| 7/12/2000 | | | | | 1,400 | 230 |
| 7/17/2000 | | | | | 1,700 | 54 |
| 7/18/2000 | | | | | 2,200 | 54 |
| 7/20/2000 | | | | | 3,200 | 100 |
| 7/21/2000 | 1.51 | | | | | |
| 7/22/2000 | 4.68 | | | | | |
| 7/23/2000 | 4.68 | 5.5 | 1.700 | | | |
| 7/24/2000 | 2.42 | 1.1 | 4.600 | 8.2 | | |
| 7/25/2000 | 4.58 | 2.5 | 4.000 | 7.9 | 3,000 | |
| 7/26/2000 | 4.88 | 2.1 | 3.400 | 7.9 | | |
| 7/27/2000 | 4.57 | 4.2 | 3.400 | 7.9 | | |
| 7/28/2000 | 3.82 | 3.1 | 3.400 | 7.9 | | |

COASTAL COMMISSION

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EXHIBIT # 13h

PAGE 3 OF 5

Aliso Creek Data
AWMA
7/1/1999 TO 10/31/2000

| Date | AlisoCrk Q MGD | AlisoCrTSS mg/L | AlisoCcBOD mg/L | AlisoCr pH | AWMAC1 TC CFU/100M | AWMAC1 FC CFU/100M |
|-----------|-------------------|--------------------|--------------------|------------|-----------------------|-----------------------|
| 8/1/2000 | 0.00 | | | | 150 | 230 |
| 8/2/2000 | 0.00 | | | | 6,700 | 1,100 |
| 8/3/2000 | 0.00 | | | | | |
| 8/4/2000 | 2.72 | | | | | |
| 8/5/2000 | 4.53 | | | | | |
| 8/6/2000 | 4.59 | 5.7 | 2.600 | 7.9 | 1,800 | 20 |
| 8/7/2000 | 4.46 | 2.5 | 2.510 | 7.9 | | |
| 8/8/2000 | 4.34 | 1.9 | 2.210 | 7.9 | | |
| 8/9/2000 | 4.58 | 0.8 | 1.510 | 7.9 | | |
| 8/10/2000 | 4.57 | 2.9 | 2.800 | 8.0 | | |
| 8/11/2000 | 4.72 | 1.7 | | 8.0 | | |
| 8/12/2000 | 4.86 | 1.4 | | 8.0 | | |
| 8/13/2000 | 4.82 | 2.7 | 2.210 | 8.1 | | |
| 8/14/2000 | 5.01 | 2.7 | 1.700 | 8.1 | 2,600 | 40 |
| 8/15/2000 | 4.99 | 1.4 | 2.710 | 8.0 | | |
| 8/16/2000 | 5.05 | 3.1 | 2.810 | 7.9 | | |
| 8/17/2000 | 4.96 | 4.5 | 2.810 | 8.0 | | |
| 8/18/2000 | 4.76 | | | 7.9 | | |
| 8/19/2000 | 4.69 | | | | | |
| 8/20/2000 | 4.77 | 1.5 | 2.200 | | | |
| 8/21/2000 | 4.75 | 5.2 | 2.610 | 8.1 | 440 | 10 |
| 8/22/2000 | 4.84 | 1.6 | 1.300 | 8.1 | | |
| 8/23/2000 | 4.71 | 1.3 | 1.900 | 7.9 | | |
| 8/24/2000 | 4.58 | 1.4 | 2.210 | 8.0 | | |
| 8/25/2000 | 4.58 | | | 8.0 | | |
| 8/26/2000 | 4.58 | | | | | |
| 8/27/2000 | 4.58 | 4.0 | 2.300 | | | |
| 8/28/2000 | 1.24 | 4.0 | 2.300 | 8.0 | 4,100 | 360 |
| 8/29/2000 | 0.00 | | | | 290 | 340 |
| 8/30/2000 | 1.72 | 7.6 | 2.410 | 8.6 | 800 | 500 |
| 8/31/2000 | 4.58 | 26.8 | 2.010 | 8.2 | | |
| 9/1/2000 | 4.58 | | | 8.0 | | |
| 9/2/2000 | 4.58 | | | | | |
| 9/3/2000 | 4.58 | 6.6 | 1.300 | | | |
| 9/4/2000 | 4.58 | 4.0 | 1.510 | 8.1 | | |
| 9/5/2000 | 4.56 | 9.6 | 2.310 | 8.0 | 2,200 | 60 |
| 9/6/2000 | 4.43 | 1.6 | 2.710 | 7.9 | | |
| 9/7/2000 | 1.39 | 2.9 | 1.110 | 7.9 | | |
| 9/8/2000 | 1.21 | | | 7.9 | | |
| 9/9/2000 | 4.71 | | | | | |
| 9/10/2000 | 4.57 | 2.9 | 2.100 | | | |
| 9/11/2000 | 4.67 | 2.8 | | 8.1 | 590 | 30 |
| 9/12/2000 | 4.85 | 3.3 | 2.700 | 8.0 | | |
| 9/13/2000 | 4.90 | 1.4 | 2.100 | 8.0 | | |
| 9/14/2000 | 4.78 | 1.5 | | 8.0 | | |
| 9/15/2000 | 4.74 | | | 8.0 | | |
| 9/16/2000 | 4.83 | | | | | |
| 9/17/2000 | 4.84 | 2.0 | | | | |
| 9/18/2000 | 4.65 | 3.4 | | 8.0 | 370 | 27 |
| 9/19/2000 | 4.70 | 3.3 | 1.010 | 7.9 | | |
| 9/20/2000 | 5.10 | 1.9 | 2.300 | 8.0 | | |
| 9/21/2000 | 5.07 | 2.4 | 1.200 | 8.0 | | |
| 9/22/2000 | 5.18 | | | 7.9 | | |
| 9/23/2000 | 0.62 | | | | | |
| 9/24/2000 | 0.00 | | | | | |
| 9/25/2000 | 0.00 | | | | 14,000 | 3,200 |
| 9/26/2000 | 1.28 | 7.0 | 1.800 | 8.0 | | |

COASTAL COMMISSION

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PAGE 4 OF 5

AWMA

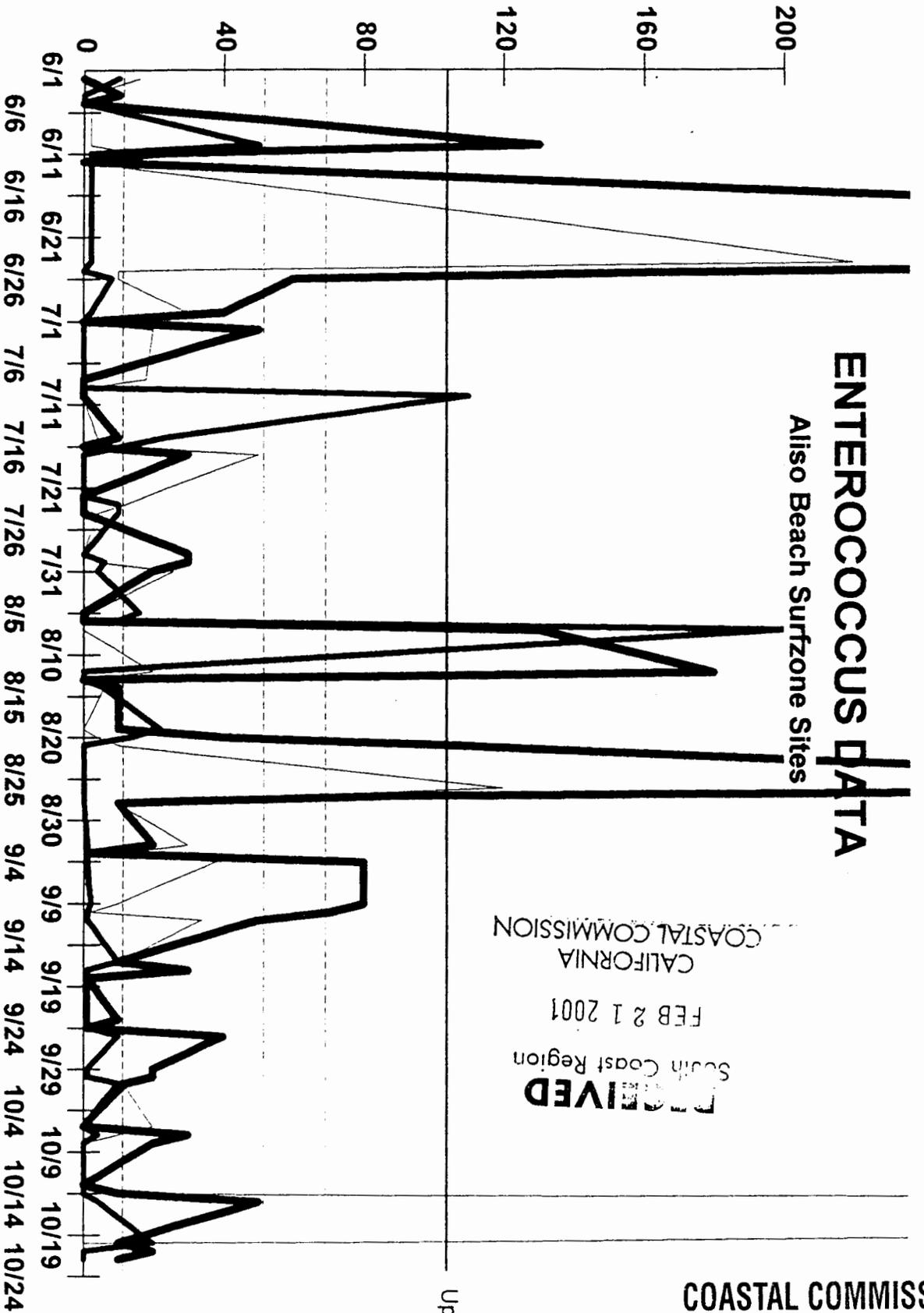
7/1/1999 TO 10/31/2000

| Date | AlisoCrk Q MGD | AlisoCrTSS mg/L | AlisoCcBOD mg/L | AlisoCr pH | AWMAC1 TC CFU/100M | AWMAC1 FC CFU/100M |
|------------|-------------------|--------------------|--------------------|------------|-----------------------|-----------------------|
| 9/27/2000 | 4.57 | 1.2 | 2.800 | 7.8 | | |
| 9/28/2000 | 5.09 | 2.5 | 2.400 | 8.0 | | |
| 9/29/2000 | 5.10 | | | 8.0 | | |
| 9/30/2000 | 4.87 | | | | | |
| 10/1/2000 | 4.83 | 1.7 | 1.300 | | | |
| 10/2/2000 | 4.81 | 1.7 | 1.010 | 7.9 | 2,500 | 400 |
| 10/3/2000 | 3.00 | 2.0 | 1.010 | 8.0 | | |
| 10/4/2000 | | | | | 3,100 | 630 |
| 10/5/2000 | | | | | 3,100 | 300 |
| 10/10/2000 | | | | | 2,400 | 260 |
| 10/11/2000 | | | | | 1,300 | 1,000 |
| 10/18/2000 | | | | | 2,200 | 190 |
| 10/19/2000 | | | | | 80 | 70 |
| 10/23/2000 | | | | | 990 | 170 |
| 10/25/2000 | | | | | 610 | 190 |
| 10/30/2000 | | | | | 61,000 | 30,000 |
| 10/31/2000 | | | | | 6,300 | 1,500 |
| Average | 3.62 | 3.6 | 2.120 | 8.0 | 5,880 | 877 |
| Total | 340.17 | 214.4 | 114.480 | 496.0 | 999,575 | 149,891 |
| Minimum | 0.00 | 0.8 | 0.000 | 7.8 | 72 | 1 |
| Maximum | 5.18 | 26.8 | 4.700 | 8.6 | 200,000 | 30,000 |

COASTAL COMMISSION

EXHIBIT # 13b
PAGE 5 OF 5

CFU/100M



Date (06/01/1997 to 10/23/1997)

AWMASURF S8 ENT
 AWMASURF S9 ENT
 AWMASURFS10 ENT

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 South Coast Region
 FEB 21 2001
 CALIFORNIA
 COASTAL COMMISSION

COASTAL COMMISSION

EXHIBIT # 13c
 PAGE 1 OF 9

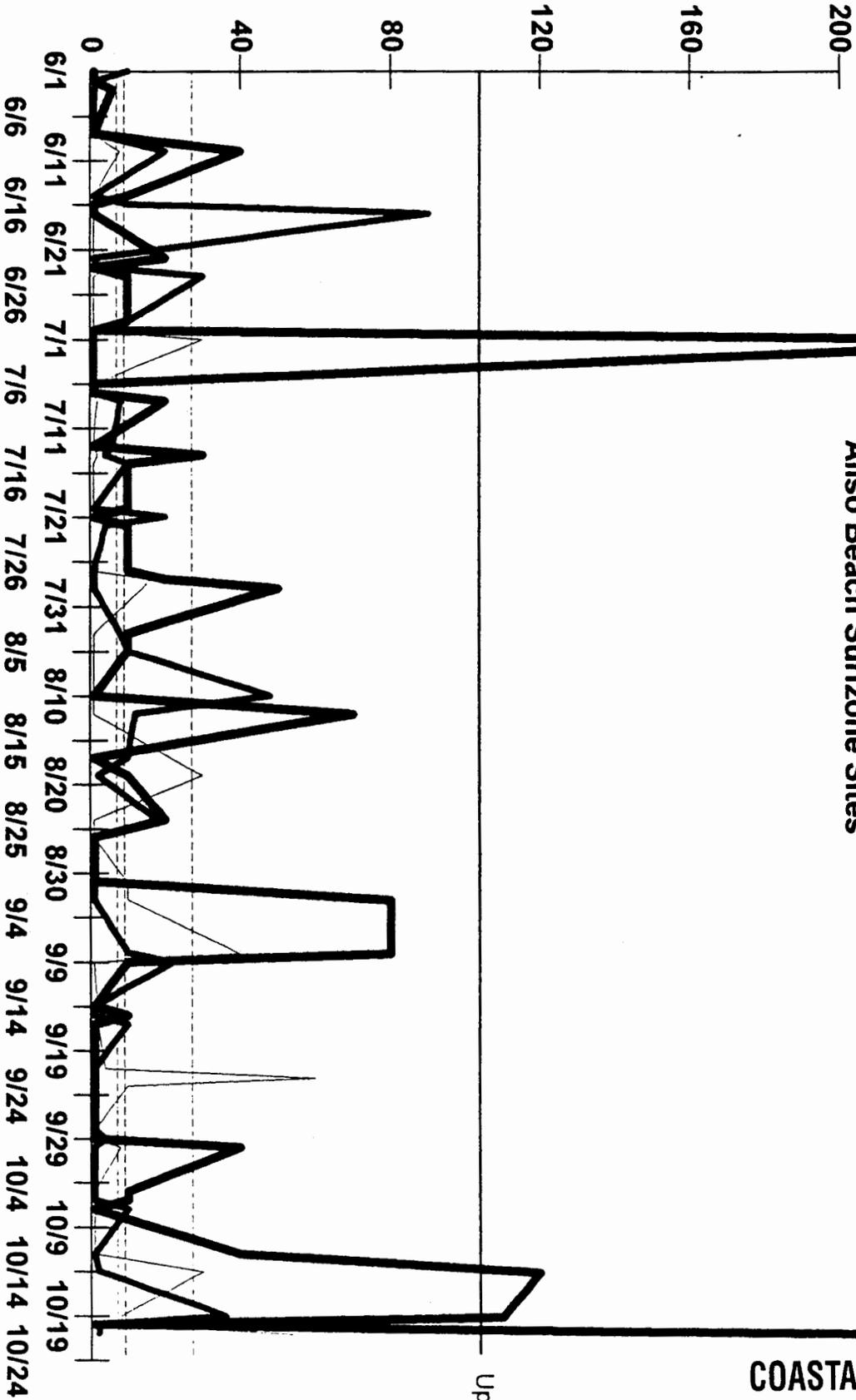
UprDyLimit

OPS WIN
 AWMMA

CFU/100M

ENTEROCOCCUS DATA

Aiiso Beach Surfzone Sites



Date (06/01/1998 to 10/23/1998)

AWMASURF S9 ENT
 AWMASURF S8 ENT
 AWMASURF S7 ENT
 AWMASURF S6 ENT
 AWMASURF S5 ENT
 AWMASURF S4 ENT
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 AWMASURF S2 ENT
 AWMASURF S1 ENT

COASTAL COMMISSION

EXHIBIT # 13c

PAGE 2 OF 9

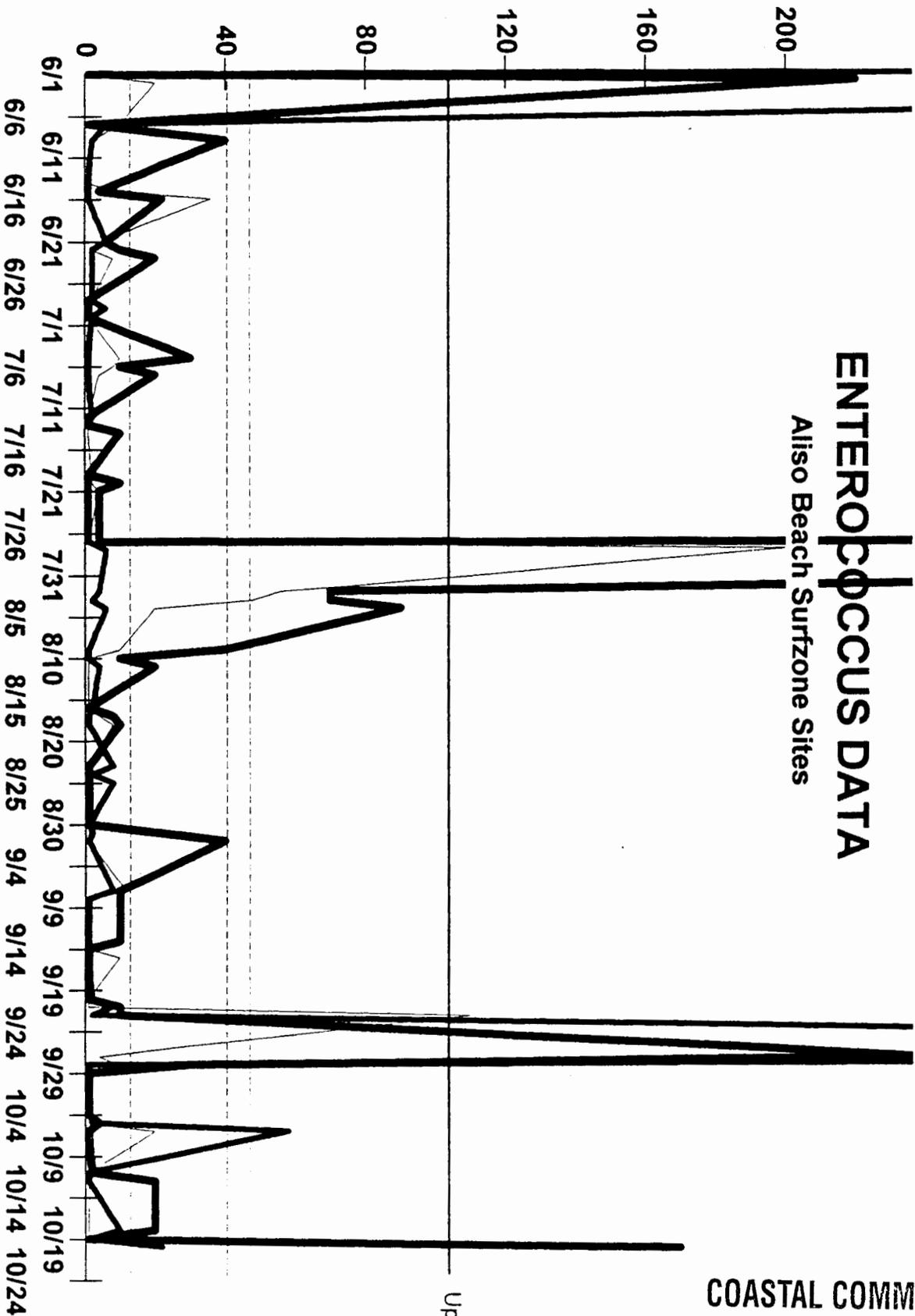
OPS WIN

AWMA

CFU/100M

ENTEROCOCCUS DATA

Aliso Beach Surfzone Sites



Date (06/01/1999 to 10/23/1999)

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 AWMASURF S9 ENT
 AWMASURFS10 ENT

OPSWIN
AWMA

COASTAL COMMISSION

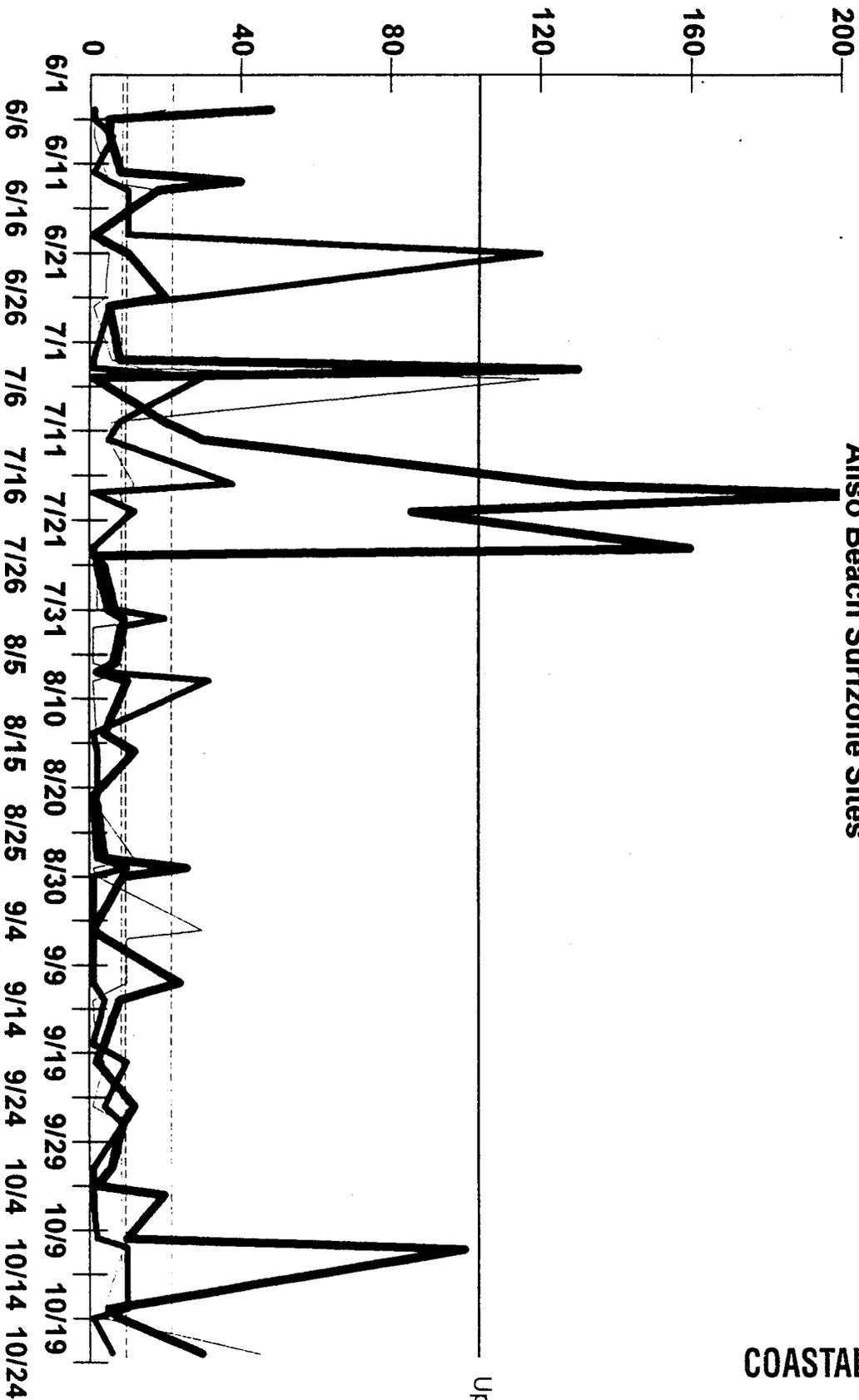
EXHIBIT # 13c
PAGE 3 OF 9

UprDyLimit

CFU/100M

ENTEROCOCCUS DATA

Aliso Beach Surfzone Sites



Date (06/01/2000 to 10/23/2000)

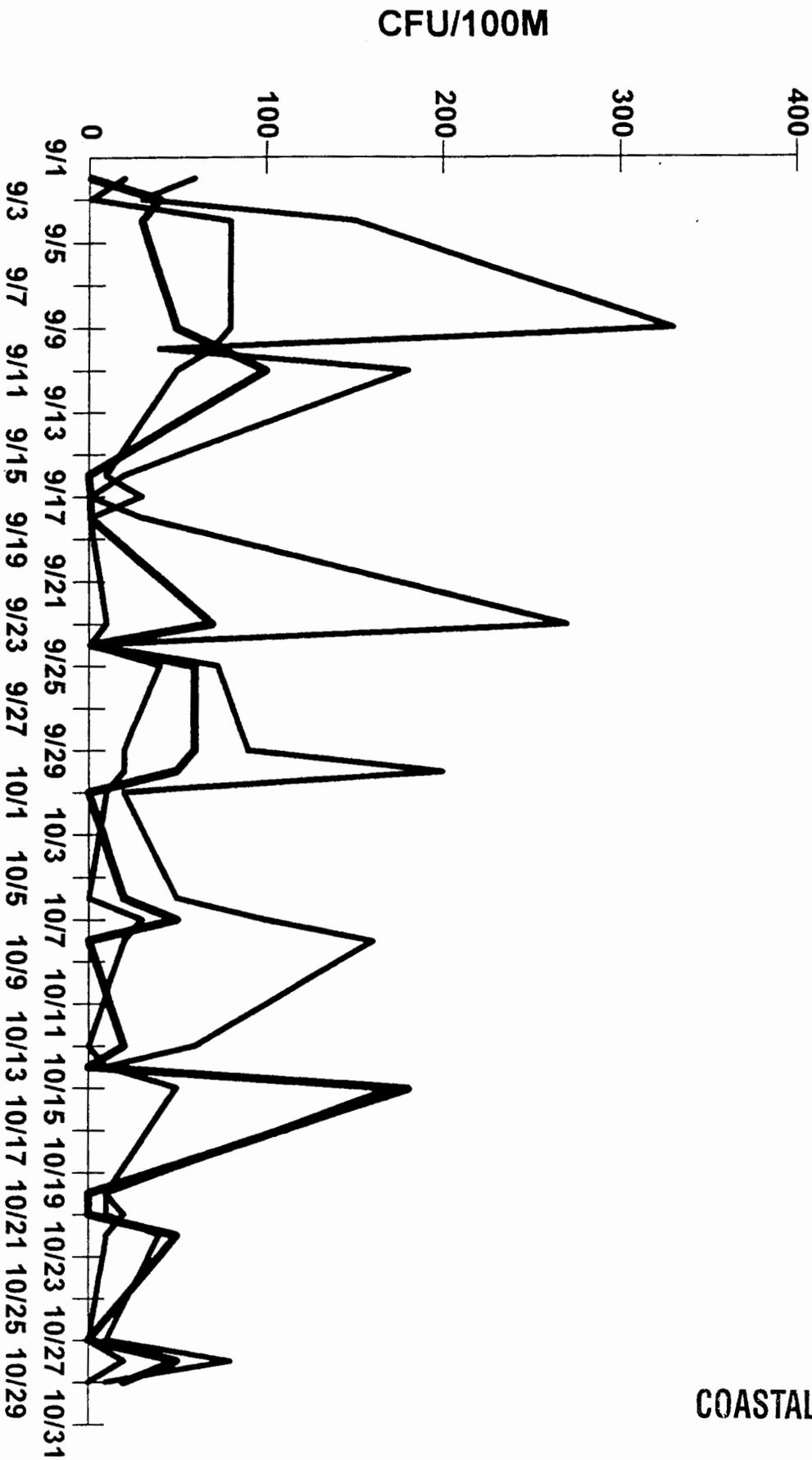
AWMASURF S8 ENT
 AWMASURF S9 ENT
 AWMASURF S10 ENT

COASTAL COMMISSION

EXHIBIT # 13c
PAGE 4 OF 9

OPS WIN
AWMA

S9 Bact's



Date (09/01/1997 to 10/31/1997)

AWMASURF / AWMASURF / AWMASURF
 S9 TC S9 FC S9 ENT

COASTAL COMMISSION

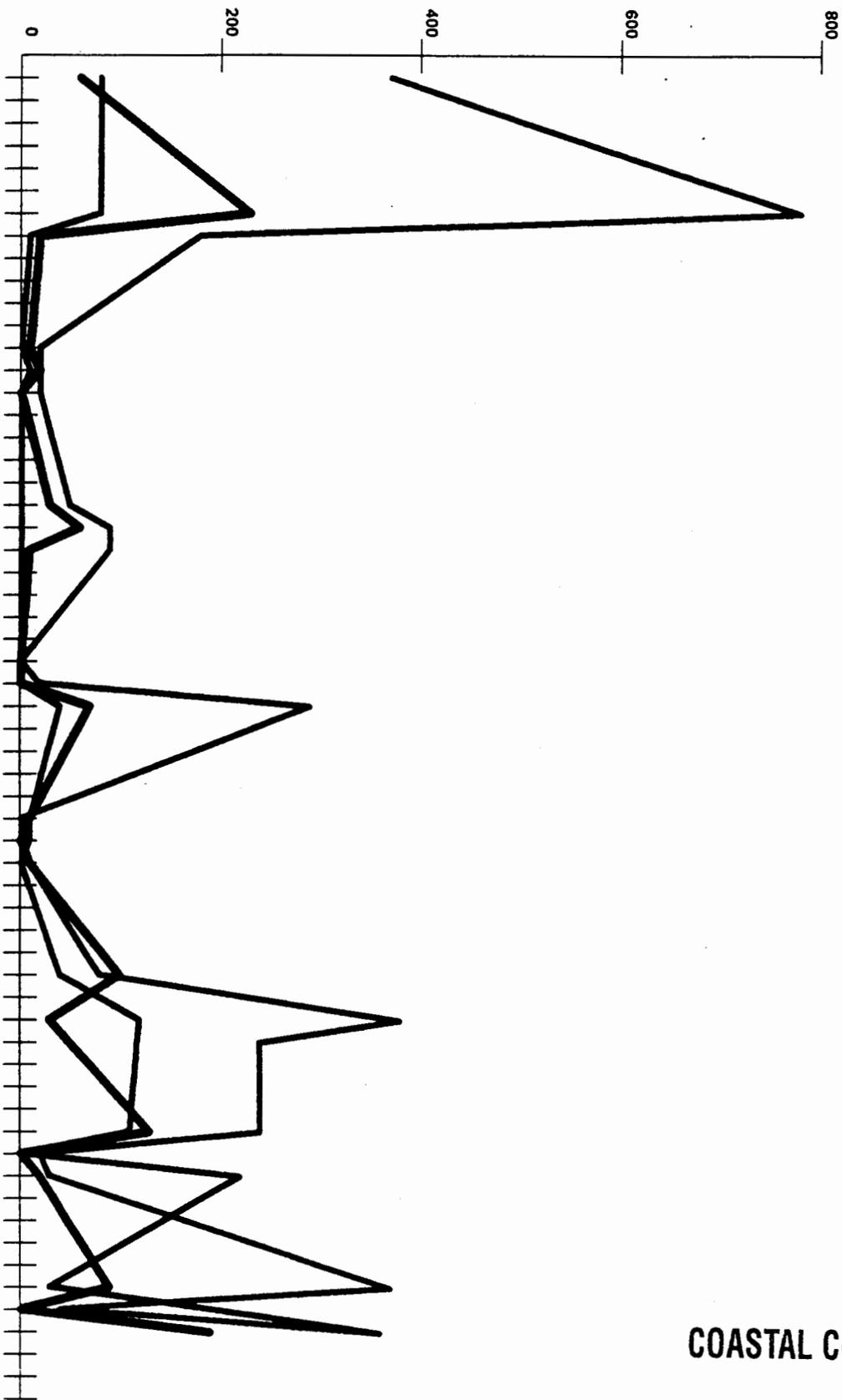
EXHIBIT # 13c
PAGE 5 OF 9

0 Diversions - No Violations

OPS WIN
AWMA

CFU/100M

S9 Bact's



10 DIVERSION

AWMMASURF / S9 TC
 AWMMASURF / S9 FC
 AWMMASURF / S9 ENT

Date (09/01/1998 to 10/31/1998)

COASTAL COMMISSION

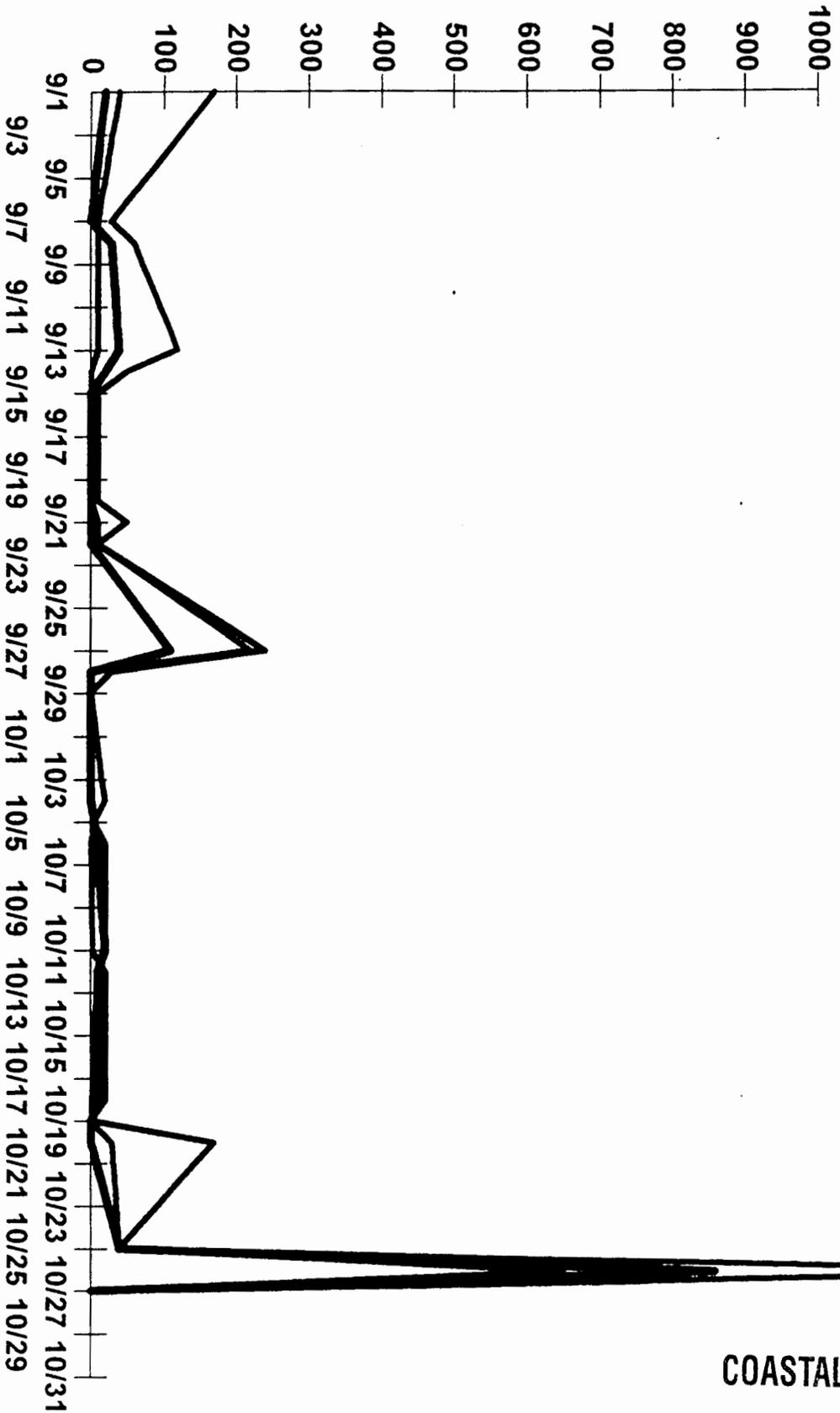
EXHIBIT # 13c
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OPS WIN

AWMA

CFU/100M

S9 Bact's



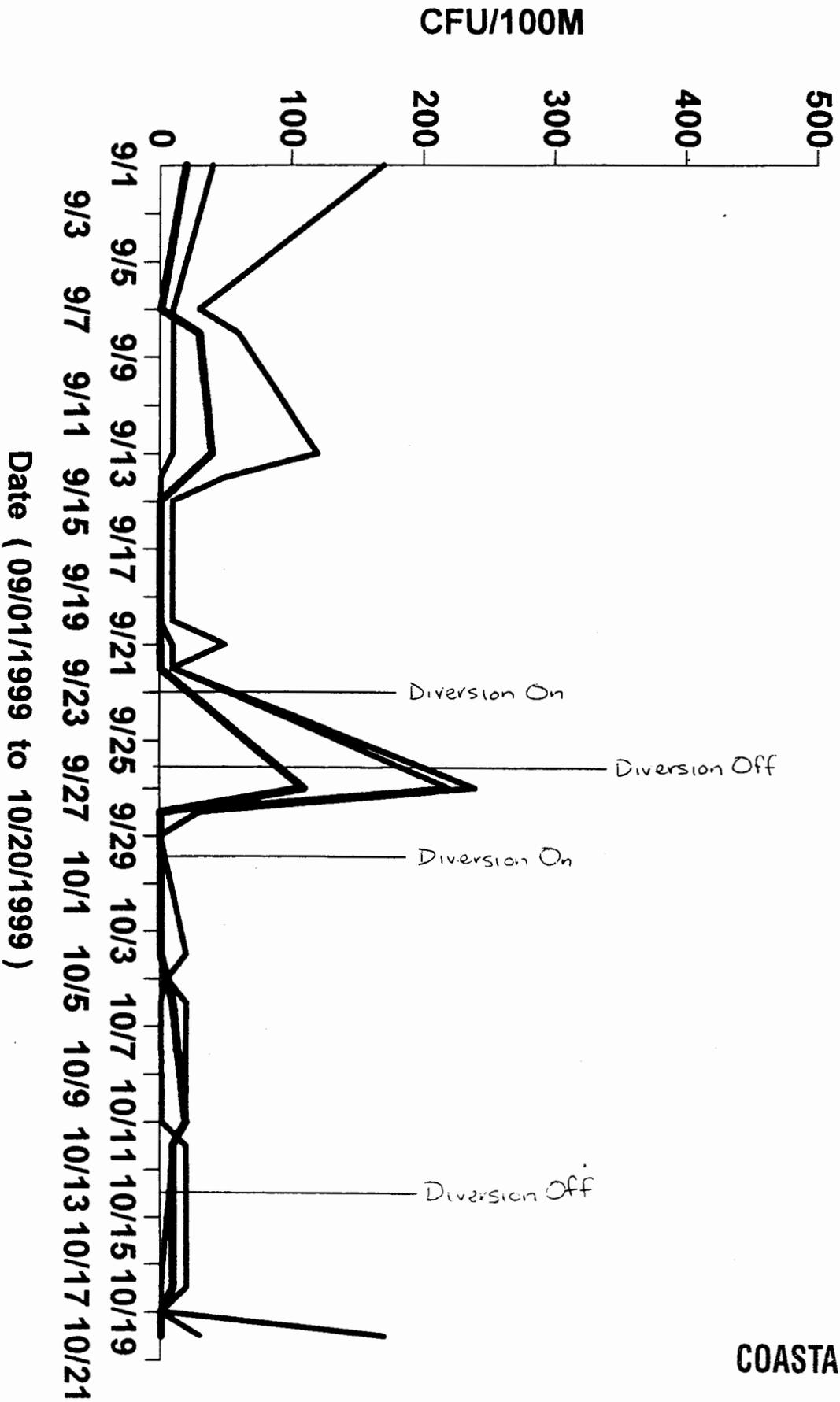
Date (09/01/1999 to 10/31/1999)

AWMMASURF S9 TC
 AWMMASURF S9 FC
 AWMMASURF S9 ENT
 AWMMASURF S9 TC

COASTAL COMMISSION

EXHIBIT # 13c
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S9 Bact's



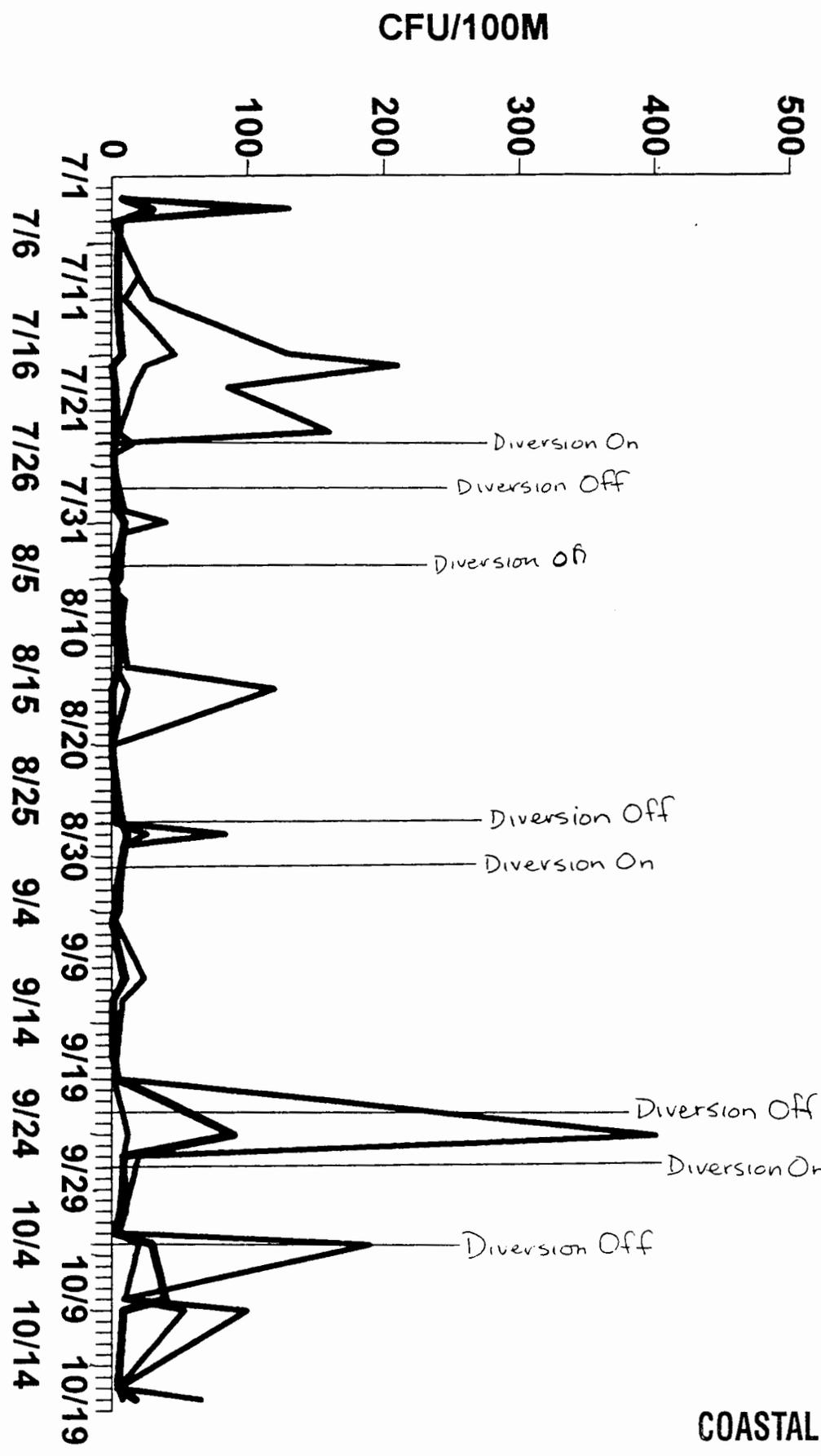
COASTAL COMMISSION

EXHIBIT # 13c

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OPS WIN
AWMA

S9 Bact's



Date (07/01/2000 to 10/20/2000)

/ AWMASURF / AWMASURF / AWMASURF
 S9 TC S9 FC S9 ENT

OPS W/IN
 AWMMA

COASTAL COMMISSION

EXHIBIT # 13c
 PAGE 9 OF 9

Tenn. Col. Form CFU/100 and

Excess Col. Fisheries CFU/100 and

Fishery Resources CFU/100 and

| Date | S7 TC | S8 TC | S8.5 TC | S9 TC | S10 TC | S11 TC | C1 TC | S7 FC | S8 FC | B.5 FC | S9 FC | S10 FC | S11 FC | C1 FC | S7 ENT | S8 ENT | S8.5 ENT | S9 ENT | S10 ENT | S11 ENT | C1 ENT |
|---------|-------|-------|---------|-------|--------|--------|-------|-------|-------|--------|-------|--------|--------|-------|--------|--------|----------|--------|---------|---------|--------|
| 4/1/97 | 14 | 18 | 370 | 110 | 10 | 2 | 600 | 4 | 17 | 100 | 36 | 0 | 6 | 100 | 2 | 10 | 140 | 62 | 1 | 1 | 160 |
| 4/2/97 | 16 | 210 | 120 | 68 | 0 | 4 | 170 | 0 | 100 | 64 | 48 | 0 | 4 | 46 | 12 | 100 | 130 | 51 | 1 | 1 | 110 |
| 4/3/97 | 0 | 0 | 0 | 30 | 0 | 4 | 300 | 0 | 0 | 0 | 10 | 0 | 2 | 100 | 1 | 1 | 0 | 20 | 1 | 1 | 200 |
| 4/8/97 | 14 | 15 | 8 | 14 | 23 | 18 | 2600 | 2 | 7 | 4 | 2 | 4 | 6 | 200 | 4 | 1 | 6 | 8 | 6 | 2 | 200 |
| 4/9/97 | 24 | 16 | 25 | 10 | 0 | 0 | 2700 | 6 | 10 | 8 | 30 | 0 | 0 | 0 | 40 | 14 | 26 | 4 | 1 | 2 | 100 |
| 4/10/97 | 2 | 27 | 88 | 84 | 0 | 34 | 350 | 0 | 20 | 48 | 33 | 0 | 42 | 110 | 6 | 28 | 40 | 40 | 6 | 6 | 20 |
| 4/15/97 | 4 | 7 | 20 | 66 | 2 | 6 | 3200 | 2 | 3 | 2 | 15 | 2 | 2 | 160 | 10 | 1 | 14 | 10 | 1 | 1 | 91 |
| 4/16/97 | 0 | 10 | 40 | 10 | 0 | 0 | 750 | 0 | 0 | 0 | 20 | 0 | 0 | 150 | 1 | 1 | 1 | 10 | 1 | 1 | 60 |
| 4/17/97 | 0 | 0 | 0 | 0 | 0 | 0 | 630 | 0 | 10 | 0 | 0 | 20 | 0 | 470 | 1 | 1 | 1 | 10 | 1 | 1 | 140 |
| 4/22/97 | 20 | 30 | 40 | 20 | 10 | 10 | 1600 | 4 | 20 | 40 | 0 | 6 | 6 | 82 | 10 | 1 | 8 | 10 | 1 | 1 | 130 |
| 4/23/97 | 24 | 30 | 26 | 70 | 2 | 10 | 70 | 14 | 230 | 6 | 0 | 0 | 0 | 80 | 18 | 22 | 10 | 10 | 1 | 1 | 130 |
| 4/24/97 | 8 | 40 | 40 | 30 | 10 | 22 | 200 | 10 | 0 | 0 | 20 | 8 | 2 | 170 | 3 | 1 | 10 | 10 | 1 | 1 | 220 |
| 4/29/97 | 10 | 50 | 80 | 82 | 0 | 0 | 200 | 10 | 10 | 20 | 30 | 0 | 0 | 180 | 1 | 1 | 1 | 10 | 1 | 1 | 190 |
| 4/30/97 | 4 | 50 | 70 | 430 | 2 | 12 | 310 | 4 | 20 | 20 | 140 | 0 | 0 | 170 | 1 | 1 | 1 | 10 | 1 | 1 | 190 |
| 5/1/97 | 2 | 130 | 220 | 450 | 0 | 0 | 600 | 0 | 92 | 90 | 120 | 0 | 0 | 200 | 2 | 26 | 54 | 0 | 0 | 0 | 170 |
| 5/6/97 | 10 | 0 | 100 | 1100 | 20 | 10 | 1100 | 0 | 0 | 20 | 20 | 0 | 0 | 210 | 0 | 0 | 20 | 10 | 0 | 0 | 240 |
| 5/8/97 | 0 | 0 | 70 | 430 | 2 | 12 | 310 | 4 | 20 | 20 | 140 | 0 | 0 | 210 | 0 | 0 | 20 | 10 | 0 | 0 | 0 |
| 5/13/97 | 0 | 2 | 12 | 1600 | 0 | 0 | 1200 | 2 | 4 | 210 | 1000 | 0 | 2 | 420 | 0 | 96 | 180 | 600 | 0 | 0 | 370 |
| 5/14/97 | 10 | 2 | 6 | 260 | 10 | 8 | 740 | 0 | 6 | 4 | 8 | 0 | 2 | 700 | 0 | 0 | 0 | 10 | 0 | 0 | 250 |
| 5/15/97 | 0 | 10 | 30 | 20 | 2 | 0 | 800 | 0 | 0 | 0 | 10 | 0 | 0 | 70 | 0 | 6 | 0 | 20 | 0 | 0 | 120 |
| 5/19/97 | 0 | 10 | 30 | 20 | 130 | 0 | 2100 | 0 | 0 | 20 | 10 | 20 | 0 | 100 | 0 | 10 | 10 | 30 | 0 | 0 | 240 |
| 5/20/97 | 0 | 10 | 10 | 0 | 40 | 0 | 1400 | 0 | 0 | 10 | 0 | 0 | 30 | 100 | 0 | 10 | 0 | 0 | 0 | 0 | 300 |
| 5/22/97 | 20 | 60 | 50 | 36 | 22 | 34 | 3200 | 6 | 10 | 10 | 80 | 50 | 12 | 960 | 10 | 10 | 0 | 20 | 10 | 0 | 250 |
| 5/27/97 | 0 | 30 | 10 | 82 | 0 | 0 | 500 | 0 | 0 | 0 | 0 | 0 | 0 | 146 | 10 | 10 | 10 | 0 | 0 | 0 | 260 |
| 5/29/97 | 4 | 10 | 370 | 120 | 0 | 0 | 100 | 2 | 10 | 210 | 0 | 2 | 0 | 226 | 6 | 10 | 150 | 20 | 0 | 0 | 130 |
| 5/30/97 | 2 | 2 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 226 | 2 | 0 | 0 | 0 | 0 | 0 | 110 |
| 6/2/97 | 2 | 8 | 0 | 0 | 0 | 0 | 2600 | 0 | 2 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6/4/97 | 20 | 10 | 14 | 0 | 0 | 0 | 770 | 0 | 0 | 0 | 0 | 0 | 0 | 80 | 2 | 0 | 0 | 20 | 0 | 0 | 0 |
| 6/5/97 | 4 | 4 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 650 | 4 | 16 | 4 | 0 | 0 | 0 | 300 |
| 6/10/97 | 16 | 6 | 110 | 270 | 40 | 16 | 4200 | 0 | 2 | 0 | 0 | 0 | 0 | 80 | 0 | 0 | 0 | 10 | 0 | 0 | 60 |
| 6/11/97 | 6 | 84 | 180 | 240 | 2 | 0 | 2900 | 4 | 50 | 90 | 40 | 0 | 2 | 190 | 2 | 2 | 100 | 20 | 0 | 0 | 160 |
| 6/12/97 | 0 | 2 | 0 | 10 | 10 | 20 | 720 | 0 | 2 | 0 | 0 | 2 | 4 | 60 | 0 | 16 | 20 | 0 | 0 | 0 | 100 |
| 6/17/97 | 2 | 4 | 10 | 230 | 8 | 8 | 1800 | 0 | 0 | 0 | 60 | 12 | 0 | 490 | 0 | 220 | 0 | 0 | 0 | 0 | 200 |
| 6/19/97 | 12 | 18 | 10 | 50 | 8 | 8 | 3200 | 12 | 6 | 20 | 20 | 0 | 8 | 1500 | 0 | 220 | 710 | 690 | 0 | 0 | 810 |
| 6/19/97 | 6 | 590 | 2800 | 1800 | 4 | 14 | 380 | 2 | 290 | 560 | 720 | 4 | 6 | 270 | 0 | 10 | 160 | 200 | 2 | 0 | 240 |
| 6/25/97 | 10 | 20 | 260 | 530 | 12 | 70 | 1300 | 10 | 30 | 130 | 60 | 8 | 28 | 50 | 0 | 10 | 30 | 60 | 0 | 0 | 360 |
| 6/26/97 | 6 | 40 | 100 | 230 | 60 | 44 | 5300 | 0 | 20 | 20 | 40 | 8 | 0 | 760 | 0 | 10 | 30 | 60 | 0 | 0 | 700 |
| 6/30/97 | 10 | 120 | 50 | 60 | 16 | 4 | 5700 | 4 | 8 | 8 | 0 | 8 | 0 | 400 | 10 | 30 | 32 | 40 | 0 | 0 | 290 |
| 7/1/97 | 10 | 20 | 50 | 70 | 0 | 8 | 2900 | 0 | 0 | 0 | 0 | 0 | 0 | 260 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7/2/97 | 10 | 50 | 60 | 100 | 0 | 2 | 180 | 0 | 0 | 0 | 10 | 2 | 0 | 60 | 0 | 20 | 0 | 50 | 0 | 0 | 230 |
| 7/8/97 | 6 | 82 | 340 | 600 | 0 | 42 | 6600 | 4 | 10 | 100 | 250 | 6 | 12 | 270 | 0 | 18 | 0 | 0 | 0 | 0 | 830 |
| 7/9/97 | 0 | 20 | 0 | 20 | 10 | 10 | 1400 | 0 | 0 | 0 | 0 | 6 | 0 | 210 | 0 | 0 | 10 | 0 | 0 | 0 | 540 |
| 7/10/97 | 4 | 4 | 10 | 30 | 38 | 8 | 6200 | 0 | 2 | 3 | 0 | 14 | 0 | 60 | 0 | 0 | 0 | 0 | 0 | 0 | 270 |
| 7/15/97 | 20 | 18 | 60 | 10 | 50 | 0 | 9000 | 0 | 0 | 40 | 10 | 8 | 0 | 270 | 4 | 6 | 0 | 0 | 0 | 0 | 1300 |
| 7/16/97 | 4 | 4 | 10 | 10 | 14 | 0 | 4800 | 4 | 8 | 10 | 10 | 8 | 0 | 440 | 0 | 4 | 0 | 10 | 0 | 0 | 270 |
| 7/17/97 | 26 | 62 | 10 | 140 | 14 | 0 | 4800 | 20 | 34 | 10 | 20 | 8 | 0 | 980 | 0 | 50 | 20 | 0 | 0 | 0 | 1600 |
| 7/22/97 | 12 | 8 | 20 | 60 | 30 | 40 | 4600 | 4 | 4 | 20 | 0 | 10 | 2 | 850 | 40 | 18 | 0 | 0 | 0 | 0 | 200 |
| 7/23/97 | 4 | 86 | 10 | 10 | 1000 | 110 | 910 | 4 | 70 | 10 | 0 | 410 | 6 | 850 | 0 | 4 | 0 | 0 | 0 | 0 | 1000 |
| 7/24/97 | 14 | 12 | 40 | 50 | 60 | 60 | 4200 | 0 | 2 | 0 | 10 | 10 | 0 | 200 | 0 | 4 | 0 | 0 | 0 | 0 | 720 |
| 7/29/97 | 0 | 4 | 40 | 80 | 0 | 6 | 6400 | 4 | 0 | 20 | 150 | 10 | 8 | 4500 | 4 | 0 | 20 | 30 | 0 | 0 | 1000 |
| 7/30/97 | 12 | 8 | 30 | 100 | 12 | 6 | 3200 | 6 | 8 | 10 | 30 | 6 | 2 | 390 | 2 | 4 | 10 | 30 | 4 | 4 | 600 |
| 7/31/97 | 20 | 130 | 50 | 20 | 12 | 2 | 6900 | 6 | 120 | 30 | 10 | 8 | 0 | 2500 | 18 | 26 | 190 | 20 | 0 | 0 | 3200 |
| 8/5/97 | 6 | 8 | 8 | 10 | 18 | 6 | 2800 | 0 | 2 | 10 | 0 | 0 | 6 | 480 | 0 | 0 | 0 | 0 | 0 | 0 | 850 |
| 8/6/97 | 0 | 0 | 0 | 20 | 90 | 110 | 1800 | 0 | 10 | 10 | 30 | 10 | 20 | 90 | 0 | 0 | 10 | 0 | 0 | 0 | 1800 |
| 8/7/97 | 0 | 0 | 10 | 30 | 10 | 100 | 2300 | 0 | 10 | 10 | 70 | 0 | 40 | 350 | 0 | 20 | 10 | 130 | 0 | 0 | 2200 |
| 8/12/97 | 0 | 0 | 0 | 60 | 10 | 0 | 3900 | 0 | 0 | 0 | 0 | 20 | 0 | 770 | 0 | 0 | 10 | 180 | 0 | 0 | 2001 |
| 8/13/97 | 0 | 0 | 140 | 10 | 6 | 0 | 130 | 0 | 4 | 10 | 0 | 0 | 0 | 90 | 4 | 6 | 50 | 0 | 0 | 0 | 2001 |
| 8/14/97 | 16 | 0 | 0 | 10 | 0 | 0 | 4300 | 6 | 4 | 0 | 0 | 0 | 0 | 670 | 4 | 6 | 0 | 10 | 0 | 0 | 900 |
| 8/19/97 | 0 | 40 | 0 | 10 | 8 | 46 | 5300 | 0 | 20 | 0 | 0 | 28 | 22 | 1800 | 0 | 4 | 0 | 40 | 0 | 0 | 600 |
| 8/20/97 | 0 | 6 | 0 | 0 | 0 | 2 | 3000 | 0 | 2 | 0 | 0 | 8 | 0 | 2300 | 0 | 4 | 0 | 0 | 0 | 0 | 1900 |
| 8/21/97 | 0 | 0 | 40 | 1100 | 6 | 16 | 2900 | 10 | 80 | 10 | 20 | 0 | 0 | 840 | 10 | 120 | 60 | 40 | 0 | 0 | 1900 |
| 8/26/97 | 40 | 370 | 450 | 1000 | 0 | 0 | 2200 | 10 | 150 | 150 | 3000 | 0 | 0 | 540 | 0 | 10 | 210 | 410 | 0 | 0 | 1100 |
| 8/27/97 | 40 | 60 | 20 | 160 | 20 | 10 | 300 | 0 | 20 | 10 | 20 | 0 | 0 | 240 | 0 | 10 | 0 | 60 | 0 | 0 | 590 |
| 8/28/97 | 0 | 50 | 0 | 10 | 2 | 2 | 300 | 0 | 0 | 0 | 10 | 0 | 0 | 240 | 0 | 10 | 0 | 10 | 0 | 0 | 590 |
| 9/2/97 | 4 | 4 | 40 | 10 | 40 | 2 | 12000 | 0 | 1 | 1 | 1 | 0 | 0 | 6900 | 0 | 30 | 0 | 20 | 0 | 0 | 1300 |
| 9/3/97 | 1 | 1 | 10 | 60 | 1 | 26 | 1000 | 2 | 1 | 1 | 1 | 0 | 1 | 990 | 2 | 30 | 1 | 10 | 1 | 1 | 250 |
| 9/4/97 | 22 | 120 | 250 | 150 | 2 | 6 | 6000 | 1 | 10 | 20 | 40 | 1 | 1 | 400 | 4 | 10 | 40 | 80 | 1 | 1 | 3500 |
| 9/9/97 | 2 | 20 | 100 | 330 | 4 | 4 | 3800 | 1 | 4 | 50 | 30 | 1 | 2 | 320 | 10 | 10 | 25 | 80 | 0 | 0 | 240 |
| 9/10/97 | 1 | 2 | 1 | 40 | 1 | 1 | 420 | 1 | 4 | 47 | 50 | 1 | 1 | 260 | 1 | 2 | 10 | 70 | 1 | 1 | 260 |

COASTAL COMMISSION

EXHIBIT # 13a
PAGE 1 OF 8

TOTAL COLIFORM FCU/100ml

FACILITATION DIVISIONS

ENTEROCOCCUS CRU/100ml

| Date | S7TC | S8TC | S8.5TC | S9TC | S10TC | S11TC | CI TC | S7FC | S8FC | 8.5FC | S9FC | S10FC | S11FC | CI FC | S7ENT | S8ENT | S8.5ENT | S9ENT | S10ENT | S11ENT | CI ENT |
|----------|------|-------|--------|-------|-------|---------|--------|------|------|-------|-------|-------|-------|-------|-------|-------|---------|-------|--------|--------|--------|
| 9/11/97 | 4 | 62 | 16 | 180 | 2 | 4 | 520 | 4 | 24 | 46 | 100 | 1 | 1 | 410 | 1 | 34 | 58 | 50 | 10 | 1 | 480 |
| 9/16/97 | 60 | 80 | 70 | 20 | 1 | 10 | 15000 | 10 | 50 | 50 | 0.1 | 10 | 1 | 6700 | 1 | 10 | 100 | 10 | 10 | 1 | 900 |
| 9/17/97 | 1 | 1 | 1 | 1 | 1 | 1 | 3200 | 1 | 10 | 1 | 1 | 30 | 1 | 820 | 1 | 1 | 1 | 30 | 1 | 1 | 310 |
| 9/18/97 | 30 | 10 | 1 | 30 | 60 | 24 | 3600 | 1 | 10 | 10 | 1 | 1 | 6 | 280 | 10 | 1 | 1 | 1 | 1 | 1 | 250 |
| 9/23/97 | 1 | 90 | 220 | 270 | 10 | 1 | 31000 | 10 | 20 | 10 | 70 | 1 | 2 | 130 | 40 | 10 | 10 | 10 | 1 | 1 | 82 |
| 9/25/97 | 20 | 40 | 80 | 73 | 40 | 1 | 80 | 1 | 1 | 20 | 1 | 1 | 1 | 40 | 30 | 1 | 1 | 1 | 1 | 1 | 60 |
| 9/29/97 | 10 | 40 | 150 | 90 | 20 | 20 | 1800 | 1 | 10 | 70 | 60 | 10 | 1 | 980 | 10 | 1 | 1 | 1 | 1 | 1 | 280 |
| 9/30/97 | 18 | 60 | 80 | 200 | 4 | 2 | 2500 | 2 | 20 | 30 | 50 | 1 | 4 | 510 | 2 | 1 | 1 | 1 | 1 | 1 | 240 |
| 10/1/97 | 160 | 6 | 80 | 20 | 46 | 4 | 2500 | 140 | 6 | 40 | 0 | 8 | 16 | 600 | 2 | 12 | 10 | 10 | 12 | 6 | 240 |
| 10/6/97 | 20 | 18 | 30 | 50 | 16 | 4 | 1100 | 0 | 0 | 20 | 20 | 0 | 0 | 1000 | 0 | 20 | 0 | 0 | 0 | 0 | 240 |
| 10/7/97 | 24 | 18 | 70 | 100 | 18 | 2 | 1100 | 20 | 14 | 40 | 50 | 10 | 4 | 240 | 0 | 10 | 40 | 0 | 4 | 2 | 40 |
| 10/8/97 | 30 | 30 | 30 | 160 | 20 | 0 | 4500 | 10 | 20 | 0 | 0 | 30 | 0 | 370 | 0 | 0 | 0 | 0 | 0 | 0 | 210 |
| 10/13/97 | 2 | 0 | 40 | 60 | 12 | 12 | 2200 | 4 | 0 | 10 | 0 | 6 | 2 | 2000 | 0 | 0 | 0 | 0 | 0 | 0 | 82 |
| 10/14/97 | 0 | 10 | 0 | 10 | 2 | 4 | 1100 | 2 | 0 | 0 | 20 | 6 | 0 | 170 | 0 | 0 | 0 | 0 | 0 | 0 | 30 |
| 10/15/97 | 0 | 50 | 10 | 170 | 22 | 18 | 3700 | 0 | 0 | 0 | 180 | 16 | 10 | 1900 | 0 | 1400 | 0 | 0 | 0 | 2000 | |
| 10/20/97 | 0 | 10 | 0 | 10 | 0 | 0 | 3100 | 10 | 0 | 0 | 0 | 0 | 0 | 330 | 10 | 0 | 0 | 0 | 0 | 0 | 310 |
| 10/21/97 | 0 | 0 | 20 | 10 | 0 | 0 | 220 | 0 | 0 | 0 | 0 | 0 | 0 | 50 | 10 | 0 | 0 | 0 | 0 | 0 | 45 |
| 10/22/97 | 4 | 20 | 10 | 40 | 6 | 4 | 540 | 2 | 0 | 10 | 50 | 2 | 2 | 270 | 2 | 0 | 0 | 10 | 0 | 0 | 150 |
| 10/27/97 | 10 | 20 | 30 | 10 | 0 | 0 | 2500 | 0 | 0 | 30 | 0 | 0 | 0 | 230 | 0 | 0 | 0 | 0 | 0 | 0 | 50 |
| 10/28/97 | 10 | 20 | 20 | 80 | 0 | 0 | 760 | 10 | 40 | 30 | 50 | 2 | 0 | 130 | 0 | 0 | 0 | 0 | 0 | 0 | 70 |
| 10/29/97 | 0 | 20 | 20 | 10 | 4 | 2 | 2100 | 0 | 0 | 40 | 0 | 4 | 2 | 140 | 0 | 30 | 20 | 0 | 0 | 0 | 50 |
| 11/3/97 | 0 | 80 | 50 | 130 | 10 | 8 | 390 | 0 | 30 | 30 | 140 | 4 | 4 | 340 | 0 | 40 | 80 | 50 | 1 | 1 | 5100 |
| 11/4/97 | 1 | 1 | 10 | 40 | 1 | 1 | 160 | 1 | 1 | 10 | 10 | 1 | 1 | 60 | 2 | 1 | 1 | 1 | 1 | 1 | 40 |
| 11/5/97 | 16 | 50 | 60 | 80 | 70 | 6 | 680 | 6 | 80 | 40 | 140 | 1 | 10 | 130 | 2 | 10 | 20 | 1 | 1 | 1 | 50 |
| 11/10/97 | 10 | 90 | 20 | 1 | 30 | 1 | 7100 | 10 | 40 | 10 | 20 | 70 | 1 | 4900 | 2 | 10 | 1 | 1 | 1 | 1 | 1500 |
| 11/11/97 | 3600 | 4000 | 25000 | 30000 | 60 | 20 | 45000 | 710 | 6300 | 6800 | 9000 | 10 | 1 | 32000 | 490 | 5300 | 4300 | 4600 | 10 | 1 | 16000 |
| 11/12/97 | 40 | 90 | 70 | 170 | 40 | 50 | 18000 | 20 | 10 | 40 | 50 | 10 | 1 | 4000 | 1 | 20 | 10 | 60 | 1 | 1 | 2300 |
| 11/17/97 | 30 | 80 | 10 | 30 | 30 | 10 | 2400 | 30 | 160 | 10 | 1 | 10 | 6 | 490 | 10 | 1 | 1 | 1 | 1 | 1 | 340 |
| 11/18/97 | 10 | 20 | 120 | 10 | 1 | 4 | 1200 | 1 | 1 | 30 | 10 | 1 | 1 | 300 | 1 | 1 | 1 | 1 | 1 | 1 | 110 |
| 11/19/97 | 10 | 10 | 10 | 10 | 1 | 1 | 680 | 1 | 1 | 1 | 20 | 1 | 1 | 210 | 1 | 1 | 1 | 1 | 1 | 1 | 160 |
| 11/23/97 | 60 | 1 | 10 | 1 | 1 | 1 | 670 | 20 | 1 | 10 | 1 | 1 | 10 | 80 | 1 | 1 | 1 | 1 | 1 | 1 | 140 |
| 11/24/97 | 2 | 12 | 14 | 14 | 4 | 4 | 630 | 2 | 6 | 2 | 18 | 1 | 2 | 470 | 1 | 6 | 14 | 12 | 2 | 2 | 40 |
| 11/25/97 | 1000 | 8 | 20 | 334 | 4 | 12 | 1300 | 1000 | 2 | 6 | 1 | 1 | 1 | 890 | 1 | 1 | 1 | 1 | 1 | 1 | 7900 |
| 12/1/97 | 450 | 780 | 1800 | 1800 | 30 | 70 | 22000 | 290 | 80 | 180 | 520 | 10 | 1 | 3700 | 250 | 150 | 200 | 270 | 1 | 1 | 450 |
| 12/2/97 | 110 | 30 | 630 | 570 | 10 | 10 | 2100 | 1 | 1 | 130 | 160 | 10 | 1 | 480 | 1 | 1 | 1 | 1 | 1 | 1 | 110 |
| 12/3/97 | 1 | 100 | 10 | 1 | 10 | 1 | 630 | 1 | 40 | 1 | 10 | 1 | 1 | 180 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 12/8/97 | 2000 | 2700 | 4300 | 2500 | 1500 | 1100 | 52000 | 700 | 1600 | 1700 | 3900 | 100 | 1 | 9200 | 800 | 1500 | 2400 | 2300 | 1 | 1 | 17000 |
| 12/9/97 | 1500 | 10000 | 11000 | 25000 | 340 | 2000000 | 200000 | 40 | 20 | 300 | 4200 | 60 | 10 | 15000 | 50 | 300 | 300 | 3800 | 60 | 60 | 3000 |
| 12/10/97 | 2200 | 14000 | 77000 | 77000 | 950 | 12000 | 17000 | 100 | 600 | 1200 | 3000 | 220 | 90 | 7500 | 100 | 300 | 600 | 8000 | 380 | 340 | 1900 |
| 12/15/97 | 20 | 70 | 200 | 640 | 50 | 410 | 30000 | 10 | 40 | 20 | 64 | 1 | 1 | 820 | 1 | 1 | 1 | 1 | 1 | 1 | 360 |
| 12/16/97 | 30 | 160 | 290 | 780 | 30 | 10 | 1200 | 1 | 10 | 1 | 40 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 12/21/97 | 90 | 70 | 160 | 280 | 1 | 1 | 33000 | 1 | 10 | 1 | 30 | 1 | 1 | 600 | 1 | 10 | 20 | 90 | 10 | 1 | 500 |
| 12/22/97 | 180 | 990 | 820 | 720 | 70 | 390 | 87000 | 20 | 90 | 140 | 110 | 30 | 30 | 2600 | 30 | 1 | 90 | 90 | 1 | 1 | 1400 |
| 12/23/97 | 58 | 190 | 1100 | 1200 | 50 | 210 | 18000 | 2 | 20 | 110 | 120 | 6 | 130 | 4000 | 20 | 120 | 150 | 160 | 30 | 30 | 3000 |
| 12/29/97 | 20 | 80 | 60 | 70 | 50 | 70 | 1700 | 10 | 60 | 60 | 1 | 1 | 20 | 4000 | 1 | 1 | 1 | 1 | 1 | 1 | 100 |
| 12/30/97 | 10 | 70 | 40 | 80 | 1 | 1 | 1000 | 10 | 10 | 20 | 10 | 1 | 1 | 1 | 1 | 30 | 30 | 20 | 1 | 1 | 100 |
| 12/31/97 | 10 | 2200 | 2000 | 11000 | 110 | 6 | 130000 | 2 | 290 | 200 | 530 | 10 | 2 | 300 | 1 | 1 | 1 | 1 | 1 | 2 | 200 |
| 1/5/98 | 80 | 10 | 140 | 380 | 40 | 20 | 15000 | 10 | 20 | 40 | 10 | 1 | 1 | 1300 | 10 | 560 | 490 | 700 | 20 | 10 | 16000 |
| 1/6/98 | 10 | 30 | 240 | 360 | 40 | 30 | 3700 | 1 | 10 | 30 | 60 | 1 | 1 | 1 | 1 | 20 | 60 | 40 | 1 | 1 | 1200 |
| 1/7/98 | 10 | 10 | 120 | 230 | 1 | 30 | 3700 | 1 | 10 | 40 | 10 | 1 | 1 | 1 | 1 | 20 | 60 | 40 | 1 | 1 | 1 |
| 1/12/98 | 80 | 130 | 400 | 510 | 60 | 130 | 1200 | 1 | 20 | 30 | 60 | 10 | 20 | 200 | 1 | 1 | 20 | 240 | 1 | 1 | 82 |
| 1/13/98 | 370 | 2001 | 2001 | 1200 | 280 | 420 | 666 | 50 | 660 | 2001 | 110 | 10 | 1 | 1100 | 20 | 690 | 2000 | 670 | 10 | 10 | 2500 |
| 1/14/98 | 170 | 401 | 2001 | 1200 | 100 | 401 | 750 | 190 | 400 | 1500 | 500 | 16 | 48 | 450 | 220 | 400 | 1100 | 670 | 48 | 350 | 940 |
| 1/19/98 | 1200 | 666 | 28000 | 20000 | 280 | 70 | 666 | 610 | 2500 | 7600 | 16000 | 60 | 40 | 17000 | 290 | 1400 | 5700 | 6600 | 60 | 0 | 5800 |
| 1/20/98 | 130 | 100 | 500 | 1100 | 0 | 30 | 1300 | 10 | 100 | 200 | 100 | 0 | 0 | 700 | 20 | 100 | 100 | 300 | 0 | 0 | 200 |
| 1/21/98 | 30 | 700 | 3200 | 6100 | 70 | 0 | 7000 | 10 | 110 | 280 | 750 | 0 | 0 | 1200 | 0 | 170 | 250 | 340 | 0 | 0 | 350 |
| 1/26/98 | 310 | 400 | 430 | 160 | 580 | 460 | 6200 | 140 | 130 | 160 | 110 | 90 | 80 | 1100 | 240 | 310 | 430 | 170 | 190 | 210 | 310 |
| 1/27/98 | 140 | 210 | 150 | 120 | 320 | 80 | 2300 | 30 | 110 | 60 | 80 | 30 | 60 | 520 | 80 | 60 | 70 | 110 | 40 | 30 | 700 |
| 1/28/98 | 10 | 220 | 440 | 2000 | 20 | 20 | 2100 | 0 | 30 | 100 | 460 | 0 | 10 | 520 | 50 | 50 | 150 | 370 | 30 | 30 | 370 |
| 2/3/98 | 270 | 110 | 50 | 280 | 20 | 20 | 7300 | 0 | 70 | 30 | 90 | 0 | 10 | 2400 | 0 | 0 | 60 | 150 | 20 | 0 | 1700 |
| 2/3/98 | 190 | 100 | 120 | 850 | 40 | 50 | 2600 | 20 | 70 | 30 | 810 | 10 | 0 | 890 | 80 | 680 | 60 | 460 | 20 | 20 | 760 |
| 2/4/98 | 850 | 3800 | 4500 | 9400 | 330 | 320 | 13000 | 430 | 480 | 1100 | 6800 | 50 | 30 | 10000 | 600 | 920 | 1700 | 7200 | 130 | 30 | 12000 |
| 2/9/98 | 600 | 1300 | 1600 | 4100 | 1800 | 480 | 18000 | 200 | 500 | 500 | 1400 | 300 | 120 | 10000 | 500 | 1000 | 1800 | 4500 | 1000 | 50 | 15000 |
| 2/10/98 | 190 | 2300 | 1100 | 18000 | 90 | 10 | 18000 | 60 | 230 | 800 | 600 | 0 | 0 | 5000 | 70 | 160 | 800 | 400 | 2000 | 30 | 2000 |
| 2/11/98 | 560 | 4200 | 8300 | 15000 | 70 | 40 | 20001 | 60 | 80 | 240 | 370 | 0 | 20 | 1300 | 60 | 60 | 80 | 260 | 10 | 0 | 900 |
| 2/17/98 | 9100 | 9100 | 12000 | 16000 | 190 | 190 | 9300 | 1800 | 2200 | 3300 | 4100 | 70 | 70 | 9500 | 1000 | 2100 | 4000 | 6400 | 200 | 0 | 20000 |
| 2/18/98 | 0 | 700 | 1000 | 400 | 40 | 50 | 26000 | 100 | 100 | 100 | 200 | 10 | 0 | 2700 | 0 | 0 | 0 | 0 | 20 | 0 | 1100 |
| 2/23/98 | 2500 | 2200 | 3000 | 3200 | 1100 | 1100 | | 200 | 820 | 1000 | 700 | | 500 | | 1100 | 1200 | 1400 | | | | |

13d
2 of 8

Totipot Coliform CFU/100ml

Enterococcus CFU/100ml

Enterococcus CFU/100ml

| Date | S7TC | S8TC | S8.5TC | S9TC | S10TC | S11TC | C1TC | S7FC | S8FC | 8.5FC | S9FC | S10FC | S11FC | C1FC | S7ENT | S8ENT | S8.5ENT | S9ENT | S10ENT | S11ENT | C1ENT |
|-----------|------|------|--------|-------|-------|-------|--------|------|------|-------|------|-------|-------|-------|-------|-------|---------|-------|--------|--------|-------|
| 2/25/98 | 2800 | 1600 | 2100 | 2700 | 2000 | 2000 | 8000 | 200 | 100 | 0 | 1500 | 200 | 400 | 0 | 700 | 500 | 1100 | 1400 | 400 | 700 | 100 |
| 3/2/98 | 240 | 1800 | 3600 | 5600 | 0 | 20 | 8000 | 20 | 150 | 210 | 320 | 10 | 10 | 410 | 20 | 80 | 110 | 230 | 0 | 0 | 280 |
| 3/4/98 | 140 | 1700 | 4400 | 2900 | 10 | 0 | 12000 | 10 | 50 | 200 | 100 | 10 | 0 | 400 | 0 | 190 | 100 | 200 | 0 | 0 | 500 |
| 3/9/98 | 0 | 330 | 6500 | 6500 | 100 | 70 | 9200 | 10 | 10 | 60 | 810 | 10 | 10 | 700 | 10 | 40 | 20 | 310 | 10 | 0 | 340 |
| 3/10/98 | 16 | 40 | 70 | 1100 | 10 | 20 | 6000 | 0 | 10 | 40 | 100 | 10 | 10 | 100 | 0 | 0 | 0 | 60 | 0 | 0 | 370 |
| 3/11/98 | 0 | 320 | 190 | 640 | 26 | 12 | 9500 | 0 | 30 | 70 | 80 | 8 | 0 | 600 | 10 | 30 | 10 | 30 | 0 | 2 | 200 |
| 3/16/98 | 90 | 450 | 180 | 1200 | 0 | 10 | 6300 | 0 | 0 | 10 | 130 | 10 | 0 | 600 | 0 | 0 | 20 | 50 | 0 | 0 | 200 |
| 3/17/98 | 10 | 570 | 460 | 1100 | 60 | 70 | 4300 | 10 | 20 | 40 | 320 | 0 | 10 | 860 | 20 | 40 | 10 | 190 | 0 | 10 | 1200 |
| 3/18/98 | 10 | 20 | 240 | 2300 | 30 | 30 | 4700 | 10 | 0 | 10 | 0 | 30 | 0 | 1000 | 0 | 10 | 10 | 0 | 0 | 20 | 400 |
| 3/23/98 | 70 | 120 | 290 | 330 | 100 | 40 | 8500 | 20 | 30 | 40 | 73 | 0 | 0 | 330 | 0 | 10 | 30 | 50 | 0 | 410 | 200 |
| 3/24/98 | 20 | 50 | 100 | 380 | 0 | 0 | 2600 | 0 | 10 | 20 | 80 | 0 | 0 | 280 | 0 | 10 | 20 | 40 | 0 | 0 | 150 |
| 3/25/98 | 780 | 570 | 870 | 750 | 550 | 0 | 1300 | 140 | 80 | 220 | 120 | 50 | 250 | 100 | 180 | 110 | 270 | 150 | 70 | 610 | 1300 |
| 3/30/98 | 30 | 1000 | 2200 | 2400 | 70 | 70 | 9300 | 0 | 110 | 170 | 260 | 0 | 0 | 1800 | 0 | 64 | 140 | 180 | 0 | 0 | 1900 |
| 3/31/98 | 20 | 30 | 0 | 7600 | 70 | 30 | 8600 | 0 | 20 | 0 | 700 | 0 | 0 | 300 | 0 | 0 | 0 | 600 | 0 | 10 | 800 |
| 4/1/98 | 210 | 210 | 9800 | 25555 | 530 | 550 | 37000 | 60 | 5000 | 9800 | 2555 | 40 | 13000 | 6900 | 80 | 3800 | 48 | 7300 | 80 | 10 | 7500 |
| 4/6/98 | 20 | 210 | 500 | 550 | 60 | 10 | 4800 | 1 | 30 | 0 | 70 | 10 | 10 | 370 | 1 | 50 | 50 | 1 | 80 | 1 | 260 |
| 4/7/98 | 270 | 510 | 500 | 550 | 40 | 90 | 2555 | 50 | 80 | 60 | 70 | 20 | 20 | 1300 | 1 | 30 | 30 | 1 | 10 | 10 | 700 |
| 4/8/98 | 220 | 170 | 300 | 230 | 30 | 50 | 6400 | 10 | 10 | 60 | 30 | 1 | 10 | 920 | 1 | 10 | 10 | 80 | 10 | 10 | 310 |
| 4/13/98 | 180 | 360 | 550 | 930 | 130 | 160 | 5500 | 40 | 40 | 80 | 170 | 20 | 80 | 620 | 50 | 1 | 40 | 220 | 1 | 30 | 450 |
| 4/14/98 | 60 | 240 | 340 | 650 | 40 | 20 | 9300 | 10 | 60 | 60 | 150 | 1 | 1 | 2100 | 1 | 1 | 30 | 1 | 20 | 1 | 200 |
| 4/15/98 | 40 | 70 | 770 | 330 | 20 | 10 | 3300 | 20 | 10 | 110 | 60 | 1 | 1 | 510 | 20 | 10 | 40 | 1 | 1 | 1 | 320 |
| 4/20/98 | 50 | 70 | 340 | 330 | 40 | 10 | 8600 | 20 | 20 | 100 | 100 | 1 | 1 | 490 | 1 | 20 | 50 | 1 | 1 | 1 | 160 |
| 4/21/98 | 10 | 40 | 30 | 20 | 40 | 270 | 25555 | 1 | 1 | 1 | 1 | 1 | 1 | 7000 | 1 | 20 | 1 | 10 | 1 | 1 | 500 |
| 4/22/98 | 10 | 10 | 10 | 10 | 20 | 20 | 3700 | 1 | 1 | 1 | 1 | 1 | 1 | 440 | 1 | 1 | 1 | 1 | 1 | 1 | 160 |
| 4/27/98 | 10 | 10 | 10 | 10 | 20 | 20 | 1800 | 1 | 1 | 1 | 1 | 1 | 1 | 400 | 1 | 1 | 1 | 1 | 1 | 1 | 90 |
| 4/28/98 | 6 | 14 | 12 | 6 | 18 | 10 | 1400 | 8 | 4 | 4 | 6 | 4 | 2 | 500 | 1 | 1 | 1 | 1 | 1 | 1 | 110 |
| 4/29/98 | 1 | 10 | 150 | 200 | 401 | 601 | 20001 | 60 | 20 | 1 | 30 | 1 | 1 | 15000 | 20 | 20 | 10 | 20 | 10 | 10 | 5200 |
| 5/4/98 | 70 | 20 | 100 | 150 | 16000 | 1300 | 20001 | 1 | 1 | 20 | 10 | 140 | 120 | 16000 | 1 | 1 | 1 | 1 | 700 | 40 | 10000 |
| 5/5/98 | 70 | 40 | 150 | 200 | 6000 | 610 | 110000 | 790 | 690 | 9900 | 666 | 1900 | 240 | 37000 | 920 | 880 | 9800 | 20001 | 1900 | 290 | 38000 |
| 5/6/98 | 666 | 2001 | 20001 | 73 | 10 | 10 | 4400 | 1 | 1 | 10 | 70 | 10 | 1 | 1100 | 1 | 10 | 10 | 40 | 10 | 1 | 760 |
| 5/11/98 | 1 | 40 | 20 | 1 | 30 | 10 | 620 | 1 | 1 | 1 | 1 | 1 | 1 | 440 | 1 | 1 | 1 | 1 | 20 | 1 | 1300 |
| 5/12/98 | 10 | 1 | 1 | 1 | 10 | 10 | 33000 | 500 | 2001 | 5000 | 2800 | 690 | 680 | 10000 | 980 | 2001 | 7500 | 3600 | 880 | 740 | 13000 |
| 5/13/98 | 1100 | 2001 | 15000 | 7400 | 666 | 666 | 33000 | 1 | 1 | 1 | 1 | 1 | 1 | 660 | 1 | 1 | 1 | 1 | 1 | 1 | 290 |
| 5/18/98 | 1 | 410 | 610 | 700 | 1 | 1 | 7600 | 1 | 40 | 70 | 80 | 10 | 1 | 660 | 1 | 20 | 40 | 50 | 10 | 1 | 290 |
| 5/19/98 | 10 | 50 | 100 | 230 | 1 | 1 | 2500 | 1 | 1 | 10 | 80 | 1 | 1 | 640 | 1 | 10 | 10 | 30 | 1 | 1 | 270 |
| 5/20/98 | 1 | 120 | 2500 | 380 | 10 | 2 | 190 | 1 | 40 | 810 | 80 | 1 | 2 | 20 | 1 | 10 | 300 | 80 | 1 | 2 | 20 |
| 5/26/98 | 10 | 150 | 180 | 650 | 30 | 1 | 6800 | 1 | 30 | 20 | 230 | 1 | 1 | 1200 | 1 | 1 | 40 | 1 | 1 | 1 | 210 |
| 5/28/98 | 6 | 6 | 180 | 20 | 20 | 10 | 880 | 1 | 10 | 10 | 10 | 10 | 1 | 340 | 1 | 1 | 1 | 1 | 1 | 1 | 210 |
| 6/1/98 | 6 | 1 | 10 | 1 | 30 | 22 | 140 | 2 | 10 | 1 | 2 | 20 | 8 | 340 | 1 | 1 | 1 | 1 | 2 | 4 | 50 |
| 6/2/98 | 1 | 1 | 8 | 1 | 10 | 4 | 900 | 1 | 4 | 2 | 18 | 6 | 2 | 130 | 1 | 1 | 1 | 1 | 1 | 1 | 170 |
| 6/3/98 | 8 | 12 | 12 | 34 | 2 | 4 | 900 | 1 | 4 | 1 | 2 | 1 | 1 | 120 | 1 | 2 | 8 | 6 | 2 | 1 | 170 |
| 6/10/98 | 1 | 120 | 40 | 100 | 10 | 10 | 720 | 1 | 30 | 20 | 30 | 1 | 1 | 670 | 1 | 1 | 1 | 1 | 1 | 1 | 320 |
| 6/11/98 | 16 | 32 | 10 | 20 | 40 | 2 | 1000 | 10 | 16 | 1 | 10 | 10 | 2 | 180 | 20 | 8 | 20 | 40 | 20 | 2 | 160 |
| 6/11/98 | 2 | 2 | 6 | 1 | 2 | 1 | 330 | 4 | 1 | 6 | 1 | 4 | 4 | 190 | 1 | 1 | 1 | 1 | 1 | 1 | 170 |
| 6/15/98 | 30 | 28 | 50 | 80 | 2 | 1 | 250 | 4 | 4 | 6 | 1 | 1 | 1 | 190 | 1 | 1 | 1 | 1 | 1 | 1 | 170 |
| 6/16/98 | 26 | 6 | 850 | 1 | 110 | 120 | 850 | 8 | 4 | 1 | 1 | 10 | 10 | 160 | 8 | 1 | 1 | 1 | 1 | 1 | 170 |
| 6/17/98 | 1 | 1 | 1 | 30 | 730 | 220 | 10000 | 1 | 1 | 10 | 1 | 190 | 60 | 3400 | 1 | 1 | 1 | 1 | 90 | 10 | 450 |
| 6/22/98 | 4 | 12 | 1 | 1 | 10 | 6 | 2400 | 1 | 6 | 10 | 10 | 10 | 1 | 500 | 1 | 4 | 140 | 20 | 1 | 1 | 120 |
| 6/23/98 | 1 | 20 | 70 | 70 | 2 | 1 | 2400 | 1 | 1 | 10 | 1 | 10 | 1 | 370 | 2 | 1 | 1 | 1 | 2 | 1 | 240 |
| 6/24/98 | 26 | 20 | 20 | 530 | 120 | 20 | 1200 | 4 | 10 | 10 | 9 | 1 | 8 | 490 | 8 | 1 | 40 | 10 | 30 | 4 | 310 |
| 6/29/98 | 22 | 20 | 20 | 36 | 60 | 4 | 1400 | 8 | 2 | 2 | 10 | 10 | 2 | 220 | 18 | 1 | 10 | 10 | 10 | 4 | 210 |
| 6/30/98 | 16 | 28 | 16 | 60 | 1 | 1 | 420 | 8 | 2 | 2 | 10 | 10 | 1 | 220 | 1 | 1 | 1 | 1 | 1 | 1 | 60 |
| 7/1/98 | 1 | 130 | 40 | 70 | 1 | 1 | 640 | 1 | 10 | 10 | 20 | 1 | 1 | 530 | 1 | 30 | 60 | 270 | 1 | 1 | 200 |
| 7/6/98 | 1 | 2 | 20 | 10 | 2 | 2 | 480 | 1 | 6 | 1 | 1 | 4 | 1 | 700 | 1 | 1 | 1 | 1 | 1 | 1 | 320 |
| 7/7/98 | 2 | 2 | 10 | 10 | 1 | 1 | 2000 | 1 | 1 | 8 | 1 | 1 | 1 | 220 | 1 | 1 | 1 | 1 | 1 | 1 | 70 |
| 7/8/98 | 6 | 2 | 20 | 20 | 18 | 26 | 880 | 6 | 2 | 10 | 10 | 10 | 4 | 770 | 2 | 2 | 10 | 1 | 8 | 1 | 150 |
| 7/13/98 | 12 | 2 | 2 | 30 | 10 | 6 | 300 | 8 | 4 | 1 | 10 | 10 | 4 | 400 | 4 | 1 | 1 | 1 | 6 | 4 | 200 |
| 7/14/98 | 4 | 12 | 14 | 50 | 94 | 10 | 2000 | 8 | 6 | 4 | 50 | 24 | 8 | 470 | 2 | 2 | 1 | 1 | 10 | 6 | 200 |
| 7/15/98 | 4 | 4 | 6 | 20 | 8 | 8 | 500 | 4 | 4 | 6 | 20 | 8 | 8 | 360 | 1 | 1 | 1 | 1 | 4 | 4 | 420 |
| 7/20/98 | 8 | 8 | 12 | 20 | 1 | 6 | 550 | 4 | 6 | 6 | 10 | 1 | 1 | 490 | 1 | 1 | 1 | 1 | 1 | 1 | 420 |
| 7/21/98 | 6 | 10 | 8 | 1 | 26 | 26 | 1100 | 1 | 2 | 1 | 1 | 1 | 4 | 510 | 1 | 4 | 2 | 1 | 4 | 4 | 150 |
| 7/22/98 | 2 | 4 | 2 | 1 | 22 | 2 | 2000 | 14 | 4 | 8 | 1 | 12 | 1 | 4 | 12 | 1 | 1 | 1 | 4 | 2 | 760 |
| 7/27/98 | 64 | 6 | 38 | 90 | 1 | 2 | 2300 | 1 | 1 | 10 | 60 | 1 | 1 | 770 | 1 | 1 | 6 | 20 | 10 | 2 | 10 |
| 7/28/98 | 4 | 4 | 22 | 40 | 10 | 4 | 500 | 1 | 1 | 24 | 40 | 1 | 4 | 900 | 16 | 1 | 72 | 10 | 6 | 2 | 10 |
| 7/29/98</ | | | | | | | | | | | | | | | | | | | | | |

Total Coliform CFU/100ml

divisions CFU/100ml

| Date | S7 TC | S8 TC | S8.5 TC | S9 TC | S10 TC | S11 TC | C1 TC | S7 FC | S8 FC | B.5 FC | S9 FC | S10 FC | S11 FC | C1 FC | S7 ENT | S8 ENT | S8.5 ENT | S9 ENT | S10 ENT | S11 ENT | C1 ENT |
|----------|-------|-------|---------|-------|--------|--------|--------|-------|-------|--------|-------|--------|--------|-------|--------|--------|----------|--------|---------|---------|--------|
| 8/12/98 | 2 | 1 | | 50 | 16 | 1 | 940 | 1 | 1 | | 30 | 4 | 1 | 530 | 2 | 1 | | 70 | 12 | 1 | 490 |
| 8/17/98 | 12 | 20 | 60 | 10 | 60 | 2 | 1700 | 10 | 1 | 30 | 10 | 48 | 4 | 290 | 4 | 30 | | 10 | 10 | 1 | 260 |
| 8/19/98 | 34 | 80 | 250 | 30 | 4 | 22 | 2500 | 1 | 100 | | 10 | 54 | 26 | 1700 | 20 | 30 | | 10 | 2 | 1 | 400 |
| 8/24/98 | 10 | 20 | 4100 | 1 | 60 | 18 | 3400 | 1 | 1 | 1 | 1 | 1 | 6 | 800 | 6 | 1 | | 20 | 18 | 1 | 1400 |
| 8/26/98 | 1 | 20 | 4100 | 1 | 10 | 20 | 4100 | 6 | 1 | 1 | 1 | 1 | 2 | 1300 | 4 | 1 | | 10 | 1 | 1 | 430 |
| 8/31/98 | 2 | 70 | 3000 | 90 | 4 | 2 | 3000 | 2 | 40 | 80 | 80 | 1 | 4 | 840 | 10 | 10 | | 1 | 1 | 1 | 250 |
| 9/2/98 | 70 | 130 | 370 | 4 | 4 | 4 | 3500 | 32 | 50 | 50 | 60 | 2 | 4 | 420 | 26 | 10 | | 80 | 10 | 4 | 390 |
| 9/8/98 | 46 | 150 | 280 | 780 | 82 | 24 | 25000 | 12 | 1 | 1 | 230 | 22 | 18 | 6300 | 4 | 40 | | 10 | 10 | 1 | 880 |
| 9/9/98 | 1 | 20 | 10 | 180 | 150 | 100 | 18000 | 6 | 1 | 1 | 20 | 52 | 66 | 4200 | 1 | 1 | | 10 | 22 | 14 | 900 |
| 9/14/98 | 4 | 8 | 10 | 20 | 10 | 2 | 4000 | 1 | 4 | 1 | 1 | 10 | 4 | 1200 | 2 | 2 | | 1 | 1 | 2 | 460 |
| 9/15/98 | 6 | 12 | 20 | 20 | 10 | 8 | 3700 | 1 | 6 | 1 | 1 | 10 | 2 | 800 | 2 | 4 | | 1 | 1 | 2 | 300 |
| 9/16/98 | 2 | 20 | 30 | 20 | 10 | 2 | 4400 | 2 | 10 | 1 | 1 | 20 | 4 | 2000 | 2 | 2 | | 1 | 1 | 2 | 800 |
| 9/21/98 | 1 | 18 | 30 | 50 | 10 | 12 | 5800 | 4 | 8 | 1 | 30 | 1 | 16 | 1500 | 1 | 4 | | 1 | 1 | 4 | 570 |
| 9/22/98 | 20 | 70 | 70 | 90 | 1 | 1 | 7800 | 10 | 80 | 50 | 60 | 1 | 1 | 900 | 10 | 60 | | 1 | 1 | 1 | 10 |
| 9/23/98 | 56 | 78 | 100 | 90 | 10 | 1 | 3600 | 42 | 22 | 40 | 40 | 14 | 4 | 1600 | 16 | 10 | | 1 | 1 | 2 | 680 |
| 9/28/98 | 2 | 1 | 1 | 1 | 2 | 4 | 15000 | 2 | 10 | 1 | 1 | 1 | 1 | 1100 | 2 | 1 | | 1 | 1 | 1 | 310 |
| 9/29/98 | 1 | 1 | 1 | 20 | 16 | 1 | 5800 | 1 | 1 | 1 | 1 | 4 | 1 | 700 | 1 | 1 | | 1 | 4 | 1 | 300 |
| 9/30/98 | 62 | 76 | 140 | 290 | 4 | 4 | 4100 | 48 | 40 | 60 | 70 | 1 | 2 | 820 | 30 | 8 | | 40 | 1 | 2 | 400 |
| 10/5/98 | 2 | 20 | 1 | 1 | 1 | 4 | 800 | 2 | 1 | 1 | 10 | 1 | 2 | 570 | 1 | 1 | | 10 | 1 | 2 | 320 |
| 10/6/98 | 1 | 1 | 1 | 1 | 1 | 1 | 880 | 1 | 1 | 1 | 1 | 2 | 2 | 210 | 2 | 1 | | 10 | 1 | 2 | 190 |
| 10/7/98 | 4 | 6 | 20 | 10 | 1 | 6 | 2400 | 2 | 8 | 1 | 10 | 8 | 4 | 1000 | 1 | 1 | | 10 | 1 | 1 | 10 |
| 10/12/98 | 1 | 1 | 1 | 10 | 20 | 6 | 3300 | 1 | 1 | 1 | 1 | 2 | 2 | 550 | 1 | 1 | | 40 | 1 | 2 | 460 |
| 10/14/98 | 200 | 60 | 90 | 380 | 4 | 4 | 4100 | 14 | 10 | 50 | 30 | 8 | 4 | 720 | 50 | 30 | | 1 | 1 | 2 | 1300 |
| 10/15/98 | 10 | 70 | 170 | 240 | 2 | 14 | 3200 | 10 | 20 | 30 | 50 | 1 | 4 | 700 | 1 | 10 | | 120 | 2 | 2 | 530 |
| 10/19/98 | 2 | 12 | 30 | 240 | 48 | 20 | 810 | 1 | 4 | 30 | 130 | 50 | 26 | 940 | 4 | 8 | | 110 | 36 | 10 | 270 |
| 10/20/98 | 4 | 6 | 20 | 20 | 12 | 2 | 1000 | 1 | 1 | 1 | 1 | 14 | 1 | 200 | 4 | 8 | | 1 | 2 | 4 | 400 |
| 10/21/98 | 140 | 130 | 130 | 370 | 4 | 14 | 17000 | 110 | 92 | 80 | 20 | 1 | 2 | 700 | 88 | 54 | | 220 | 2 | 4 | 330 |
| 10/25/98 | 150 | 130 | 220 | 40 | 1 | 1 | 1000 | 10 | 40 | 100 | 90 | 1 | 1 | 3300 | 1 | 60 | | 30 | 1 | 1 | 2700 |
| 10/28/98 | 18 | 70 | 100 | 40 | 1 | 10 | 3100 | 1 | 1 | 30 | 1 | 1 | 1 | 300 | 4 | 10 | | 360 | 1 | 1 | 370 |
| 11/2/98 | 12 | 60 | 100 | 90 | 1 | 24 | 55000 | 8 | 40 | 10 | 40 | 1 | 16 | 560 | 38 | 60 | | 20 | 2 | 2 | 370 |
| 11/3/98 | 74 | 54 | 100 | 100 | 20 | 8 | 12000 | 64 | 32 | 50 | 90 | 2 | 6 | 5800 | 1 | 10 | | 10 | 6 | 8 | 400 |
| 11/9/98 | 900 | 2500 | 25000 | 11000 | 150 | 140 | 110000 | 350 | 1100 | 3600 | 4800 | 18 | 12 | 810 | 42 | 50 | | 50 | 30 | 8 | 2100 |
| 11/10/98 | 140 | 120 | 2500 | 21000 | 10 | 10 | 45000 | 10 | 20 | 280 | 4300 | 40 | 10 | 32000 | 160 | 430 | | 39600 | 20 | 10 | 18000 |
| 11/12/98 | 90 | 1100 | 2700 | 5000 | 30 | 40 | 36000 | 1 | 100 | 200 | 2000 | 1 | 1 | 4000 | 30 | 1 | | 1500 | 1 | 1 | 5400 |
| 11/16/98 | 11 | 30 | 140 | 170 | 1 | 1 | 2400 | 30 | 10 | 10 | 50 | 1 | 1 | 710 | 10 | 1 | | 60 | 1 | 1 | 370 |
| 11/17/98 | 22 | 10 | 1 | 1 | 18 | 6 | 4100 | 8 | 10 | 20 | 60 | 8 | 2 | 1100 | 1 | 20 | | 20 | 2 | 10 | 300 |
| 11/18/98 | 30 | 4 | 60 | 90 | 10 | 30 | 3400 | 20 | 1 | 20 | 90 | 10 | 1 | 1000 | 4 | 4 | | 1 | 1 | 4 | 560 |
| 11/23/98 | 4 | 4 | 2 | 1 | 8 | 2 | 2900 | 1 | 4 | 2 | 8 | 10 | 2 | 390 | 1 | 4 | | 1 | 2 | 4 | 250 |
| 11/25/98 | 8 | 12 | 86 | 34 | 12 | 1 | 3500 | 4 | 4 | 36 | 8 | 4 | 4 | 480 | 1 | 12 | | 1 | 10 | 1 | 500 |
| 11/25/98 | 20 | 42 | 54 | 62 | 10 | 2 | 3700 | 2 | 8 | 6 | 14 | 2 | 4 | 300 | 20 | 40 | | 20 | 2 | 4 | 3500 |
| 11/30/98 | 8 | 210 | 5300 | 6900 | 10 | 10 | 29000 | 30 | 60 | 1500 | 4100 | 70 | 10 | 6700 | 90 | 1900 | | 1400 | 100 | 100 | 1000 |
| 12/1/98 | 100 | 200 | 2300 | 80 | 40 | 90 | 5400 | 10 | 70 | 100 | 500 | 560 | 60 | 1900 | 20 | 60 | | 2600 | 10 | 1 | 3500 |
| 12/1/98 | 1200 | 3600 | 4600 | 3000 | 220 | 80 | 10000 | 1000 | 430 | 730 | 750 | 560 | 30 | 1000 | 90 | 1200 | | 1400 | 100 | 100 | 1000 |
| 12/2/98 | 40 | 300 | 800 | 5800 | 1 | 10 | 6700 | 30 | 100 | 200 | 1400 | 1 | 30 | 2700 | 1 | 100 | | 1500 | 1 | 40 | 3800 |
| 12/8/98 | 30 | 100 | 1500 | 250 | 56 | 8 | 4100 | 50 | 50 | 200 | 10 | 4 | 18 | 640 | 1 | 1 | | 30 | 1 | 4 | 500 |
| 12/9/98 | 10 | 54 | 4900 | 250 | 20 | 6 | 6800 | 10 | 1 | 550 | 10 | 1 | 2 | 700 | 1 | 1 | | 30 | 1 | 4 | 500 |
| 12/14/98 | 10 | 10 | 130 | 650 | 1 | 1 | 3500 | 1 | 10 | 30 | 40 | 1 | 10 | 160 | 1 | 10 | | 30 | 1 | 1 | 200 |
| 12/15/98 | 180 | 670 | 610 | 610 | 16 | 4 | 32000 | 10 | 10 | 1 | 30 | 6 | 2 | 900 | 4 | 10 | | 1 | 1 | 2 | 350 |
| 12/17/98 | 70 | 80 | 50 | 570 | 24 | 20 | 6000 | 1 | 10 | 30 | 1 | 10 | 2 | 200 | 1 | 10 | | 1 | 1 | 2 | 350 |
| 12/21/98 | 1 | 1 | 240 | 570 | 20 | 20 | 59000 | 20 | 70 | 130 | 330 | 40 | 7 | 5200 | 1 | 60 | | 180 | 20 | 1 | 4400 |
| 12/22/98 | 4 | 110 | 20 | 2000 | 10 | 8 | 10000 | 1 | 10 | 10 | 240 | 10 | 1 | 700 | 1 | 1 | | 480 | 1 | 1 | 100 |
| 12/28/98 | 1 | 1 | 40 | 160 | 1 | 1 | 1900 | 4 | 1 | 40 | 30 | 1 | 30 | 400 | 1 | 1 | | 1 | 1 | 1 | 100 |
| 12/23/98 | 12 | 42 | 30 | 420 | 14 | 6 | 4600 | 14 | 42 | 60 | 70 | 8 | 14 | 340 | 1 | 14 | | 60 | 6 | 10 | 54 |
| 12/29/98 | 24 | 10 | 10 | 10 | 14 | 84 | 3400 | 16 | 2 | 10 | 20 | 6 | 1 | 500 | 1 | 10 | | 1 | 1 | 1 | 120 |
| 12/30/98 | 4 | 1 | 30 | 20 | 1 | 34 | 3000 | 4 | 50 | 30 | 1 | 1 | 48 | 400 | 1 | 40 | | 10 | 2 | 24 | 160 |
| 1/4/99 | 4 | 1 | 30 | 1 | 1 | 1 | 3200 | 1 | 1 | 10 | 1 | 10 | 6 | 300 | 1 | 1 | | 10 | 1 | 1 | 140 |
| 1/5/99 | 4 | 32 | 30 | 100 | 12 | 1 | 4000 | 2 | 37 | 1 | 30 | 2 | 6 | 190 | 1 | 26 | | 1 | 8 | 1 | 140 |
| 1/6/99 | 18 | 50 | 20 | 2300 | 8 | 2 | 2300 | 38 | 50 | 10 | 100 | 4 | 4 | 200 | 6 | 10 | | 50 | 4 | 1 | 90 |
| 1/11/99 | 1 | 100 | 260 | 550 | 8 | 2 | 2600 | 10 | 50 | 90 | 240 | 4 | 4 | 400 | 1 | 10 | | 1 | 1 | 1 | 90 |
| 1/12/99 | 1 | 10 | 30 | 400 | 10 | 16 | 1900 | 4 | 4 | 10 | 50 | 14 | 18 | 110 | 4 | 10 | | 90 | 6 | 2 | 140 |
| 1/13/99 | 2 | 2 | 30 | 400 | 10 | 16 | 2400 | 22 | 10 | 30 | 30 | 8 | 6 | 210 | 16 | 70 | | 20 | 4 | 2 | 230 |
| 1/18/99 | 12 | 10 | 30 | 400 | 10 | 8 | 1100 | 4 | 10 | 20 | 30 | 1 | 6 | 200 | 1 | 50 | | 10 | 6 | 2 | 140 |
| 1/19/99 | 1 | 20 | 40 | 40 | 4 | 6 | 1100 | 16 | 10 | 20 | 30 | 8 | 6 | 210 | 4 | 10 | | 20 | 4 | 2 | 230 |
| 1/20/99 | 130 | 690 | 280 | 5000 | 1 | 1 | 2600 | 40 | 60 | 50 | 480 | 1 | 1 | 700 | 10 | 50 | | 510 | 1 | 160 | 1400 |
| 1/26/99 | 150 | 25000 | 25000 | 25000 | 500 | 410 | 18000 | 20 | 5500 | 11000 | 13000 | 2360 | 190 | 16000 | 10 | 5300 | | 8800 | 30 | 91 | 10000 |
| 1/27/99 | 700 | 500 | 400 | 11000 | 140 | 200 | 3400 | 20 | 50 | 100 | 1000 | 10 | 20 | 2800 | 10 | 100 | | 1900 | 70 | 70 | 4400 |
| 2/1/99 | 130 | 100 | 2700 | 4700 | 20 | 20 | 4700 | 90 | 400 | 100 | 340 | 1 | 30 | 800 | 30 | 1 | | 490 | 10 | 10 | 2500 |

13d
4 2 8

Total Coliform CFU/100 ml

| Date | S7 TC | S8 TC | S8.5 TC | S9 TC | S10 TC | S11 TC | CI TC | CFU/100 ml |
|---------|-------|-------|---------|-------|--------|--------|--------|------------|
| 2/3/99 | 10 | 1 | 50 | 100 | 10 | 20 | 3500 | |
| 2/8/99 | 120 | 160 | 2900 | 200 | 13 | 32 | 3900 | |
| 2/10/99 | 1400 | 1100 | 13000 | 13000 | 40 | 12 | 61000 | |
| 2/15/99 | 40 | 10 | 10 | 70 | 8 | 18 | 2300 | |
| 2/17/99 | 30 | 10 | 10 | 100 | 4 | 4 | 200 | |
| 2/22/99 | 22 | 30 | 30 | 180 | 17 | 14 | 1400 | |
| 3/1/99 | 10 | 40 | 20 | 220 | 6 | 8 | 1900 | |
| 3/3/99 | 10 | 30 | 20 | 420 | 6 | 30 | 550 | |
| 3/8/99 | 230 | 30 | 45 | 40 | 16 | 26 | 590 | |
| 3/9/99 | 1 | 10 | 1 | 1 | 10 | 1 | 16000 | |
| 3/10/99 | 22 | 90 | 1 | 360 | 2 | 4 | 2300 | |
| 3/15/99 | 1 | 10 | 220 | 60 | 30 | 1 | 2000 | |
| 3/16/99 | 50 | 210 | 770 | 650 | 3 | 40 | 2000 | |
| 3/17/99 | 12 | 30 | 1 | 230 | 2 | 1 | 10000 | |
| 3/22/99 | 10 | 10 | 70 | 60 | 2 | 4 | 8300 | |
| 3/23/99 | 20 | 80 | 160 | 320 | 1 | 1 | 5800 | |
| 3/24/99 | 1 | 10 | 1 | 20 | 1 | 1 | 4200 | |
| 3/29/99 | 2 | 70 | 27 | 45 | 1 | 4 | 790 | |
| 3/29/99 | 1 | 50 | 50 | 340 | 1 | 2 | 1000 | |
| 3/31/99 | 52 | 400 | 70 | 50 | 1 | 24 | 3100 | |
| 4/5/99 | 10 | 10 | 1 | 1 | 44 | 6 | 4800 | |
| 4/6/99 | 10 | 10 | 1 | 1 | 12 | 6 | 4800 | |
| 4/7/99 | 80 | 250 | 240 | 120 | 28 | 8 | 13000 | |
| 4/12/99 | 120 | 4500 | 3800 | 4000 | 2001 | 1800 | 150000 | |
| 4/14/99 | 1 | 10 | 120 | 190 | 410 | 240 | 35000 | |
| 4/15/99 | 2 | 10 | 10 | 1 | 32 | 12 | 4300 | |
| 4/19/99 | 1 | 27 | 30 | 30 | 10 | 1 | 6100 | |
| 4/21/99 | 16 | 40 | 20 | 50 | 1 | 1 | 760 | |
| 4/22/99 | 1 | 76 | 20 | 50 | 6 | 8 | 1000 | |
| 4/26/99 | 1 | 12 | 20 | 30 | 2 | 2 | 2400 | |
| 4/27/99 | 2 | 16 | 160 | 10 | 4 | 4 | 3400 | |
| 4/28/99 | 18 | 7 | 23 | 20 | 10 | 14 | 1900 | |
| 5/3/99 | 22 | 140 | 160 | 590 | 4 | 2 | 2000 | |
| 5/5/99 | 2 | 1 | 58 | 280 | 2 | 1 | 1800 | |
| 5/6/99 | 1 | 1 | 1 | 1 | 1 | 1 | 1000 | |
| 5/10/99 | 1 | 20 | 50 | 1 | 1 | 10 | 880 | |
| 5/11/99 | 2 | 18 | 8 | 6 | 2 | 2 | 1300 | |
| 5/12/99 | 4 | 50 | 10 | 30 | 38 | 6 | 2700 | |
| 5/17/99 | 6 | 1 | 1 | 10 | 1 | 2 | 2200 | |
| 5/19/99 | 10 | 60 | 40 | 90 | 8 | 1 | 3400 | |
| 5/20/99 | 1 | 6 | 2 | 10 | 1 | 1 | 700 | |
| 5/24/99 | 1 | 1 | 10 | 1 | 1 | 1 | 4300 | |
| 5/25/99 | 24 | 10 | 18 | 14 | 180 | 6 | 8200 | |
| 5/26/99 | 2 | 2 | 1 | 10 | 70 | 6 | 2900 | |
| 6/1/99 | 1 | 6 | 6 | 20 | 50 | 60 | 25000 | |
| 6/2/99 | 1 | 130 | 260 | 970 | 2500 | 1400 | 32000 | |
| 6/3/99 | 1 | 110 | 70 | 50 | 2200 | 50 | 32000 | |
| 6/9/99 | 6 | 30 | 18 | 18 | 56 | 12 | 4400 | |
| 6/8/99 | 2 | 20 | 30 | 30 | 24 | 8 | 5500 | |
| 6/9/99 | 4 | 10 | 78 | 360 | 1 | 4 | 7100 | |
| 6/14/99 | 4 | 50 | 90 | 110 | 1 | 10 | 6200 | |
| 6/15/99 | 12 | 220 | 180 | 170 | 16 | 6 | 11000 | |
| 6/16/99 | 20 | 220 | 250 | 270 | 12 | 10 | 25000 | |
| 6/21/99 | 66 | 20 | 18 | 30 | 50 | 4 | 3900 | |
| 6/22/99 | 1 | 10 | 22 | 100 | 10 | 2 | 3000 | |
| 6/23/99 | 6 | 20 | 26 | 230 | 6 | 56 | 9200 | |
| 6/28/99 | 1 | 14 | 12 | 50 | 26 | 8 | 4400 | |
| 6/29/99 | 2 | 1 | 2 | 4 | 32 | 10 | 4200 | |
| 6/30/99 | 1 | 1 | 140 | 2 | 46 | 28 | 2700 | |
| 7/5/99 | 6 | 52 | 160 | 130 | 1 | 4 | 3700 | |
| 7/6/99 | 1 | 140 | 220 | 190 | 1 | 1 | 3600 | |
| 7/7/99 | 10 | 38 | 50 | 190 | 6 | 2 | 2900 | |
| 7/12/99 | 6 | 4 | 8 | 40 | 62 | 28 | 900 | |
| 7/13/99 | 1 | 1 | 1 | 1 | 1 | 10 | 300 | |
| 7/14/99 | 20 | 1 | 50 | 50 | 30 | 6 | 800 | |
| 7/19/99 | 2 | 4 | 14 | 30 | 2 | 1 | 1300 | |
| 7/20/99 | 2 | 22 | 20 | 30 | 1 | 1 | 1300 | |
| 7/21/99 | 4 | 14 | 14 | 30 | 1 | 6 | 1300 | |
| 7/26/99 | 6 | 1 | 2 | 18 | 28 | 2 | 520 | |

Fecal Coliform CFU/100 ml

| Date | S7 FC | S8 FC | S8.5 FC | S9 FC | S10 FC | S11 FC | CI FC | CFU/100 ml |
|---------|-------|-------|---------|-------|--------|--------|-------|------------|
| 2/3/99 | 1 | 1 | 20 | 100 | 1 | 20 | 400 | |
| 2/8/99 | 10 | 40 | 270 | 54 | 11 | 4 | 2400 | |
| 2/10/99 | 120 | 60 | 1400 | 1400 | 12 | 8 | 1000 | |
| 2/15/99 | 30 | 1 | 10 | 10 | 4 | 2 | 400 | |
| 2/17/99 | 1 | 40 | 20 | 70 | 2 | 1 | 190 | |
| 2/22/99 | 14 | 20 | 1 | 64 | 5 | 6 | 230 | |
| 3/1/99 | 6 | 10 | 1 | 10 | 7 | 4 | 140 | |
| 3/3/99 | 2 | 10 | 18 | 33 | 7 | 26 | 470 | |
| 3/8/99 | 210 | 1 | 20 | 1 | 10 | 10 | 50 | |
| 3/9/99 | 1 | 1 | 1 | 1 | 1 | 2 | 50 | |
| 3/10/99 | 8 | 20 | 30 | 20 | 1 | 1 | 320 | |
| 3/15/99 | 10 | 10 | 20 | 20 | 80 | 10 | 800 | |
| 3/16/99 | 10 | 10 | 10 | 100 | 1 | 1 | 900 | |
| 3/17/99 | 2 | 30 | 10 | 1 | 2 | 1 | 420 | |
| 3/22/99 | 1 | 1 | 20 | 1 | 1 | 2 | 200 | |
| 3/23/99 | 1 | 1 | 10 | 1 | 10 | 2 | 200 | |
| 3/24/99 | 1 | 1 | 10 | 10 | 1 | 1 | 200 | |
| 3/29/99 | 1 | 10 | 27 | 40 | 1 | 1 | 420 | |
| 3/29/99 | 1 | 50 | 20 | 120 | 1 | 2 | 200 | |
| 3/31/99 | 26 | 240 | 20 | 20 | 2 | 6 | 50 | |
| 4/5/99 | 1 | 1 | 1 | 1 | 6 | 2 | 390 | |
| 4/6/99 | 2 | 1 | 30 | 30 | 4 | 2 | 1500 | |
| 4/7/99 | 20 | 1 | 1 | 30 | 250 | 2 | 8300 | |
| 4/12/99 | 1 | 370 | 300 | 400 | 50 | 10 | 7000 | |
| 4/14/99 | 1 | 1 | 10 | 10 | 2 | 8 | 300 | |
| 4/15/99 | 1 | 1 | 1 | 1 | 2 | 2 | 100 | |
| 4/19/99 | 10 | 1 | 1 | 10 | 10 | 1 | 390 | |
| 4/21/99 | 8 | 10 | 18 | 50 | 1 | 1 | 140 | |
| 4/22/99 | 1 | 20 | 30 | 20 | 2 | 2 | 100 | |
| 4/26/99 | 1 | 10 | 40 | 20 | 6 | 4 | 1000 | |
| 4/27/99 | 1 | 6 | 40 | 1 | 1 | 2 | 200 | |
| 4/28/99 | 28 | 10 | 42 | 10 | 1 | 2 | 550 | |
| 5/3/99 | 6 | 70 | 160 | 630 | 1 | 1 | 390 | |
| 5/5/99 | 1 | 1 | 20 | 40 | 1 | 1 | 140 | |
| 5/6/99 | 1 | 1 | 1 | 1 | 1 | 1 | 400 | |
| 5/10/99 | 1 | 20 | 10 | 10 | 1 | 1 | 210 | |
| 5/11/99 | 2 | 5 | 4 | 2 | 2 | 2 | 280 | |
| 5/12/99 | 4 | 10 | 10 | 10 | 18 | 1 | 450 | |
| 5/17/99 | 6 | 1 | 1 | 1 | 2 | 1 | 330 | |
| 5/19/99 | 10 | 4 | 20 | 1 | 2 | 1 | 1800 | |
| 5/20/99 | 1 | 6 | 1 | 2 | 2 | 1 | 100 | |
| 5/24/99 | 1 | 1 | 1 | 1 | 2 | 2 | 100 | |
| 5/25/99 | 24 | 10 | 10 | 10 | 8 | 4 | 440 | |
| 5/26/99 | 2 | 2 | 2 | 1 | 26 | 4 | 1300 | |
| 6/1/99 | 1 | 1 | 1 | 1 | 18 | 8 | 460 | |
| 6/2/99 | 1 | 1 | 1 | 1 | 12 | 8 | 1 | 1 |
| 6/3/99 | 1 | 10 | 1 | 190 | 50 | 410 | 22000 | |
| 6/9/99 | 6 | 1 | 10 | 50 | 6 | 4 | 690 | |
| 6/8/99 | 2 | 1 | 10 | 10 | 2 | 1 | 100 | |
| 6/9/99 | 4 | 1 | 18 | 50 | 2 | 2 | 690 | |
| 6/14/99 | 4 | 1 | 20 | 10 | 1 | 2 | 220 | |
| 6/15/99 | 12 | 10 | 14 | 20 | 1 | 1 | 900 | |
| 6/16/99 | 20 | 20 | 27 | 44 | 4 | 8 | 400 | |
| 6/21/99 | 66 | 6 | 6 | 2 | 2 | 36 | 180 | |
| 6/22/99 | 1 | 1 | 1 | 2 | 4 | 4 | 180 | |
| 6/23/99 | 6 | 20 | 8 | 30 | 2 | 2 | 100 | |
| 6/28/99 | 1 | 14 | 1 | 140 | 2 | 1 | 140 | |
| 6/29/99 | 2 | 1 | 2 | 2 | 4 | 1 | 100 | |
| 6/30/99 | 1 | 1 | 50 | 1 | 6 | 4 | 200 | |
| 7/5/99 | 6 | 52 | 20 | 10 | 1 | 1 | 260 | |
| 7/6/99 | 1 | 140 | 4 | 10 | 1 | 2 | 50 | |
| 7/7/99 | 10 | 38 | 50 | 10 | 1 | 610 | 610 | |
| 7/12/99 | 6 | 4 | 8 | 40 | 22 | 10 | 270 | |
| 7/13/99 | 1 | 1 | 1 | 1 | 1 | 1 | 170 | |
| 7/14/99 | 20 | 1 | 50 | 50 | 1 | 1 | 550 | |
| 7/19/99 | 2 | 4 | 14 | 30 | 1 | 1 | 110 | |
| 7/20/99 | 2 | 22 | 20 | 30 | 1 | 1 | 120 | |
| 7/21/99 | 4 | 14 | 14 | 30 | 1 | 1 | 110 | |
| 7/26/99 | 6 | 1 | 2 | 18 | 36 | 1 | 270 | |

Enterococcus CFU/100 ml

| Date | S7 ENT | S8 ENT | S8.5 ENT | S9 ENT | S10 ENT | S11 ENT | CI ENT | CFU/100 ml |
|---------|--------|--------|----------|--------|---------|---------|--------|------------|
| 2/3/99 | 1 | 1 | 50 | 50 | 1 | 1 | 600 | |
| 2/8/99 | 1 | 10 | 15 | 15 | 4 | 1 | 500 | |
| 2/10/99 | 1 | 190 | 280 | 3500 | 6 | 6 | 6500 | |
| 2/15/99 | 30 | 20 | 1 | 10 | 4 | 8 | 200 | |
| 2/17/99 | 1 | 60 | 1 | 250 | 6 | 1 | 330 | |
| 2/22/99 | 2 | 1 | 1 | 20 | 6 | 1 | 60 | |
| 3/1/99 | 1 | 10 | 1 | 20 | 1 | 1 | 40 | |
| 3/3/99 | 8 | 1 | 1 | 580 | 14 | 16 | 300 | |
| 3/8/99 | 4 | 20 | 20 | 20 | 2 | 1 | 50 | |
| 3/9/99 | 1 | 1 | 1 | 10 | 1 | 1 | 200 | |
| 3/10/99 | 1 | 1 | 30 | 30 | 2 | 1 | 30 | |
| 3/15/99 | 1 | 1 | 20 | 1 | 70 | 30 | 100 | |
| 3/16/99 | 1 | 1 | 20 | 50 | 1 | 1 | 500 | |
| 3/17/99 | 1 | 1 | 40 | 20 | 4 | 4 | 420 | |
| 3/22/99 | 1 | 30 | 30 | 10 | 1 | 16 | 900 | |
| 3/23/99 | 1 | 1 | 1 | 10 | 1 | 1 | 240 | |
| 3/24/99 | 1 | 1 | 1 | 10 | 1 | 1 | 190 | |
| 3/29/99 | 1 | 1 | 1 | 27 | 1 | 2 | 100 | |
| 3/29/99 | 1 | 110 | 90 | 80 | 2 | 2 | 64 | |
| 3/31/99 | 46 | 160 | 1 | 20 | 4 | 2 | 110 | |
| 4/5/99 | 1 | 1 | 1 | 1 | 6 | 2 | 110 | |
| 4/6/99 | 1 | 30 | 27 | 27 | 1 | 1 | 240 | |
| 4/7/99 | 1 | 660 | 810 | 680 | 90 | 10 | 7500 | |
| 4/12/99 | 30 | 1 | 20 | 10 | 4 | 10 | 200 | |
| 4/14/99 | 1 | 1 | 1 | 1 | 4 | 4 | 250 | |
| 4/15/99 | 180 | 1 | 20 | 20 | 1 | 1 | 110 | |
| 4/19/99 | 1 | 10 | 30 | 1 | 1 | 1 | 130 | |
| 4/21/99 | 1 | 1 | 20 | 20 | 2 | 4 | 250 | |
| 4/22/99 | 1 | 1 | 1 | 1 | 1 | 1 | 650 | |
| 4/26/99 | 1 | 10 | 44 | 150 | 1 | 1 | 82 | |
| 4/27/99 | 2 | 23 | 20 | 20 | 2 | 4 | 250 | |
| 4/28/99 | 18 | 15 | 58 | 20 | 6 | 1 | 650 | |
| 5/3/99 | 4 | 10 | 10 | 20 | 1 | 1 | 82 | |
| 5/5/99 | 1 | 1 | 1 | 1 | 1 | 1 | 320 | |
| 5/6/99 | 1 | | | | | | | |

Total Coliform CFU/100ml

divisions

Enterococcus CFU/100ml

| Date | S7 TC | S8 TC | S8.5 TC | S9 TC | S10 TC | S11 TC | CI TC | S7 FC | S8 FC | S8.5 FC | S9 FC | S10 FC | S11 FC | CI FC | S7 ENT | S8 ENT | S8.5 ENT | S9 ENT | S10 ENT | S11 ENT | CI ENT |
|----------|-------|-------|---------|-------|--------|--------|-------|-------|-------|---------|-------|--------|--------|-------|--------|--------|----------|--------|---------|---------|--------|
| 7/27/99 | 4 | 42 | 32 | 34 | 2 | 4 | 2200 | 1 | 6 | 6 | 8 | 1 | 1 | 200 | 2 | 1 | 4 | 4 | 1 | 1 | 300 |
| 7/28/99 | 2 | 230 | 520 | 2800 | 10 | 8 | 3800 | 2 | 170 | 310 | 1000 | 1 | 1 | 1300 | 4 | 200 | 290 | 1100 | 6 | 2700 | |
| 8/2/99 | 4 | 130 | 240 | 230 | 6 | 44 | 1400 | 2 | 98 | 200 | 200 | 2 | 2 | 140 | 1 | 56 | 70 | 70 | 4 | 1100 | |
| 8/3/99 | 2 | 100 | 100 | 110 | 4 | 2 | 1500 | 2 | 24 | 22 | 26 | 2 | 1 | 1 | 1 | 48 | 48 | 1000 | 2 | 1000 | |
| 8/4/99 | 2 | 80 | 200 | 190 | 14 | 18 | 3000 | 2 | 20 | 10 | 80 | 4 | 8 | 230 | 1 | 20 | 50 | 90 | 6 | 1300 | |
| 8/9/99 | 2 | 30 | 60 | 200 | 1 | 1 | 2000 | 2 | 10 | 10 | 20 | 1 | 4 | 220 | 1 | 10 | 50 | 40 | 2 | 310 | |
| 8/10/99 | 4 | 4 | 1 | 40 | 2 | 4 | 1200 | 2 | 1 | 1 | 1 | 6 | 4 | 1 | 2 | 1 | 1 | 10 | 1 | 300 | |
| 8/11/99 | 10 | 8 | 30 | 50 | 2 | 14 | 1400 | 2 | 2 | 12 | 20 | 6 | 8 | 180 | 2 | 1 | 1 | 10 | 1 | 500 | |
| 8/16/99 | 1 | 4 | 6 | 50 | 8 | 4 | 910 | 2 | 2 | 4 | 6 | 2 | 8 | 200 | 1 | 1 | 1 | 20 | 4 | 500 | |
| 8/17/99 | 4 | 16 | 20 | 50 | 6 | 1 | 1100 | 1 | 2 | 2 | 6 | 2 | 1 | 200 | 1 | 4 | 6 | 8 | 4 | 140 | |
| 8/18/99 | 6 | 38 | 180 | 10 | 6 | 6 | 2700 | 1 | 1 | 30 | 10 | 1 | 1 | 73 | 2 | 8 | 10 | 10 | 2 | 400 | |
| 8/23/99 | 2 | 1 | 1 | 10 | 2 | 6 | 960 | 1 | 1 | 1 | 1 | 1 | 4 | 410 | 1 | 1 | 1 | 1 | 2 | 320 | |
| 8/24/99 | 2 | 1 | 1 | 20 | 4 | 2 | 1700 | 1 | 6 | 1 | 1 | 1 | 1 | 300 | 1 | 1 | 1 | 1 | 2 | 400 | |
| 8/25/99 | 4 | 1 | 1 | 20 | 2 | 6 | 2700 | 1 | 2 | 2 | 1 | 2 | 1 | 260 | 1 | 2 | 1 | 1 | 2 | 1 | |
| 8/30/99 | 2 | 10 | 1 | 20 | 16 | 18 | 2500 | 2 | 1 | 1 | 10 | 1 | 4 | 1000 | 1 | 1 | 1 | 20 | 1 | 430 | |
| 9/1/99 | 2 | 60 | 20 | 1100 | 8 | 10 | 2500 | 2 | 1 | 1 | 10 | 1 | 1 | 1000 | 2 | 1 | 1 | 20 | 2 | 1 | |
| 9/1/99 | 6 | 20 | 20 | 170 | 8 | 10 | 2500 | 1 | 1 | 1 | 20 | 1 | 4 | 1100 | 1 | 1 | 1 | 40 | 1 | 200 | |
| 9/8/99 | 10 | 10 | 40 | 30 | 4 | 2 | 4100 | 1 | 1 | 10 | 20 | 2 | 1 | 120 | 1 | 12 | 1 | 10 | 8 | 370 | |
| 9/13/99 | 14 | 1 | 1 | 60 | 1 | 20 | 2800 | 1 | 1 | 1 | 30 | 1 | 1 | 370 | 1 | 1 | 1 | 10 | 1 | 270 | |
| 9/14/99 | 4 | 1 | 1 | 120 | 4 | 12 | 3800 | 2 | 1 | 1 | 40 | 1 | 1 | 340 | 1 | 1 | 1 | 10 | 1 | 130 | |
| 9/15/99 | 4 | 50 | 28 | 50 | 1 | 2 | 3100 | 2 | 1 | 18 | 20 | 1 | 1 | 800 | 1 | 1 | 1 | 1 | 1 | 100 | |
| 9/20/99 | 2 | 2 | 1 | 10 | 8 | 6 | 2100 | 2 | 1 | 10 | 1 | 1 | 1 | 190 | 8 | 10 | 1 | 1 | 1 | 370 | |
| 9/21/99 | 4 | 1 | 1 | 10 | 1 | 6 | 2100 | 2 | 1 | 1 | 1 | 1 | 1 | 330 | 1 | 1 | 1 | 1 | 2 | 480 | |
| 9/22/99 | 2 | 14 | 20 | 50 | 4 | 14 | 2200 | 2 | 2 | 1 | 1 | 8 | 4 | 101 | 2 | 1 | 1 | 10 | 2 | 480 | |
| 9/28/99 | 4 | 8 | 30 | 10 | 4 | 8 | 5300 | 2 | 8 | 1 | 1 | 2 | 4 | 470 | 1 | 1 | 1 | 10 | 2 | 1300 | |
| 9/28/99 | 30 | 1 | 50 | 220 | 20 | 12 | 8100 | 2 | 2 | 20 | 110 | 250 | 6 | 4400 | 4 | 4 | 240 | 770 | 4 | 4800 | |
| 9/29/99 | 4 | 4 | 20 | 1 | 20 | 4 | 920 | 10 | 1 | 10 | 1 | 1 | 1 | 230 | 10 | 10 | 30 | 1 | 1 | 260 | |
| 10/4/99 | 1 | 1 | 4 | 6 | 2 | 1 | 2300 | 4 | 1 | 1 | 1 | 1 | 1 | 300 | 1 | 1 | 1 | 1 | 1 | 450 | |
| 10/5/99 | 4 | 1 | 4 | 20 | 10 | 6 | 250 | 1 | 1 | 4 | 1 | 1 | 1 | 80 | 1 | 2 | 1 | 1 | 1 | 27 | |
| 10/6/99 | 90 | 100 | 60 | 20 | 14 | 30 | 3000 | 72 | 100 | 80 | 6 | 2 | 6 | 2500 | 30 | 20 | 1 | 4 | 2 | 70 | |
| 10/11/99 | 8 | 2 | 4 | 4 | 2 | 1 | 1300 | 10 | 4 | 12 | 10 | 1 | 2 | 54 | 4 | 1 | 1 | 2 | 1 | 100 | |
| 10/12/99 | 56 | 2 | 12 | 10 | 1 | 26 | 670 | 4 | 2 | 1 | 10 | 10 | 1 | 130 | 6 | 1 | 8 | 20 | 1 | 100 | |
| 10/18/99 | 1 | 1 | 1 | 1 | 10 | 1 | 1300 | 1 | 4 | 1 | 1 | 2 | 2 | 220 | 4 | 1 | 1 | 20 | 2 | 180 | |
| 10/19/99 | 1 | 1 | 1 | 1 | 10 | 1 | 1100 | 1 | 1 | 1 | 1 | 1 | 1 | 200 | 1 | 1 | 1 | 1 | 1 | 100 | |
| 10/20/99 | 2 | 6 | 1 | 30 | 12 | 6 | 580 | 4 | 2 | 50 | 10 | 2 | 6 | 390 | 1 | 4 | 10 | 1 | 2 | 220 | |
| 10/25/99 | 6 | 4 | 30 | 40 | 28 | 14 | 1200 | 8 | 120 | 490 | 40 | 18 | 20 | 390 | 1 | 26 | 10 | 40 | 16 | 220 | |
| 10/26/99 | 12 | 190 | 540 | 1400 | 18 | 26 | 2400 | 12 | 1 | 10 | 860 | 16 | 10 | 100 | 4 | 170 | 550 | 650 | 2 | 99 | |
| 10/27/99 | 4 | 1 | 1 | 72 | 14 | 1 | 2400 | 2 | 1 | 10 | 1 | 4 | 2 | 220 | 1 | 1 | 1 | 9 | 2 | 140 | |
| 11/1/99 | 2 | 1 | 1 | 2 | 12 | 2 | 2400 | 1 | 1 | 1 | 1 | 1 | 2 | 390 | 4 | 1 | 1 | 1 | 2 | 130 | |
| 11/2/99 | 1.1 | 20 | 70 | 1 | 6 | 2 | 1300 | 1 | 1 | 1 | 40 | 8 | 6 | 200 | 2 | 1 | 1 | 1 | 1 | 200 | |
| 11/8/99 | 64 | 24 | 66 | 140 | 1 | 1 | 970 | 44 | 12 | 26 | 10 | 8 | 2 | 590 | 1 | 10 | 14 | 20 | 2 | 460 | |
| 11/9/99 | 401 | 401 | 2001 | 2001 | 6 | 18 | 20001 | 70 | 56 | 420 | 90 | 8 | 4 | 20001 | 150 | 46 | 160 | 60 | 10 | 6100 | |
| 11/10/99 | 30 | 10 | 30 | 760 | 34 | 2 | 16000 | 10 | 10 | 10 | 140 | 5 | 4 | 1100 | 66 | 28 | 240 | 190 | 4 | 2200 | |
| 11/15/99 | 6 | 10 | 20 | 2 | 100 | 8 | 2001 | 1 | 1 | 1 | 1 | 4 | 4 | 260 | 1 | 10 | 10 | 36 | 2 | 130 | |
| 11/16/99 | 1 | 2 | 30 | 120 | 22 | 4 | 4900 | 2 | 2 | 1 | 1 | 4 | 2 | 100 | 1 | 1 | 1 | 30 | 10 | 51 | |
| 11/17/99 | 11 | 1 | 1 | 530 | 10 | 12 | 900 | 1 | 10 | 40 | 70 | 4 | 6 | 150 | 1 | 1 | 1 | 18 | 1 | 190 | |
| 11/22/99 | 32 | 62 | 70 | 100 | 10 | 8 | 900 | 34 | 57 | 30 | 60 | 16 | 2 | 240 | 36 | 58 | 50 | 64 | 2 | 110 | |
| 11/23/99 | 10 | 401 | 1 | 100 | 4 | 38 | 800 | 2 | 160 | 1 | 50 | 12 | 60 | 240 | 4 | 160 | 1 | 50 | 6 | 100 | |
| 11/29/99 | 6 | 4 | 1 | 1 | 2 | 2 | 3300 | 2 | 1 | 8 | 1 | 1 | 2 | 30 | 2 | 1 | 1 | 1 | 2 | 100 | |
| 11/30/99 | 1 | 1 | 70 | 70 | 1 | 1 | 3600 | 2 | 1 | 1 | 20 | 1 | 1 | 200 | 2 | 6 | 26 | 76 | 2 | 140 | |
| 12/1/99 | 12 | 38 | 30 | 40 | 1 | 1 | 2500 | 4 | 15 | 1 | 10 | 2 | 6 | 260 | 12 | 18 | 10 | 30 | 1 | 180 | |
| 12/7/99 | 14 | 12 | 20 | 40 | 6 | 12 | 1800 | 4 | 8 | 60 | 10 | 6 | 4 | 120 | 4 | 22 | 690 | 30 | 4 | 150 | |
| 12/9/99 | 1 | 1 | 1 | 120 | 1 | 2 | 1100 | 2 | 1 | 1 | 12 | 1 | 1 | 91 | 4 | 1 | 1 | 42 | 6 | 100 | |
| 12/13/99 | 1 | 1 | 1 | 1 | 4 | 2 | 500 | 1 | 10 | 1 | 1 | 1 | 1 | 220 | 1 | 1 | 1 | 1 | 1 | 60 | |
| 12/14/99 | 6 | 14 | 50 | 40 | 2 | 2 | 920 | 1 | 1 | 1 | 10 | 1 | 1 | 73 | 2 | 1 | 1 | 1 | 1 | 130 | |
| 12/15/99 | 8 | 2 | 16 | 1 | 10 | 2 | 1700 | 1 | 2 | 1 | 10 | 2 | 1 | 100 | 1 | 6 | 1 | 10 | 1 | 100 | |
| 12/20/99 | 28 | 32 | 50 | 1 | 50 | 32 | 980 | 8 | 8 | 10 | 30 | 18 | 20 | 210 | 1 | 10 | 1 | 40 | 2 | 100 | |
| 12/21/99 | 8 | 130 | 10 | 60 | 1 | 4 | 72 | 8 | 8 | 10 | 30 | 1 | 1 | 20 | 1 | 1 | 1 | 20 | 2 | 54 | |
| 12/22/99 | 8 | 42 | 30 | 30 | 2 | 6 | 800 | 4 | 34 | 10 | 1 | 1 | 1 | 99 | 14 | 120 | 30 | 50 | 2 | 100 | |
| 12/27/99 | 4 | 1 | 1 | 100 | 1 | 4 | 900 | 1 | 2 | 1 | 1 | 2 | 4 | 140 | 2 | 1 | 1 | 20 | 2 | 100 | |
| 12/28/99 | 6 | 12 | 30 | 10 | 1 | 6 | 2100 | 1 | 10 | 1 | 1 | 1 | 1 | 130 | 2 | 52 | 1 | 1 | 2 | 350 | |
| 12/29/99 | 1 | 2 | 30 | 40 | 2 | 1 | 1400 | 1 | 2 | 1 | 1 | 1 | 1 | 99 | 1 | 1 | 1 | 1 | 1 | 140 | |
| 1/3/00 | 50 | 60 | 90 | 6200 | 40 | 30 | 18000 | 1 | 1 | 1 | 440 | 20 | 10 | 800 | 1 | 10 | 1 | 1 | 1 | 100 | |
| 1/4/00 | 4 | 10 | 10 | 310 | 10 | 4 | 13000 | 1 | 10 | 140 | 9 | 1 | 2 | 410 | 1 | 1 | 1 | 960 | 10 | 2100 | |
| 1/5/00 | 1 | 1 | 220 | 210 | 2 | 4 | 2800 | 1 | 1 | 1 | 30 | 1 | 1 | 18 | 1 | 1 | 1 | 1 | 1 | 400 | |
| 1/10/00 | 1 | 1 | 10 | 30 | 2 | 1 | 2800 | 1 | 10 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 20 | 1 | 1 | 300 | |
| 1/11/00 | 1 | 1 | 1 | 60 | 1 | 1 | 800 | 1 | 2 | 1 | 10 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 120 | |
| 1/13/00 | 1 | 1 | 1 | 30 | 1 | 1 | 300 | 1 | 1 | 1 | 30 | 1 | 1 | 100 | 1 | 1 | 1 | 1 | 1 | 110 | |

13d
698

Total Coliform CFU/100ml

diversions

Enterococcus CFU/100ml

| Date | S7 TC | S8 TC | S8.5 TC | S9 TC | S10 TC | S11 TC | C1 TC | S7 FC | S8 FC | 8.5 FC | S9 FC | S10 FC | S11 FC | C1 FC | S7 ENT | S8 ENT | S8.5 ENT | S9 ENT | S10 ENT | S11 ENT | C1 ENT |
|---------|-------|-------|---------|-------|--------|--------|--------|-------|-------|--------|-------|--------|--------|-------|--------|--------|----------|--------|---------|---------|--------|
| 1/18/00 | 100 | 90 | 70 | 20 | 1 | 1 | 1000 | 100 | 50 | 80 | 91 | 1 | 10 | 50 | 10 | 30 | 130 | 91 | 1 | 1 | 90 |
| 1/19/00 | 16 | 70 | 30 | 20 | 14 | 20 | 550 | 28 | 10 | 50 | 1 | 2 | 8 | 82 | 36 | 30 | 530 | 150 | 10 | 120 | |
| 1/24/00 | 6 | 10 | 1 | 1 | 2 | 4 | 1400 | 1 | 1 | 1 | 1 | 2 | 1 | 50 | 2 | 1 | 1 | 20 | 1 | 90 | |
| 1/26/00 | 510 | 2001 | 8000 | 12000 | 50 | 30 | 20001 | 30 | 330 | 270 | 1200 | 10 | 20 | 4800 | 140 | 340 | 690 | 1200 | 10 | 14000 | |
| 1/31/00 | 170 | 9300 | 6100 | 1800 | 20 | 50 | 200000 | 10 | 4700 | 400 | 1700 | 1 | 1 | 4800 | 10 | 9800 | 900 | 6800 | 10 | 7800 | |
| 2/1/00 | 6 | 10 | 50 | 10 | 1 | 6 | 3500 | 2 | 30 | 1 | 1 | 1 | 2 | 200 | 6 | 10 | 20 | 9 | 1 | 100 | |
| 2/2/00 | 1 | 10 | 290 | 290 | 16 | 8 | 3500 | 2 | 1 | 1 | 20 | 1 | 2 | 260 | 1 | 1 | 40 | 10 | 4 | 610 | |
| 2/8/00 | 2 | 6 | 30 | 50 | 2 | 1 | 3100 | 1 | 4 | 40 | 30 | 1 | 4 | 100 | 1 | 4 | 50 | 30 | 2 | 100 | |
| 2/9/00 | 16 | 28 | 90 | 1 | 12 | 12 | 2500 | 8 | 4 | 1 | 1 | 2 | 4 | 70 | 2 | 6 | 20 | 10 | 1 | 240 | |
| 2/14/00 | 30 | 30 | 220 | 1 | 90 | 20 | 18000 | 1 | 1 | 10 | 250 | 1 | 1 | 1200 | 1 | 1 | 10 | 10 | 1 | 2800 | |
| 2/15/00 | 110 | 970 | 1100 | 4100 | 90 | 30 | 23000 | 1 | 180 | 130 | 250 | 30 | 60 | 640 | 1 | 1 | 220 | 210 | 40 | 360 | |
| 2/17/00 | 790 | 1200 | 1200 | 5700 | 60 | 10 | 23000 | 30 | 150 | 370 | 400 | 1 | 1 | 2800 | 60 | 220 | 710 | 1200 | 1 | 5500 | |
| 2/22/00 | 960 | 2300 | 11000 | 9400 | 250 | 160 | 42000 | 280 | 260 | 2200 | 1800 | 40 | 10 | 6400 | 620 | 880 | 5000 | 5800 | 50 | 25000 | |
| 2/23/00 | 260 | 170 | 3200 | 1700 | 70 | 70 | 41000 | 10 | 1 | 200 | 99 | 1 | 1 | 4600 | 50 | 90 | 1200 | 600 | 30 | 4300 | |
| 2/28/00 | 1400 | 3500 | 3300 | 23000 | 70 | 80 | 41000 | 10 | 50 | 100 | 280 | 1 | 1 | 4900 | 10 | 1 | 100 | 100 | 1 | 3300 | |
| 3/1/00 | 30 | 200 | 290 | 9999 | 60 | 1 | 9900 | 20 | 10 | 1 | 1 | 1 | 1 | 600 | 1 | 1 | 1 | 100 | 1 | 800 | |
| 3/1/00 | 180 | 520 | 590 | 730 | 430 | 80 | 9999 | 1 | 10 | 90 | 9999 | 20 | 1 | 3300 | 1 | 40 | 1500 | 130 | 60 | 10000 | |
| 3/7/00 | 40 | 20 | 70 | 830 | 410 | 750 | 20000 | 1 | 1 | 1 | 36 | 1 | 1 | 4900 | 30 | 30 | 230 | 60 | 30 | 4000 | |
| 3/13/00 | 10 | 10 | 1 | 45 | 30 | 40 | 6800 | 1 | 1 | 1 | 50 | 1 | 1 | 200 | 1 | 1 | 10 | 10 | 1 | 200 | |
| 3/14/00 | 4 | 2 | 4 | 2 | 2 | 4 | 3500 | 1 | 1 | 1 | 10 | 1 | 1 | 170 | 1 | 1 | 1 | 1 | 1 | 120 | |
| 3/15/00 | 1 | 4 | 1 | 2 | 92 | 2 | 1200 | 4 | 2 | 2 | 1 | 38 | 1 | 100 | 10 | 6 | 44 | 44 | 2 | 100 | |
| 3/20/00 | 10 | 26 | 20 | 30 | 10 | 60 | 750 | 1 | 4 | 8 | 4 | 2 | 1 | 340 | 10 | 14 | 340 | 22 | 1 | 100 | |
| 3/21/00 | 4 | 76 | 8 | 10 | 8 | 6 | 5400 | 1 | 4 | 2 | 4 | 4 | 4 | 520 | 2 | 2 | 2 | 1 | 1 | 120 | |
| 3/22/00 | 1 | 1 | 2 | 1 | 1 | 10 | 190 | 1 | 1 | 1 | 1 | 1 | 14 | 60 | 1 | 1 | 1 | 1 | 1 | 20 | |
| 3/27/00 | 4 | 1 | 2 | 15 | 1 | 1 | 540 | 1 | 1 | 2 | 1 | 1 | 1 | 120 | 1 | 1 | 1 | 1 | 1 | 54 | |
| 3/29/00 | 2 | 2 | 2 | 8 | 10 | 1 | 630 | 1 | 1 | 1 | 1 | 1 | 1 | 30 | 1 | 1 | 1 | 2 | 1 | 72 | |
| 4/3/00 | 2 | 2 | 12 | 15 | 32 | 18 | 1500 | 4 | 4 | 1 | 3 | 14 | 8 | 480 | 4 | 2 | 2 | 3 | 4 | 54 | |
| 4/4/00 | 2 | 4 | 1 | 8 | 14 | 8 | 5900 | 1 | 1 | 1 | 4 | 4 | 2 | 72 | 1 | 2 | 2 | 1 | 2 | 2 | |
| 4/5/00 | 8 | 4 | 2 | 6 | 6 | 4 | 160 | 1 | 1 | 4 | 4 | 4 | 4 | 50 | 1 | 1 | 2 | 18 | 2 | 40 | |
| 4/10/00 | 6 | 6 | 10 | 28 | 150 | 8 | 3000 | 1 | 2 | 5 | 6 | 4 | 2 | 320 | 2 | 1 | 5 | 2 | 2 | 100 | |
| 4/11/00 | 4 | 4 | 3 | 4 | 66 | 8 | 1100 | 1 | 1 | 2 | 1 | 40 | 1 | 100 | 1 | 2 | 2 | 1 | 2 | 40 | |
| 4/12/00 | 4 | 1 | 8 | 4 | 400 | 2 | 900 | 1 | 2 | 1 | 4 | 50 | 2 | 100 | 1 | 1 | 2 | 1 | 1 | 20 | |
| 4/17/00 | 4 | 4 | 1 | 4 | 510 | 110 | 9600 | 1 | 10 | 1 | 4 | 25 | 10 | 530 | 1 | 1 | 2 | 70 | 15 | 50 | |
| 4/18/00 | 400 | 170 | 120 | 140 | 20001 | 13000 | 130000 | 60 | 10 | 10 | 40 | 4500 | 25 | 100 | 1 | 1 | 5800 | 82 | 10000 | 14000 | |
| 4/19/00 | 620 | 650 | 1800 | 1100 | 4600 | 50 | 12000 | 30 | 50 | 250 | 100 | 5 | 50 | 5200 | 10 | 10 | 150 | 50 | 50 | 3500 | |
| 4/24/00 | 22 | 110 | 110 | 260 | 10 | 7 | 3200 | 12 | 10 | 10 | 20 | 5 | 5 | 220 | 1 | 5 | 220 | 60 | 10 | 300 | |
| 4/25/00 | 70 | 1 | 2 | 6 | 6 | 4 | 160 | 1 | 1 | 4 | 4 | 4 | 4 | 50 | 1 | 1 | 2 | 18 | 2 | 100 | |
| 4/26/00 | 1 | 1 | 60 | 240 | 20 | 5 | 2600 | 5 | 10 | 5 | 60 | 2 | 2 | 370 | 10 | 1 | 370 | 20 | 10 | 100 | |
| 5/1/00 | 1 | 1 | 110 | 27 | 10 | 14 | 2900 | 1 | 1 | 28 | 12 | 2 | 4 | 100 | 1 | 1 | 28 | 4 | 2 | 160 | |
| 5/15/00 | 6 | 2 | 18 | 40 | 8 | 1 | 510 | 4 | 1 | 7 | 42 | 2 | 2 | 100 | 1 | 1 | 1 | 14 | 1 | 200 | |
| 5/16/00 | 1 | 2 | 2 | 18 | 1 | 1 | 170 | 1 | 1 | 2 | 1 | 1 | 1 | 50 | 1 | 1 | 1 | 4 | 1 | 91 | |
| 5/17/00 | 4 | 2 | 8 | 12 | 1 | 1 | 2000 | 1 | 1 | 2 | 1 | 1 | 1 | 280 | 1 | 1 | 1 | 6 | 1 | 130 | |
| 5/22/00 | 14 | 8 | 5.1 | 10 | 80 | 50 | 2100 | 14 | 2 | 5.1 | 20 | 26 | 4 | 170 | 2 | 4 | 5.1 | 5.1 | 24 | 130 | |
| 5/23/00 | 2 | 2 | 2 | 4 | 18 | 28 | 370 | 1 | 1 | 2 | 8 | 18 | 6 | 150 | 6 | 1 | 2 | 1 | 1 | 190 | |
| 5/24/00 | 2 | 1 | 4 | 4 | 24 | 14 | 1100 | 1 | 1 | 2 | 2 | 1 | 2 | 130 | 1 | 1 | 1 | 2 | 10 | 310 | |
| 5/30/00 | 1 | 100 | 48 | 46 | 1 | 6 | 6000 | 1 | 1 | 16 | 40 | 1 | 1 | 2200 | 2 | 16 | 26 | 28 | 2 | 3600 | |
| 5/31/00 | 6 | 8 | 8 | 5.1 | 4 | 4 | 1600 | 1 | 44 | 4 | 5.1 | 4 | 4 | 620 | 4 | 4 | 6 | 10 | 4 | 560 | |
| 6/5/00 | 6 | 34 | 54 | 110 | 16 | 4 | 1700 | 6 | 18 | 4 | 30 | 1 | 1 | 620 | 8 | 8 | 30 | 48 | 1 | 330 | |
| 6/8/00 | 1 | 6 | 110 | 120 | 1 | 4 | 3100 | 2 | 1 | 30 | 10 | 1 | 1 | 60 | 1 | 1 | 5.1 | 5.1 | 1 | 190 | |
| 6/12/00 | 4 | 10 | 5.1 | 5.1 | 10 | 1 | 2100 | 1 | 1 | 5.1 | 5.1 | 1 | 1 | 80 | 1 | 4 | 5.1 | 5.1 | 6 | 200 | |
| 6/13/00 | 50 | 60 | 190 | 150 | 40 | 60 | 3300 | 5.1 | 5.1 | 5.1 | 4 | 5.1 | 6 | 80 | 1 | 4 | 10 | 8 | 1 | 40 | |
| 6/14/00 | 2 | 56 | 30 | 64 | 180 | 10 | 2200 | 1 | 40 | 14 | 32 | 34 | 10 | 370 | 1 | 18 | 370 | 18 | 10 | 700 | |
| 6/19/00 | 2 | 2 | 2 | 8 | 14 | 2 | 1300 | 2 | 1 | 1 | 1 | 6 | 1 | 590 | 1 | 1 | 1 | 1 | 1 | 170 | |
| 6/21/00 | 10 | 20 | 2 | 8 | 130 | 10 | 2600 | 2 | 5.1 | 5.1 | 10 | 25 | 2 | 160 | 1 | 5.1 | 5.1 | 10 | 1 | 400 | |
| 6/26/00 | 1 | 6 | 5.1 | 80 | 300 | 4 | 2200 | 2 | 2 | 5.1 | 10 | 8 | 2 | 250 | 14 | 4 | 5.1 | 20 | 20 | 110 | |
| 7/3/00 | 4 | 4 | 18 | 50 | 10 | 1 | 1300 | 4 | 2 | 6 | 20 | 5.1 | 1 | 330 | 1 | 1 | 330 | 5.1 | 1 | 260 | |
| 7/10/00 | 1 | 32 | 4 | 12 | 6 | 2 | 370 | 1 | 1 | 2 | 8 | 2 | 2 | 130 | 32 | 6 | 2 | 8 | 1 | 350 | |
| 7/10/00 | 1 | 80 | 30 | 100 | 4 | 2 | 800 | 2 | 10 | 70 | 30 | 1 | 1 | 180 | 1 | 14 | 460 | 130 | 1 | 3100 | |
| 7/12/00 | 2 | 8 | 5.1 | 20 | 1 | 4 | 1000 | 4 | 30 | 60 | 6 | 4 | 1 | 760 | 2 | 120 | 70 | 1 | 30 | 690 | |
| 7/17/00 | 51 | 51 | 50 | 10 | 5.1 | 6 | 1400 | 5.1 | 10 | 5.1 | 5.1 | 5.1 | 1 | 760 | 1 | 6 | 5.1 | 20 | 8 | 2100 | |
| 7/17/00 | 12 | 10 | 50 | 47 | 42 | 6 | 1700 | 1 | 2 | 2 | 8 | 2 | 1 | 54 | 18 | 12 | 100 | 130 | 38 | 6200 | |

130
8
6

Total Coliform CFU/100ml

Fecal Coliform CFU/100ml

Enterococcus CFU/100ml

| Date | S7 TC | S8 TC | S8.5 TC | S9 TC | S10 TC | S11 TC | CI TC | S7 FC | S8 FC | 8.5 FC | S9 FC | S10 FC | S11 FC | CI FC | S7 ENT | S8 ENT | S8.5 ENT | S9 ENT | S10 ENT | S11 ENT | CI ENT |
|----------|-------|-------|---------|-------|--------|--------|-------|-------|-------|--------|-------|--------|--------|-------|--------|--------|----------|--------|---------|---------|--------|
| 7/18/00 | 6 | 2 | 16 | 25 | 1 | 10 | 2200 | 4 | 2 | 4 | 1 | 1 | 1 | 54 | 2 | 8 | 98 | 210 | 1 | 1 | 7000 |
| 7/20/00 | | | 34 | 17 | 6 | 2 | 3200 | | | 10 | 3 | 6 | 1 | 100 | | 10 | 150 | 86 | 12 | 18 | 5600 |
| 7/21/00 | | | 54 | | | | | | | | | | | | | | 190 | | | | |
| 7/22/00 | | | 10 | | | | | | | | | | | | | | | | | | |
| 7/24/00 | 2 | 2 | 3 | 6 | 1 | 2 | 3000 | 1 | 1 | 10 | 5 | 1 | 2 | 20 | 2 | 2 | 3 | 160 | 1 | 1 | 11000 |
| 7/25/00 | 1 | 1 | 1 | 16 | 2 | 2 | | 1 | 1 | 1 | 2 | 2 | 1 | | 1 | 2 | 1 | 2 | 4 | 4 | |
| 7/26/00 | 1 | 4 | 2 | 1 | 4 | 2 | | 1 | 1 | 1 | 2 | 2 | 1 | | 1 | 2 | 1 | 2 | 1 | 1 | |
| 7/31/00 | 6 | 4 | 51 | 10 | 10 | 12 | 150 | 2 | 10 | 51 | 51 | 7 | 8 | 230 | 2 | 20 | 9 | 51 | 7 | 2 | 420 |
| 8/1/00 | 20 | 20 | 20 | 40 | 30 | 20 | 6700 | 10 | 9 | 10 | 10 | 9 | 9 | 1100 | 10 | 20 | 9 | 9 | 20 | 10 | 520 |
| 8/2/00 | 4 | 30 | 10 | 9 | 6 | 50 | 1800 | 1 | 1 | 9 | 1 | 2 | 28 | 20 | 2 | 1 | 7 | 7 | 6 | 140 | 7000 |
| 8/6/00 | 2 | 1 | 1 | 3 | 1 | 1 | | 1 | 1 | 1 | 1 | 1 | 1 | 20 | 2 | 1 | 1 | 2 | 2 | 2 | |
| 8/7/00 | 66 | 10 | 2 | 2 | 1 | 6 | | 42 | 4 | 6 | 4 | 4 | 14 | | 22 | 9 | 18 | 2 | 32 | 4 | |
| 8/8/00 | 84 | 1 | 6 | 6 | 1 | 4 | | 34 | 4 | 2 | 4 | 2 | 1 | | 34 | 1 | 12 | 10 | 2 | 2 | 1000 |
| 8/14/00 | 12 | 12 | 12 | 12 | 10 | 26 | 2600 | 4 | 6 | 2 | 1 | 1 | 8 | 40 | 2 | 2 | 1 | 4 | 1 | 1 | 420 |
| 8/16/00 | 18 | 60 | 8 | 120 | 15 | 2 | | 1 | 1 | 1 | 1 | 1 | 2 | 10 | 2 | 2 | 1 | 12 | 2 | 1 | 91 |
| 8/21/00 | 2 | 2 | 10 | 2 | 1 | 6 | 440 | 2 | 1 | 4 | 1 | 2 | 2 | | 1 | 2 | 1 | 1 | 2 | 1 | |
| 8/22/00 | 8 | 2 | 2 | 2 | 4 | 6 | | 2 | 1 | 1 | 1 | 1 | 6 | | 2 | 2 | 1 | 4 | 2 | 4 | |
| 8/28/00 | 66 | 34 | 6 | 6 | 10 | 2 | 4100 | 62 | 14 | 1 | 1 | 1 | 2 | 360 | 2 | 12 | 6 | 2 | 2 | 420 | |
| 8/29/00 | 6 | 1 | 90 | 84 | 6 | 16 | 290 | 6 | 1 | 26 | 12 | 2 | 2 | 340 | 2 | 1 | 36 | 4 | 2 | 440 | |
| 8/30/00 | 6 | 1 | 9 | 9 | 4 | 4 | 800 | 1 | 1 | 9 | 10 | 1 | 8 | 500 | 2 | 2 | 9 | 9 | 10 | 300 | |
| 9/5/00 | 6 | 10001 | 2 | 6 | 4 | 20 | 2200 | 1 | 170 | 1 | 1 | 1 | 1 | 60 | 1 | 2 | 4 | 9 | 1 | 200 | |
| 9/6/00 | 2 | 3 | 1 | 1 | 1 | 6 | 590 | 1 | 9 | 1 | 1 | 1 | 1 | 30 | 1 | 30 | 4 | 1 | 1 | 140 | |
| 9/11/00 | 2 | 9 | 2 | 8 | 1 | 6 | | 1 | 1 | 1 | 1 | 1 | 1 | | 8 | 10 | 1 | 2 | 1 | | |
| 9/13/00 | 14 | 1 | 4 | 2 | 6 | 1 | 370 | 14 | 1 | 2 | 1 | 6 | 4 | 27 | 22 | 1 | 8 | 4 | 4 | 640 | |
| 9/18/00 | 1 | 16 | 4 | 4 | 4 | 8 | | 1 | 2 | 4 | 1 | 5 | 4 | | 1 | 4 | 2 | 2 | 1 | | |
| 9/20/00 | 8 | 4 | 4 | 4 | 4 | 1 | | 6 | 4 | 5 | 5 | 5 | 4 | | 6 | 4 | 4 | 4 | 1 | | |
| 9/25/00 | 18 | 18 | 401 | 401 | 84 | 54 | 14000 | 9 | 6 | 68 | 90 | 8 | 4 | 3200 | 1 | 1 | 9 | 8 | 4 | 160 | |
| 9/27/00 | 20 | 10 | 9 | 20 | 10 | 2 | 2500 | 9 | 30 | 4 | 10 | 10 | 2 | 400 | 9 | 4 | 9 | 9 | 9 | 50 | |
| 10/2/00 | 2 | 2 | 8 | 10 | 4 | 2 | | 2 | 1 | 4 | 3 | 1 | 2 | | 2 | 2 | 1 | 2 | 1 | 150 | |
| 10/4/00 | 10 | 30 | 250 | 190 | 4 | 6 | 3100 | 4 | 4 | 10 | 30 | 2 | 8 | 300 | 2 | 1 | 50 | 20 | 1 | 100 | |
| 10/5/00 | 6 | 14 | 30 | 9 | 8 | 20 | 2400 | 2 | 1 | 10 | 40 | 2 | 2 | 260 | 2 | 2 | 10 | 10 | 2 | 200 | |
| 10/10/00 | 6 | 14 | 99 | 54 | 10 | 10 | 1300 | 30 | 20 | 200 | 9 | 9 | 9 | 1000 | 10 | 9 | 100 | 10 | 9 | 200 | |
| 10/11/00 | 20 | 10 | | | | | | | | | | | | | | | | | | | |

13d
898

Aliso Water Management Agency

NPDES No. CA0107611

DISCHARGER: AWMA

ORDER/RESOLUTION No. 95-107

REPORT FOR: July 2000

REPORT FREQUENCY: Monthly

REPORT DUE: August 30, 2000

SAMPLE COLLECTED BY: SERRA Lab

SAMPLE SOURCE: Aliso Creek

SAMPLE ANALYZED BY: SERRA Lab

SAMPLE POINT: Above sand berm

SIGNED UNDER PENALTY OF PERJURY:

Michael J. Wilson

| Parameter | Flow | pH | TSS | cBOD | Total Coliform | Fecal Coliform |
|--------------|------------|----------------|------------|------------|----------------|----------------|
| Sample Type | Continuous | Grab | 24-hr Comp | 24-hr Comp | Grab | Grab |
| Units | MGD | pH Units | mg/L | mg/L | CFU/100 ml | CFU/100 ml |
| Permit Limit | 4.52 | 6.0 < pH < 9.0 | NA | NA | NA | NA |
| DATE | Jul-01 | 0 | | | | |
| | Jul-02 | 0 | | | | |
| | Jul-03 | 0 | | | | |
| | Jul-04 | 0 | | | | |
| | Jul-05 | 0 | | | | |
| | Jul-06 | 0 | | | | |
| | Jul-07 | 0 | | | | |
| | Jul-08 | 0 | | | | |
| | Jul-09 | 0 | | | | |
| | Jul-10 | 0 | | | | |
| | Jul-11 | 0 | | | | |
| | Jul-12 | 0 | | | | |
| | Jul-13 | 0 | | | | |
| | Jul-14 | 0 | | | | |
| | Jul-15 | 0 | | | | |
| | Jul-16 | 0 | | | | |
| | Jul-17 | 0 | | | | |
| | Jul-18 | 0 | | | | |
| | Jul-19 | 0 | | | | |
| | Jul-20 | 0 | | | | |
| | Jul-21 | 1.51 | | | | |
| | Jul-22 | 4.68 | | | | |
| | Jul-23 | 4.68 | | | | |
| | Jul-24 | 4.47 | 8.2 | 5.5 | 1.7 | |
| | Jul-25 | 4.58 | 7.9 | 1.1 | 4.6 | 3000 |
| | Jul-26 | 4.88 | 7.9 | 2.5 | 4.0 | 20 |
| | Jul-27 | 4.57 | 7.9 | 2.1 | | |
| | Jul-28 | 3.82 | 7.9 | 4.2 | | |
| | Jul-29 | 0 | | | | |
| | Jul-30 | 0 | | | | |
| | Jul-31 | 0 | | | | |

2000 ALISO CREEK DIVERSION

COASTAL COMMISSION

EXHIBIT # 14
PAGE 1 OF 4

Comments: Flow values for 7/21-24, shown in bold type, are estimates. There is no data available for 7/21-7/23 due to problems with equipment installation. The meter was reset and accurate data was collected 7/24 from 10:40 until the diversion was stopped 7/28 at 20:40. No cBOD data can be reported for 7/27-28; blank depletion of the dilution water used for these analyses was >0.24 mg/L. The average of 3 days data, 3.4 mg/L, was used to calculate the outfall cBOD for 7/27 and 7/28/00.

Aliso Water Management Agency

NPDES No. CA0107611

DISCHARGER: AWMA
 REPORT FOR: August 2000
 REPORT DUE: September 30, 2000
 SAMPLE SOURCE: Aliso Creek
 SAMPLE POINT: Above sand berm

ORDER/RESOLUTION No. 95-107
 REPORT FREQUENCY: Monthly
 SAMPLE COLLECTED BY: SERRA Lab
 SAMPLE ANALYZED BY: SERRA Lab

SIGNED UNDER PENALTY OF PERJURY:

Michael J. Watson

| Parameter | Flow | pH | TSS | cBOD | Total Coliform | Fecal Coliform |
|--------------|------------|----------------|------------|------------|----------------|----------------|
| Sample Type | Continuous | Grab | 24-hr Comp | 24-hr Comp | Grab | Grab |
| Units | MGD | pH Units | mg/L | mg/L | CFU/100 ml | CFU/100 ml |
| Permit Limit | 4.52 | 6.0 < pH < 9.0 | NA | NA | NA | NA |
| DATE | Aug-01 | 0.00 | | | 150 | 230 |
| | Aug-02 | 0.00 | | | 6,700 | 1,100 |
| | Aug-03 | 0.00 | | | | |
| | Aug-04 | 2.72 | | | | |
| | Aug-05 | 4.53 | | | | |
| | Aug-06 | 4.59 | 7.9 | 5.7 | 1,800 | 20 |
| | Aug-07 | 4.46 | 7.9 | 2.5 | | |
| | Aug-08 | 4.34 | 7.9 | 1.9 | | |
| | Aug-09 | 4.58 | 7.9 | 0.8 | | |
| | Aug-10 | 4.57 | 8.0 | 2.9 | | |
| | Aug-11 | 4.72 | 8.0 | 1.7 | | |
| | Aug-12 | 4.86 | 8.0 | 1.4 | | |
| | Aug-13 | 4.82 | 8.1 | 2.7 | | |
| | Aug-14 | 5.01 | 8.1 | 2.7 | 2,600 | 40 |
| | Aug-15 | 4.99 | 8 | 1.4 | | |
| | Aug-16 | 5.05 | 7.9 | 3.1 | | |
| | Aug-17 | 4.96 | 8 | 4.5 | | |
| | Aug-18 | 4.76 | 7.9 | | | |
| | Aug-19 | 4.69 | | | | |
| | Aug-20 | 4.77 | | 1.5 | | |
| | Aug-21 | 4.75 | 8.1 | 5.2 | 440 | |
| | Aug-22 | 4.84 | 8.1 | 1.6 | | |
| | Aug-23 | 4.71 | 7.9 | 1.3 | | |
| | Aug-24 | 4.58 | 8.0 | 1.4 | | |
| | Aug-25 | 4.58 | 8.0 | | | |
| | Aug-26 | 4.58 | | | | |
| | Aug-27 | 4.58 | | | | |
| | Aug-28 | 1.24 | 8.0 | | 4,100 | 360 |
| | Aug-29 | 0.00 | | | 290 | 340 |
| | Aug-30 | 1.72 | 8.6 | 7.9 | 800 | 500 |
| | Aug-31 | 4.58 | 8.2 | 26.8 | | |

COASTAL COMMISSION

EXHIBIT # 14
 PAGE 2 OF 4

Comments: Flow meter out of service from 09:30 8/23 through 08/31 - flows shown are estimates based on average cfs and hours of diversion. The 24-hour composite sample for 8/27-28 was lost when high flows flooded the sampling equipment. The pump was turned off at approximately 06:30 8/28 and restarted at approximately 15:00 on 8/30/00.

MONTHLY MONITORING REPORT

Water Management Agency

DISCHARGER: AWMA

REPORT FOR: September 2000

REPORT DUE: October 30, 2000

SAMPLE SOURCE: Aliso Creek

SAMPLE POINT: Above sand berm

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NPDES No. CA0107611

ORDER/RESOLUTION No. 95-107

REPORT FREQUENCY: Monthly

SAMPLE COLLECTED BY: SERRA Lab

SAMPLE ANALYZED BY: SERRA Lab

SIGNED UNDER PENALTY OF PERJURY:

Michael J. Wilson

| Parameter | Flow | pH | TSS | cBOD | Total Coliform | Fecal Coliform |
|--------------|------------|----------------|------------|------------|----------------|----------------|
| Sample Type | Continuous | Grab | 24-hr Comp | 24-hr Comp | Grab | Grab |
| Units | MGD | pH Units | mg/L | mg/L | CFU/100 ml | CFU/100 ml |
| Permit Limit | 4.52 | 6.0 < pH < 9.0 | NA | NA | NA | NA |
| DATE | Sep-01 | 4.58 | 8.0 | | | |
| | Sep-02 | 4.58 | | | | |
| | Sep-03 | 4.58 | 6.6 | 1.3 | | |
| | Sep-04 | 4.58 | 4.0 | < 1.5 | | |
| | Sep-05 | 4.56 | 9.6 | < 2.3 | 2,200 | 60 |
| | Sep-06 | 4.43 | 1.6 | < 2.7 | | |
| | Sep-07 | 1.39 | 2.9 | < 1.1 | | |
| | Sep-08 | 1.21 | 7.9 | | | |
| | Sep-09 | 4.71 | | | | |
| | Sep-10 | 4.57 | 2.9 | 2.1 | | |
| | Sep-11 | 4.67 | 2.8 | | 590 | 30 |
| | Sep-12 | 4.85 | 3.3 | 2.7 | | |
| | Sep-13 | 4.90 | 1.4 | 2.1 | | |
| | Sep-14 | 4.78 | 1.5 | | | |
| | Sep-15 | 4.74 | 8.0 | | | |
| | Sep-16 | 4.83 | | | | |
| | Sep-17 | 4.84 | 2.0 | | | |
| | Sep-18 | 4.65 | 3.4 | | 370 | 27 |
| | Sep-19 | 4.70 | 3.3 | < 1 | | |
| | Sep-20 | 5.10 | 1.9 | 2.3 | | |
| | Sep-21 | 5.07 | 2.4 | 1.2 | | |
| | Sep-22 | 5.18 | 7.9 | | | |
| | Sep-23 | 0.62 | | | | |
| | Sep-24 | 0.00 | | | | |
| | Sep-25 | 0.00 | | | 14,000 | 3,200 |
| | Sep-26 | 1.28 | 8.0 | 7.0 | 1.8 | |
| | Sep-27 | 4.57 | 7.8 | 1.2 | 2.8 | |
| | Sep-28 | 5.09 | 8.0 | 2.5 | 2.4 | |
| | Sep-29 | 5.10 | 8.0 | | | |
| | Sep-30 | 4.87 | | | | |

COASTAL COMMISSION

EXHIBIT # 14
PAGE 3 OF 4

Comments: Flow meter out of service from 09/01 through 09/04/00 - flows shown are estimates based on average cfs and hours of diversion. Dilution water used for cBOD analysis of samples for 9/11, 9/14, 9/17 and 9/18 did not meet QA limits; the blank depletion was >0.3 mg/L. The monthly average cBOD of 2.0 mg/L was used to calculate the outfall cBOD on those days. High flow caused the diversion to be stopped at 06:10 on 9/23; it was restarted at 10:00 on 09/26/00.

MRP 95-107 MONTHLY MONITORING REPORT

Aliso Water Management Agency

NPDES No. CA0107611

DISCHARGER: AWMA

ORDER/RESOLUTION No. 95-107

REPORT FOR: October 2000

REPORT FREQUENCY: Monthly

REPORT DUE: November 30, 2000

SAMPLE COLLECTED BY: SERRA Lab

SAMPLE SOURCE: Aliso Creek

SAMPLE ANALYZED BY: SERRA Lab

SAMPLE POINT: Above sand berm

SIGNED UNDER PENALTY OF PERJURY:

Muhad J. Wilson

| Parameter | Flow | pH | TSS | cBOD | Total Coliform | Fecal Coliform |
|--------------|------------|----------------|------------|------------|----------------|----------------|
| Sample Type | Continuous | Grab | 24-hr Comp | 24-hr Comp | Grab | Grab |
| Units | MGD | pH Units | mg/L | mg/L | CFU/100 ml | CFU/100 ml |
| Permit Limit | 4.52 | 6.0 < pH < 9.0 | NA | NA | NA | NA |
| DATE | Oct-01 | 4.83 | 1.7 | 1.3 | | |
| | Oct-02 | 4.81 | 7.9 | <1.0 | 2,500 | 400 |
| | Oct-03 | 3.00 | 8.0 | <1.0 | | |
| | Oct-04 | | | | 3,100 | 630 |
| | Oct-05 | | | | 3,100 | 300 |
| | Oct-06 | | | | | |
| | Oct-07 | | | | | |
| | Oct-08 | | | | | |
| | Oct-09 | | | | | |
| | Oct-10 | | | | 2,400 | 260 |
| | Oct-11 | | | | 1,300 | 1,000 |
| | Oct-12 | | | | | |
| | Oct-13 | | | | | |
| | Oct-14 | | | | | |
| | Oct-15 | | | | | |
| | Oct-16 | | | | | |
| | Oct-17 | | | | | |
| | Oct-18 | | | | 2,200 | 190 |
| | Oct-19 | | | | 80 | 70 |
| | Oct-20 | | | | | |
| | Oct-21 | | | | | |
| | Oct-22 | | | | | |
| | Oct-23 | | | | 990 | 170 |
| | Oct-24 | | | | | |
| | Oct-25 | | | | 610 | 190 |
| | Oct-26 | | | | | |
| | Oct-27 | | | | | |
| | Oct-28 | | | | | |
| | Oct-29 | | | | | |
| | Oct-30 | | | | 61,000 | 30,000 |
| | Oct-31 | | | | 6,300 | 1,500 |

COASTAL COMMISSION

EXHIBIT # 14
PAGE 4 OF 4

Comments: Aliso Creek was diverted to the AWMA Outfall 10/1-3/00. The diversion was stopped at approximately 03:30 pm on 10/3/00.

ATTACHMENT 4
AWMA END-OF-OUTFALL DATA

COASTAL COMMISSION

EXHIBIT # 15
PAGE 1 OF 6

**NPDES Permit Requirements and Plant Discharge Performance
2000 Discharge Results**

Agency: Aliso Water Management Agency
 Facility Name: AWMA Ocean Outfall, NPDES No. CA0107611
 Design Capacity: 50 MGD

| Parameter | aily Permit Limit | JAN Daily Max | FEB Daily Max | MAR Daily Max | APR Daily Max | MAY Daily Max | JUN Daily Max | JUL Daily Max | AUG Daily Max | SEP Daily Max | OCT Daily Max | NOV Daily Max | DEC Daily Max |
|------------------------------|-------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Dry Weather Flow (MGD) | 27 | 20.2 | 23.2 | 22.4 | 21.4 | 18.7 | 16.6 | 20.9 | 20.8 | 21.6 | 24.0 | 24.8 | 25.9 |
| cBOD (mg/L) | 45 | 8.3 | 9.2 | 11.2 | 8.5 | 7.1 | 9.3 | 8.6 | 7.1 | <5.3 | 9.6 | 13.6 | 7.8 |
| TSS (mg/L) | 50 | 13.7 | 16.5 | 12.8 | 12.8 | 12.0 | 11.4 | 12.6 | 14 | 13.4 | 7.5 | 17.4 | 11 |
| pH | 6.0 to 9.0 | 7.2 - 7.6 | 7.3 - 7.5 | 7.3 - 7.5 | 7.4 - 7.6 | 7.3 - 7.6 | 7.3 - 7.6 | 7.4 - 7.6 | 7.3 - 7.6 | 7.3 - 7.6 | 7.3 - 7.7 | 7.3 - 7.5 | 7.3 - 7.6 |
| O & G (mg/L) | 73 | <10 | <5 | <5 | 5.7 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| Sett. Sol. (ml/L) | 3.0 | <0.1 | 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | 1.5 | 0.7 | 0.6 | <0.1 |
| Turbidity (NTU) | 225 | 13.4 | 17.0 | 10.2 | 11.5 | 13.5 | 11.6 | 11.5 | 8.3 | 9.4 | 6.6 | 14.0 | 10.4 |
| Chl. Res. (mg/L) | 2 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Acute Tox. (TUa) | 2.5 | <0.1 | 1.09 | <0.69 | 0.59 | 0.59 | 0.41 | 0.94 | <0.41 | <0.41 | <0.41 | <0.41 | 0.69 |
| Chronic Tox. (TUc) | 300 | <50 | <50 | 100 | <50 | <50 | <50 | <50 | <50 | <50 | <50 | <50 | <50 |
| Ammonia as N (mg/L) | 630 | 31 | 39 | 21 | 31 | 25 | 38 | 24 | 9 | 11 | 11 | 11 | 13 |
| Arsenic (mg/L) | 7.6 | ND, <0.020 | - | - | - | ND, <0.005 | - | - | - | ND, <0.02 | ND, <0.02 | - | - |
| Hex. Chrom. (mg/L) | 2 | ND, <0.010 | - | - | - | ND, <0.018 | - | - | - | ND, <0.010 | ND, <0.010 | - | - |
| Cadmium (mg/L) | 1 | ND, <0.005 | - | - | - | ND, <0.020 | - | - | - | ND, <0.005 | ND, <0.005 | - | - |
| Copper (mg/L) | 2.6 | ND, <0.03 | - | - | - | ND, <0.030 | - | - | - | ND, <0.030 | ND, <0.030 | - | - |
| Lead (mg/L) | 2 | ND, <0.020 | - | - | - | ND, <0.020 | - | - | - | ND, <0.020 | ND, <0.020 | - | - |
| Mercury (ug/L) | 42 | ND, <1.0 | - | - | - | ND, <5 | - | - | - | ND, <1 | ND, <1 | - | - |
| Nickel (mg/L) | 5.2 | ND, <0.020 | - | - | - | ND, <0.010 | - | - | - | ND, <0.010 | ND, <0.020 | - | - |
| Selenium (mg/L) | 16.0 | ND, <0.030 | - | - | - | ND, <0.021 | - | - | - | ND, <0.021 | ND, <0.020 | - | - |
| Silver (mg/L) | 0.69 | ND, <0.020 | - | - | - | ND, <0.005 | - | - | - | ND, <0.005 | ND, <0.020 | - | - |
| Zinc (mg/L) | 19 | 0.035 | - | - | - | 0.041 | - | - | - | ND, <0.020 | 0.030 | - | - |
| Cyanide (mg/L) | 1 | ND, <0.020 | - | - | - | ND, <0.02 | - | - | - | ND, <0.2 | ND, <0.2 | - | - |
| Phenolics, non-chlor. (mg/L) | 31 | ND, <0.01 | - | - | - | ND, <0.001 | - | - | - | ND, <0.02 | ND, <0.02 | - | - |
| Phenolics, chlor. (mg/L) | 1 | ND, <0.01 | - | - | - | ND, <0.001 | - | - | - | ND, <0.02 | ND, <0.02 | - | - |
| Endosulfan (ug/L) | 4.7 | ND, <0.05 | - | - | - | ND, <0.05 | - | - | - | ND, <0.05 | ND, <0.05 | - | - |
| Endrin (ug/L) | 1 | ND, <0.06 | - | - | - | ND, <0.06 | - | - | - | ND, <0.06 | ND, <0.06 | - | - |
| HCH (ug/L) | 2 | ND, <0.02 | - | - | - | ND, <0.02 | - | - | - | ND, <0.02 | ND, <0.02 | - | - |
| Radioactivity (pCi/l) | Title 17 | - | - | - | - | - | - | - | - | - | - | - | - |
| Gross Alpha | | 2.85+/-1.26 | - | - | - | 0.63+/-1.01 | - | - | - | 3.11+/-1.37 | 3.51+/-1.37 | - | - |
| Gross Beta | | 20.99+/-3.25 | - | - | - | 20.98+/-3.09 | - | - | - | 14.1+/-3.25 | 15.5+/-3.01 | - | - |

COASTAL COMMISSION
 EXHIBIT # 15
 PAGE 2 OF 6

VIOLATIONS: (0) Daily Violations to Daily limit

**NPDES Permit Requirements and Plant Discharge Performance
2000 Discharge Results**

Agency: Aliso Water Management Agency
 Facility Name: AWMA Ocean Outfall, NPDES No. CA0107611
 Design Capacity: 50 MGD

| Parameter | 7-Day Avg Permit Limit | JAN 7-Day Avg. Max | FEB 7-Day Avg. Max | MAR 7-Day Avg. Max | APR 7-Day Avg. Max | MAY 7-Day Avg. Max | JUN 7-Day Avg. Max | JUL 7-Day Avg. Max | AUG 7-Day Avg. Max | SEP 7-Day Avg. Max | OCT 7-Day Avg. Max | NOV 7-Day Avg. Max | DEC 7-Day Avg. Max |
|---------------------------------|---------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Flow (MGD) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| cBOD (Mg/l) | 40 | 7.7 | 6.8 | 8.7 | 8.1 | 5.9 | 8.2 | 7.2 | 6.5 | 6.4 | 6.2 | 8.4 | 8.4 |
| TSS (Mg/l) | 45 | 12.2 | 10.3 | 10.8 | 11.5 | 9.9 | 9.6 | 11.2 | 9.1 | 10.3 | 8.2 | 9.7 | 9.7 |
| pH | None | - | - | - | - | - | - | - | - | - | - | - | - |
| O & G (Mg/l) | 40 | <10 | <5 | <5 | 5.7 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| Sett. Sol. (MI/l) | 1.5 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | 0.3 | 0.1 | 0.2 | <0.1 |
| Turbidity (NTU) | 100 | 13.4 | 17 | 10.2 | 11.5 | 13.5 | 11.6 | 11.5 | 8.3 | 9.4 | 6.6 | 14.0 | 10.4 |
| Chl. Res. (Mg/l) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| Acute Tox. (tu) | 2.0 | <0.1 | 1.09 | <0.69 | 0.59 | 0.59 | 0.41 | 0.94 | <0.41 | <0.41 | <0.41 | <0.41 | 0.69 |
| Chronic Tox. (tuc) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| Ammonia as N (Mg/l) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| Arsenic (Mg/l) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| Hex. Chrom. (Mg/l) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| Cadmium (Mg/l) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| Copper (Mg/l) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| Lead (Mg/l) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| Mercury (Mg/l) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| Nickel (Mg/l) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| Selenium (Mg/l) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| Silver (Mg/l) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| Zinc (Mg/l) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| Cyanide (Mg/l) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| Phenolics, non-chlor. (Mg/l) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| Phenolics, chlor. (Mg/l) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| Endosulfan (Ug/l) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| Endrin (Ug/l) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| HCH (Ug/l) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| Radioactivity (pCi/l) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| Gross Alpha | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Gross Beta | - | - | - | - | - | - | - | - | - | - | - | - | - |

COASTAL COMMISSION
 EXHIBIT # 115
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VIOLATIONS: (0) 7-day average limit violations

**NPDES Permit Requirements and Plant Discharge Performance
2000 Discharge Results**

Agency: Aliso Water Management Agency
 Facility Name: AWMA Ocean Outfall, NPDES No. 0107611
 Design Capacity: 50 MGD

| Parameter | 30-Day Avg Permit Limit | JAN 30-Day Avg. Max | FEB 30-Day Avg. Max | MAR 30-Day Avg. Max | APR 30-Day Avg. Max | MAY 30-Day Avg. Max | JUN 30-Day Avg. Max | JUL 30-Day Avg. Max | AUG 30-Day Avg. Max | SEP 30-Day Avg. Max | OCT 30-Day Avg. Max | NOV 30-Day Avg. Max | DEC 30-Day Avg. Max |
|---------------------------------|----------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| Flow (MGD) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| cBOD (Mg/l) | 25 | 6.9 | 5.8 | 7.4 | 7.0 | 5.6 | 6.8 | 6.4 | 6.4 | <4.8 | 5.3 | 6.3 | 6.2 |
| TSS (Mg/l) | 30 | 8.6 | 9.3 | 8.9 | 9.6 | 8.5 | 8.4 | 8.8 | 9.1 | 7.0 | 6.3 | 8.7 | 7.6 |
| pH | None | - | - | - | - | - | - | - | - | - | - | - | - |
| O & G (Mg/l) | 25 | <10 | <5 | <5 | 1.9 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| Sett. Sol. (MI/l) | 1.0 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | 0.1 | <0.1 |
| Turbidity (NTU) | 75 | 4.5 | 4.6 | 4.7 | 4.9 | 5.0 | 5.2 | 4.9 | 3.5 | 3.2 | 3.4 | 4.8 | 4.3 |
| Chl. Res. (Mg/l) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| Acute Tox. (tu) | 1.5 | <0.1 | <0.1 | <0.69 | 0.59 | 0.59 | 0.41 | 0.94 | 0.41 | <0.41 | <0.41 | <0.41 | 0.69 |
| Chronic Tox. (tuc) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| Ammonia as N (Mg/l) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| Arsenic (Mg/l) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| Hex. Chrom. (Mg/l) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| Cadmium (Mg/l) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| Copper (Mg/l) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| Lead (Mg/l) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| Mercury (Mg/l) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| Nickel (Mg/l) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| Selenium (Mg/l) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| Silver (Mg/l) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| Zinc (Mg/l) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| Cyanide (Mg/l) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| Phenolics, non-chlor. (Mg/l) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| Phenolics, chlor. (Mg/l) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| Endosulfan (Ug/l) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| Endrin (Ug/l) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| HCH (Ug/l) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| Radioactivity (pCi/l) | Title 17 | - | - | - | - | - | - | - | - | - | - | - | - |
| Gross Alpha | | - | - | - | - | - | - | - | - | - | - | - | - |
| Gross Beta | | - | - | - | - | - | - | - | - | - | - | - | - |

COASTAL COMMISSION

EXHIBIT # 15
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VIOLATIONS: (0) 30-day average limit violations

**NPDES Permit Requirements and Plant Discharge Performance
2000 Discharge Results**

Agency: Aliso Water Management Agency
 Facility Name: AWMA Ocean Outfall
 Design Capacity: 50 MGD

| Parameter | 6-Month Median Permit Limit | JAN 6-Mo Med. Max | FEB 6-Mo Med. Max | MAR 6-Mo Med. Max | APR 6-Mo Med. Max | MAY 6-Mo Med. Max | JUN 6-Mo Med. Max | JUL 6-Mo Med. Max | AUG 6-Mo Med. Max | SEP 6-Mo Med. Max | OCT 6-Mo Med. Max | NOV 6-Mo Med. Max | DEC 6-Mo Med. Max |
|------------------------------|-----------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Flow (MGD) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| cBOD (mg/L) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| TSS (mg/L) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| pH | None | - | - | - | - | - | - | - | - | - | - | - | - |
| O & G (mg/L) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| Sett. Sol. (ml/L) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| Turbidity (NTU) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| Chl. Res. (mg/L) | 0.5 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Acute Tox. (TUa) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| Chronic Tox. (TUc) | None | - | - | - | - | - | - | - | - | - | - | - | - |
| Ammonia as N (mg/L) | 160 | 32 | 32 | 29 | 28 | 28 | 31 | 28 | 25 | 21 | 19 | 17 | 13 |
| Arsenic (mg/L) | 1 | ND,<0.02 | - | - | - | ND,<0.01 | - | - | - | ND,<0.01 | ND,<0.02 | - | - |
| Hex. Chrom. (mg/L) | 0.5 | ND,<0.01 | - | - | - | ND,<0.01 | - | - | - | ND,<0.01 | ND,<0.01 | - | - |
| Cadmium (mg/L) | 0.3 | ND,<0.005 | - | - | - | ND,<0.013 | - | - | - | ND,<0.013 | ND,<0.005 | - | - |
| Copper (mg/L) | 0.3 | ND,<0.03 | - | - | - | ND,<0.030 | - | - | - | ND,<0.03 | ND,<0.03 | - | - |
| Lead (mg/L) | 0.5 | ND,<0.015 | - | - | - | ND,<0.020 | - | - | - | ND,<0.02 | ND,<0.02 | - | - |
| Mercury (ug/L) | 10 | ND,<1.0 | - | - | - | ND,<0.5 | - | - | - | ND,<0.5 | ND,<1 | - | - |
| Nickel (mg/L) | 1 | ND,<0.02 | - | - | - | ND,<0.020 | - | - | - | ND,<0.01 | ND,<0.01 | - | - |
| Selenium (mg/L) | 3.9 | ND,<0.03 | - | - | - | ND,<0.030 | - | - | - | ND,<0.02 | ND,<0.02 | - | - |
| Silver (mg/L) | 0.1 | ND,<0.02 | - | - | - | ND,<0.01 | - | - | - | ND,<0.01 | ND,<0.02 | - | - |
| Zinc (mg/L) | 3.1 | 0.043 | - | - | - | 0.038 | - | - | - | ND,<0.03 | <0.025 | - | - |
| Cyanide (mg/L) | 0.3 | ND,<0.02 | - | - | - | ND,<0.020 | - | - | - | ND,<0.11 | ND,<0.02 | - | - |
| Phenolics, non-chlor. (mg/L) | 7.8 | ND,<0.02 | - | - | - | ND,<0.01 | - | - | - | ND,<0.002 | ND,<0.002 | - | - |
| Phenolics, chlor. (mg/L) | 0.3 | ND,<0.02 | - | - | - | ND,<0.01 | - | - | - | ND,<0.002 | ND,<0.002 | - | - |
| Endosulfan (ug/L) | 2 | ND,<0.05 | - | - | - | ND,<0.05 | - | - | - | ND,<0.05 | ND,<0.05 | - | - |
| Endrin (ug/L) | 0.5 | ND,<0.06 | - | - | - | ND,<0.06 | - | - | - | ND,<0.06 | ND,<0.06 | - | - |
| HCH (ug/L) | 1 | ND,<0.02 | - | - | - | ND,<0.020 | - | - | - | ND,<0.02 | ND,<0.02 | - | - |
| Radioactivity (pCi/l) | Title 17 | - | - | - | - | - | - | - | - | - | - | - | - |
| Gross Alpha | | 4.72+/-1.7 | - | - | - | 1.74+/-1.26 | - | - | - | 2.98+/-1.37 | 3.31+/-1.37 | - | - |
| Gross Beta | | 19.5+/-4.2 | - | - | - | 20.98+/-3.25 | - | - | - | 17.54+/-3.25 | 14.8+/-3.25 | - | - |

COASTAL COMMISSION
 EXHIBIT # 15
 PAGE 5 OF 6

VIOLATIONS: (0) 6-month median limit violations

NPDES Permit Requirements and Plant Discharge Performance

2000 Discharge Results

Agency: Aliso Water Management Agency
 Facility Name: AWMA Ocean Outfall, NPDES #CA0107661
 Design Capacity: 50 MGD

| PARAMETER | UNITS | LIMIT 30-Day Average | Jan 23-24,2000 | | Sep 18-19, 2000 | |
|-----------------------------|-------|----------------------------|-----------------|----------|-----------------|----------|
| | | | DAILY RESULT | | DAILY RESULT | |
| Acrolein | mg/l | 57 | ND,< | 0.05 | ND,< | 0.05 |
| Antimony | mg/l | 310 | ND,< | 0.02 | ND,< | 0.02 |
| bis(2-chloroethoxy)methane | ug/l | 1,100 | ND,< | 10 | ND,< | 10 |
| bis(2-chloroisopropyl)ether | mg/l | 310 | ND,< | 0.01 | ND,< | 0.01 |
| chlorobenzene | mg/l | 150 | ND,< | 0.001 | ND,< | 0.001 |
| chromium (III) | g/l | 50 | ND,< | 0.00001 | ND,< | 0.00001 |
| di-n-butyl phthalate | mg/l | 910 | ND,< | 0.01 | ND,< | 0 |
| dichlorobenzenes | g/l | 1.3 | ND,< | 0.00001 | ND,< | 0.00001 |
| 1,1-dichloroethylene | g/l | 1.9 | ND,< | 0.000001 | ND,< | 0.000001 |
| diethyl phthalate | g/l | 8.6 | ND,< | 0.00001 | ND,< | 0.00001 |
| dimethyl phthalate | g/l | 210 | ND,< | 0.00001 | ND,< | 0.00001 |
| 4,6-dinitro-2-methylphenol | mg/l | 57 | ND,< | 0.01 | ND,< | 0.01 |
| 2,4-dinitrophenol | ug/l | 1,000 | ND,< | 10 | ND,< | 20 |
| ethylbenzene | mg/l | 1,100 | ND,< | 0.001 | ND,< | 0.001 |
| fluoranthene | mg/l | 3.9 | ND,< | 0.01 | ND,< | 0.01 |
| hexachlorocyclopentadiene | mg/l | 15 | ND,< | 0.01 | ND,< | 0.01 |
| isophorone | g/l | 39 | ND,< | 0.00001 | ND,< | 0.00001 |
| nitrobenzene | mg/l | 1.3 | ND,< | 0.01 | ND,< | 0.01 |
| thallium | mg/l | 3.7 | ND,< | 0.01 | ND,< | 0.01 |
| toluene | g/l | 22 | ND,< | 0.000001 | ND,< | 0.000001 |
| 1,1,2,2-tetrachloroethane | mg/l | 310 | ND,< | 0.001 | ND,< | 0.001 |
| tributyltin | ug/l | 0.37 | ND,< | 0.5 | ND,< | 1.0 |
| 1,1,1-trichloroethane | g/l | 140 | ND,< | 0.000001 | ND,< | 0.000001 |
| 1,1,2-trichloroethane | g/l | 11 | ND,< | 0.000001 | ND,< | 0.000001 |
| acrylonitrile | ug/l | 26 | ND,< | 5 | ND,< | 50 |
| aldrin | ng/l | 5.7 | ND,< | 20 | ND,< | 20 |
| benzene | mg/l | 1.5 | ND,< | 0.001 | ND,< | 0.001 |
| benzidine | ng/l | 18 | ND,< | 10,000 | ND,< | 20,000 |
| beryllium | ug/l | 8.6 | ND,< | 5 | ND,< | 5 |
| bis(2-chloroethyl)ether | ug/l | 12 | ND,< | 10 | ND,< | 10 |
| bis(2-ethylhexyl)phthalate | ug/l | 910 | ND,< | 10 | ND,< | 10 |
| carbon tetrachloride | mg/l | 0.23 | ND,< | 0.001 | ND,< | 0.001 |
| chlordane | ng/l | 6.0 | ND,< | 50 | ND,< | 50 |
| chloroform | mg/l | 34 | ND,< | 0.001 | ND,< | 0.001 |
| DDT | ng/l | 44 | ND,< | 30 | ND,< | 30 |
| 1,4-dichlorobenzene | mg/l | 4.7 | ND,< | 0.001 | ND,< | 0.001 |
| 3,3-dichlorobenzidine | ug/l | 2.1 | ND,< | 10 | ND,< | 20 |
| 1,2-dichloroethane | mg/l | 34 | ND,< | 0.001 | ND,< | 0.001 |
| dichloromethane | mg/l | 120 | ND,< | 0.001 | ND,< | 0.001 |
| 1,3-dichloropropene | mg/l | 2 | ND,< | 0.001 | ND,< | 0.001 |
| dieldrin | ng/l | 10 | ND,< | 10 | ND,< | 10 |
| 2,4-dinitrotoluene | ug/l | 680 | ND,< | 10 | ND,< | 10 |
| 1,2-diphenylhydrazine | ug/l | 42 | ND,< | 10 | ND,< | 10 |
| halomethanes | mg/l | 34 | ND,< | 0.005 | ND,< | 0.005 |
| heptachlor | ng/l | 190 | ND,< | 10 | ND,< | 10 |
| hexachlorobenzene | ng/l | 55 | ND,< | 10,000 | ND,< | 10,000 |
| hexachlorobutadiene | mg/l | 3.7 | ND,< | 0.01 | ND,< | 0.01 |
| hexachloroethane | ug/l | 650 | ND,< | 10 | ND,< | 10 |
| N-nitrosodimethylamine | mg/l | 1.9 | ND,< | 0.01 | ND,< | 0.01 |
| N-nitrosodiphenylamine | ug/l | 650 | ND,< | 10 | ND,< | 10 |
| PAHs | ug/l | 2.3 | ND,< | 10 | ND,< | 10 |
| PCBs | ng/l | 5.0 | ND,< | 500 | ND,< | 500 |
| TCDD equivalents | pg/l | 1.0 | ND,< | 12 | ND,< | 13 |
| tetrachloroethylene | mg/l | 26 | ND,< | 0.001 | ND,< | 0.001 |
| toxaphene | ng/l | 55 | ND,< | 500 | ND,< | 500 |
| trichloroethylene | mg/l | 7 | ND,< | 0.001 | ND,< | 0.001 |
| 2,4,6-trichlorophenol | ug/l | 76 | ND,< | 10 | ND,< | 10 |
| vinyl chloride | mg/l | 9.4 | ND,< | 0.005 | ND,< | 0.005 |

COASTAL COMMISSIO

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COUNTY OF ORANGE

PUBLIC FACILITIES & RESOURCES DEPARTMENT

Vicki L. Wilson, Director
300 N. Flower Street
Santa Ana, CA

P.O. Box 4048
Santa Ana, CA 92702-4048

Telephone: (714) 834-2300
Fax: (714) 834-5188

June 13, 2001

Peter M. Douglas, Executive Director
California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco, CA 94105-2219

Subject: Aliso Creek Diversion Project Proposed Permit Amendments

Dear Mr. Douglas:

The County of Orange Public Facilities and Resources Department has reviewed the "Combined Staff Report: Permit Amendments" for Agenda Items Th20d, Th20e, and Th20f agendized for the June 14, 2001 California Coastal Commission hearing. We appreciate the recommendation of Coastal Commission staff to renew the permit for an additional year for an important diversion project that assists us in protecting public health for the beach users at Aliso Beach. The staff report cites that the major issue raised by this project includes verification that the project achieves the intended goals "without adverse water quality and other resource impacts in the creek or at the outfall; water quality; streambed alteration; flood hazards; growth inducement/air quality; and public access."

We are in concurrence with staff, in concept, that this type of project impact verification is important to document so that this water quality management technique can be properly evaluated. However, we feel that the special conditions set forth in the staff report for water quality and biological monitoring are technically inappropriate for the project. Rather than providing a detailed discussion of our interpretation of the special conditions and their ability to properly verify the listed potential impacts, we propose that the subject permit amendment, if approved by your Commission, should have an added directive.

The added directive should state that the general concepts expressed in the special conditions for water quality and biological monitoring shall remain as stated and the Executive Director or his designee shall be authorized to modify and coordinate the specifics of the monitoring program with the County of Orange prior to project implementation. This would allow an opportunity for a scientifically sound and technically feasible monitoring program to be developed in a timely manner and in keeping with the limited scale of the project.

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South Coast Region

JUN 20 2001

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COASTAL COMMISSION

COASTAL COMMISSION

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Peter M. Douglas

Page 2

In addition, we would request that the requirement for the submittal of existing information (Provision 3B) be amended to allow the Executive Director to accept the Aliso Creek Watershed Section 13225 Directive Initial Report, dated April 30, 2001, in place of a number of the required data submittals. This report is a comprehensive compilation of watershed data and information that was provided to the California Regional Water Quality Control Board – San Diego Region and will address many of the requirements of the proposed special conditions.

We look forward to working with you and your staff in providing the Orange County beach users safe and healthy recreational opportunities. Please call me at (714) 834-5302 or Herb Nakasone, Manager, Program Development Division, at (714) 834-3719 for initiation of our cooperative efforts to implement this critical project.

Sincerely,



Vicki L. Wilson
Director

cc: Karl Schwing, CCC South Coast Office
David A. Caretto, AWMA
Michael Wellborn, County of Orange/CEO

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P.O. BOX 9668
SOUTH LAGUNA, CA 92652-7639

Received at Commission
Meeting

JUN 14 2001

From: _____

June 13, 2001

California Coastal Commission
South Coast Area
PO Box 1450
200 Oceangate, 10th Floor
Long Beach, CA 90802-4416

Subject: Aliso Creek Berm Diversion Project
Permit No.: 5-97-316-A4; A-5-LGB-97-166-A4; 5-83-959-A8 inclusive

Applicants: County of Orange
Aliso Water Management Agency (AWMA)
City of Laguna Beach

Project Location: Aliso Creek northeast of Pacific Coast Highway (Aliso
Creek and Beach), South Laguna, Laguna Beach (County
Of Orange)
APN: 0056-240-036

Agenda Item No.: Th 20d, e, f

The pollution of Aliso Creek from inland development continues to be a chronic threat to public health and safety in South Laguna. For more than two decades, urban planning and water quality regulatory measures by the County of Orange, San Diego Regional Water Quality Control Board, City of Laguna Beach and cities within the watershed have failed to abate or adequately mitigate contaminated water flows reaching beyond 5 million gallons per day.

Background

As early as 1996, correspondence from the South Laguna Civic Association (SLCA) to the U.S. Army Corps of Engineers warned of serious impacts from excessive summer runoff on dedicated marine refuges designated to protect kelp habitats and the Garibaldi – our State fish. Appealing to Eldon Gatwood, Planning Section B of the Corps in a letter dated April 16, 1996, the SLCA requested preparation of a Mitigated Negative Declaration or focused EIR/EIS to scientifically determine the impacts of the Berm Diversion Project's direct discharge of untreated, highly toxic runoff into a known dolphin habitat and prime recreational fishing area only 1 1/2 mile offshore. No scientific base data was provided and none has accompanied subsequent renewal applications since then despite numerous requests for public review.

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The Berm Diversion Project was presented to the public in 1995 as a "temporary Band-Aid measure". The chief proponent of the Project then and now is a Laguna Beach City Council member who is simultaneously on the AWMA Board of Directors and the San Diego Regional Water Quality Control Board. These intertwining relationships raise concerns relative to the objectivity of these entities in providing unbiased data to the Army Corps of Engineers, U.S. Fish and Wildlife Service and Coastal Commission staff for their subsequent recommendations and approvals. Rather than introducing permanent measures, watershed planning and review has devolved into an annual, perpetual emergency despite the County Watershed Strategic Plans last year to place at least four mobile water filtration units in the field this summer (see Exhibit A).

The Aliso Creek Watershed Strategic Plan – September 2000 is the product of meetings initiated by State Senator Bergeson in 1994 for local cities, special districts, state agencies, environmental groups, including the SLCA, and the Army Corps of Engineers to restart a process that began in 1984 "...to identify feasible management projects to improve environmental and economic conditions in the watersheds and to reestablish a stable, healthy, sustainable watershed environment." Since the inception of this "partnership" over 15 years ago, tens of thousands of new houses in sprawling developments have exponentially increased urban runoff flow rates unabated into Aliso Creek.

Today's crisis throughout California of polluted creeks, beaches and ocean resources is emblematic of the failure of the majority of these "partnerships" to genuinely affect improvements in contaminated watersheds. Lacking is a strong message from the Coastal Commission that the central issue of water pollution will no longer be relegated to endless, counterproductive studies. Commission leadership is critically needed to promote immediate use of Best Management Practices (BMPs) and Best Available Technology (BAT) as per the Coastal Act.

Economics of Ecology

A preliminary economic analysis of the reported 3-5 MGD runoff reveals that potential annual revenues of approximately \$900,000 can be derived from harvesting, filtering and recycling this resource as reclaimed water (see Exhibit B). Escalating electrical costs associated with importing water at 3,500 Kilowatt hours per acre foot (kWh/af) are twice the energy required to locally filter and reuse runoff as reclaimed water for irrigation. Additionally, electricity used to pump imported water from the Colorado River or State Water Project is sold at one-third the cost of electricity sold for other purposes.

Electricity saved by recycling local urban runoff can thus be returned to the grid to generate three times the revenue for other statewide energy demands. At a technical level, transporting runoff water captured from Aliso Creek inland before it enters the Aliso/Woods Canyon Park to the adjacent Joint Regional Reclamation Facility in Laguna Niguel can be achieved with a ten-inch pipe pressurized at 50 pounds per square inch

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(psi). Such data underscores the benefits to be derived technically, economically and environmentally from recycling urban runoff.

Mobile filtration units readily available to developers, oil companies and agribusiness over the past 30 years can be deployed within 7 days to capture toxic flows this summer and represent a reasonable, feasible environmentally superior alternative.

Unfortunately, the Aliso Water Management Agency profits inadvertently by selling excess water, but does not take full responsibility for their product when it runs off lawns and asphalt and flows into the creek. This surplus water, plus residue, transfers significant development impacts directly to riparian and coastal habitats. For instance, the reportedly 5,000,000 MGD of urban runoff water that enters Aliso Creek and arrives each day at the ocean is a known conveyor of contaminants, bacteria and viruses. This runoff water, or water surplus, is initially sold at \$900/acre foot and yields daily income of \$15,300 to the Moulton-Niguel Water District, a member of the Aliso Water Management District. This income should be used to mitigate the deleterious effects of this runoff.

We suggest the Coastal Commission familiarize itself with last year's U.S. Supreme Court ruling in the case of Friends of the Earth, et al. V. Laidlaw (No. 98-822: January 12, 2000). The defendants in this landmark case avoided costs associated with controlling polluted industrial water residues by simply discharging directly into the local stream. The Court assessed judgment with a "total deterrent effect" believing that "...a defendant once hit in its pocketbook will surely think twice before polluting again – Justice Ginsburg, et al." The approval of the direct discharge of untreated urban runoff into the ocean by the California Coastal Commission will establish a dangerous precedent statewide for pollution by municipalities, county governments and water delivery boards. Such an approval may violate the above U.S. Supreme Court ruling.

RECOMMENDED ACTIONS

Given the historically poor performance of the Applicants relative to their stewardship responsibilities of Aliso Creek and Beach, the South Laguna Civic Association recommends the following actions by the Coastal Commission:

1. Continue Items No.: Th 20d,e,f until the Applicant(s) provides independent, verifiable scientific baseline data for public review regarding the impacts of untreated urban runoff with bacteria and viral constituents on marine mammals, recreational/commercial fish populations and, through seasonal upwelling, the health and safety of beach visitors;
2. Direct the Applicant(s) to initiate immediate diversion of dry weather urban runoff flows to the inland, heavy capacity Joint Regional Reclamation Facility for treatment;

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3. Encourage the prompt implementation of the County of Orange's September 29, 2000 Aliso Creek Watershed Strategic Plan's high priority strategy for rapid deployment of mobile filtration at four sites in Aliso Creek

Although many of us profess concern for the environment, we abdicate the right to call ourselves "environmentalists" when we endorse or approve the dumping of untreated development runoff into the creek and ocean habitat. As a recognized community environmental organization, we continue to urge the Coastal Commission to uphold the mandates of the Coastal Act and support knowledgeable public initiatives to permanently abate urban runoff through constructive, reasonable, feasible, environmentally superior alternatives.

Thank you for your consideration of our community's position on this matter and our proactive recommended actions.

Ginger Osborne

Ginger Osborne
President

MICHAEL BEANAN

Michael Beanan
Director

COASTAL COMMISSION

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Exhibit A

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Aliso Creek Watershed Strategic Plan

September 2000

I. Introduction

This plan describes a strategy for addressing the restoration of resources in the Aliso Creek watershed. In late 1994, a series of meetings were initiated among interested parties to discuss the formation of watershed planning teams for Aliso and San Juan Creeks. Chaired by then State Senator Bergeson, the meetings were attended by representatives of local cities, special districts, state agencies, environmental groups and the U.S. Army Corps of Engineers.

The goal of the watershed teams was to identify feasible management projects to improve environmental and economic conditions in the watersheds and to reestablish a stable, healthy and sustainable watershed environment. This goal is addressed in the on-going watershed studies with the preparation of integrated watershed management plans that include both structural and non-structural projects. Existing and future conditions are identified as well as watershed problems, opportunities and solutions.

This watershed program is primarily concerned with natural resource management issues that prominently center on surface waters in Aliso Creek. The program encompasses a regional or multi-jurisdictional geographic area that involves local citizens, landowners, and governmental agencies utilizing a collaborative process of interaction. Through two years of activity, the central priorities for restoration of the Aliso Creek watershed include water quality and the impacts on habitat and infrastructure from creek instability.

Acting as a facilitator, the County intended to play a leadership role in the studies to resolve long-standing issues associated with the creeks. Due to the County's 1984 fiscal crisis, County staff were unable to extend resources for these new projects. In 1995, the U.S. Army Corps of Engineers received federal funding to prepare a one-year Reconnaissance Study of both watersheds to evaluate existing conditions and to determine if there was a federal interest in the watersheds (a federal interest is defined as flood damage reduction, environmental restoration, shore protection, recreation or water supply).

The watershed studies in Orange County utilize the leadership and technical expertise of the Los Angeles District of the U.S. Army Corps of Engineers in association with the Watershed & Coastal Resources Division of the County's Public Facilities & Resources Department. The Corps of Engineers provides a non-partisan view in solving watershed problems as well as federal funds that match to local cost-shared funds for preparing studies and implementing watershed restoration projects.

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The process for implementing the watershed projects with the Corps of Engineers starts with Congress granting Study Authority to the Corps. A Reconnaissance Study is then prepared to identify a federal interest in the watershed and a Project Study Plan (or a scope of work) is also prepared. A Feasibility Study is a substantial effort in identifying gaps in existing information and outlining potential project solutions. Products that evolve out of the Feasibility Study include environmental documentation with cumulative impact analysis and a Watershed Management Plan. For projects that are supported by local entities, Congressional authorization is obtained to proceed with preparation of the final design, plans and specs, a Project Cooperation Agreement, and then construction of the projects.

A Reconnaissance Study for Aliso and San Juan Creeks was finalized by the Corps of Engineers in February of 1997 and served as a basis for a determination of a federal interest in the watersheds. The next phase, the Feasibility Studies, fill any gaps in the available data and evaluate specific projects for rehabilitating the creeks. The Feasibility Studies are conducted by the Corps over a two to three year period and are cost-shared with the federal government on a 50-50 basis. The board's action on September 16, 1997 authorized the Director of the Public Facilities and Resources Department to execute the cooperative agreement with the Federal Government for the Feasibility Studies.

The studies offer numerous opportunities for obtaining important new data on the status of the creeks and watersheds as well as the expertise of the Corps of Engineers to evaluate possible solutions. Most importantly, this process reflects the ground-up approach of using the input from the local agencies and citizens to guide the focus on the most critical problems of the watersheds. The Corps staff has held public workshops for each creek through the Reconnaissance Study phase and the County has continued in holding public meetings as part of the collaborative process in the Feasibility Study phase.

To implement the Feasibility Studies, Study Management Teams formed to provide local guidance to the Corps of Engineers through the watershed study and project formulation process. The Teams are composed of local agencies, resource and regulatory agencies, community and environmental groups and other interested stakeholders. Regular meetings are held to review the progress of the studies and projects and to provide a forum for reviewing issues and viewpoints of concern in the watershed. Watershed managers maintain frequent coordination with the Corps of Engineers as well as the local stakeholders to support the timely completion of tasks and to assist in technical matters.

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II. Background

A. The Aliso Creek Watershed

The Aliso Creek Watershed is 35 square miles covering portions of the cities of Lake Forest, Mission Viejo, Laguna Woods, Laguna Hills, Laguna Niguel, Laguna Beach, and the community of Aliso Viejo. The terrain is characterized as hilly with the creek descending 2,400 feet from the crest in the Cleveland National Forest 20 miles to the beach. Much of the upper and lower watershed is reserved as open space, while the middle reaches are highly urbanized. Major tributaries to Aliso Creek include English Creek, Sulpher Creek, and Wood Canyon.

B. Water Quality

Concerns for the water quality of Aliso Creek at the County's beach park has been a priority issue for the watershed team. The bacteria levels of the creek waters during dry weather are frequently above the body contact standards that the County's Health Care Agency follow in posting signs for swimmers at the beach.

In 1997, the County initiated a watershed-wide water quality study with funding from the State Water Resources Control Board. Initial data compiled in 1999 identified four tributaries or drains that were major contributors of bacteria to the creek. Two other issues that the data disclosed were high water temperatures and wet-weather toxicity for certain invertebrates.

In December of 1999, the San Diego Regional Water Quality Control Board issued a Cleanup and Abatement Order for the drain ("J03P02") that was the highest contributor of bacteria to Aliso Creek. The Order was issued to the County of Orange, the Orange County Flood Control District, and the City of Laguna Niguel. The sub-watershed that feeds the J03P02 drain includes 1,400 homes in an affluent area of the County. Since December, the County and the City have worked on a multitude of efforts to identify potential bacteria sources as well as remediate the flows through various approaches. In July of 2000, the City and County negotiated an arrangement with the Moulton Niguel Water District to pump the dry season flows of J03P02 to a wastewater treatment facility.

While noting the diversion of the flows to the treatment plant as a "band-aid", the Regional Board has directed that the sources of the bacteria are still to be eliminated. Investigations continue to pursue possible sources and include monitoring the sewer systems for potential breaks, communicating the importance of responsible management of pet waste in the community, and trying new technologies to identify source bacteria.

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C. Infrastructure and Habitat

The narrowness of the Aliso Creek floodplain and the lack of other suitable sites has resulted in the placement of public and private infrastructure in close enough proximity to be affected by changes in the size and location of the creek. The infrastructure includes transportation corridors, water and sewer pipelines and facilities, environmental restoration and mitigation projects, golf courses, bike trails and other recreation facilities, and flood control facilities.

There are six major north-south corridors and one east-west corridor that cross the watershed. These corridors include the Pacific Coast Highway, the San Joaquin Hills Transportation Corridor, the San Diego Freeway, the Foothill Transportation Corridor, Moulton Parkway, Portola Parkway and El Toro Road. An evaluation of existing and potential erosion and scour damage to infrastructure in and near the creek is a component of the economic analysis of the Draft Feasibility Report.

Of all the utilities in the watershed, pipelines for potable water, sewage and treated effluent have been the most affected by the urbanization along Aliso Creek. These pipelines run alongside and cross under the creek. Ruptured mains impact the environment and incur a variety of costs including emergency repair costs, public health and safety costs, legal costs associated with regulatory fines and penalties, and costs associated with service interruptions to homes and businesses. The economic analysis of the Draft Feasibility Report includes an evaluation of erosion damage to pipelines and related facilities.

The quantity and quality of habitat and environmental resources within the Aliso Creek watershed have changed dramatically over the last few decades. Much of the change is related to how hydrologic and hydraulic conditions have been modified by human actions, which in turn have influenced the health and viability of the watershed's water-dependent environmental resources. Even in a "natural" environment, a watershed will experience change. However, these are not the same set of changes often experienced in an urbanized environment, which may have a permanent effect on the spatial distribution, density and diversity of the native species. In many locations within the Aliso Creek watershed, the ecosystem has been severely impaired, and select plant and animal communities are struggling to survive. In some cases, opportunistic exotic species have invaded the environment, causing additional environmental problems. A review of the environmental conditions, including the first hydro-geomorphic model analysis utilized in Orange County is included in the Draft Feasibility Report and appendices.

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III. Agreements

On September 16, 1997, the Board of Supervisors authorized participation in the Aliso Creek and San Juan Creek Watershed Feasibility Studies with the U.S. Army Corps of Engineers. A follow-up action by the County was to seek reimbursement from participating agencies for County funds used to pay for the studies.

The County made its first payment of \$163,000 to the Corps from the PFRD/HBP fund in April of 1998 to cover a portion of the first federal fiscal year expenditures. Every city and water agency in the watershed has contributed on an equal basis to the funding of the \$1.2 million feasibility study. Most of the agencies have executed participation agreements with the County while some have simply conveyed their contributions to lock in their participation as vested agencies in the studies with the County and the Corps of Engineers.

The agencies participating in the Feasibility Study with the County include:

| | |
|-----------------------|-------------------------------------|
| City of Lake Forest | South Coast Water District |
| City of Mission Viejo | El Toro Water District |
| City of Laguna Woods | Los Alisos Water District |
| City of Laguna Hills | Moulton Niguel Water District |
| City of Laguna Niguel | Tri-Cities Municipal Water District |
| City of Laguna Beach | Aliso Water Management Agency |

As the Feasibility Study is to be completed in 2001, the County and the participating agencies are reviewing the potential projects and the related cost-sharing responsibilities and likely agreement language for each agency. A significant opportunity is the availability of \$90 million in state watershed restoration funds through the Proposition 13 "Water Bond" approved by the voters in June of 2000. While the application process for funding projects has not yet commenced, the watershed partners are interested in using state bond funds as the 35% local match to the federal 65% in design and construction dollars.

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IV. Short Term Strategy

A. Purpose

1. to address specific water quality (high bacteria) problems in Aliso Creek and at Aliso Beach Park.
2. To address specific infrastructure problems related to erosion and instability of Aliso Creek.

B. Structure, Participants and Methods

The short term strategies are agency specific and typically include three to four of the twelve watershed study participants. Their implementation timeframes are the current (2000-2001) and the 2001-2002 fiscal years.

1. The Aliso Creek Diversion Project operated throughout the summer of 2000 diverted creek water into a nearby outfall line to prevent the high-bacteria creek water from impacting recreation activities on the beach. Participants include the County of Orange, the City of Laguna Beach and the Aliso Water Management Agency. The participants in the project have struggled with substantial obstacles in permitting the project from the California Coastal Commission.
2. The J03P02 storm drain was identified in the County's water quality study of the Aliso Creek watershed as the highest bacteria contributor to Aliso Creek. In December of 1999, the Regional Water Quality Control Board issued a Clean-up and Abatement Order to the County of Orange, the Orange County Flood Control District and the City of Laguna Niguel over the water in the drain. The three agencies are cooperating in a range of approaches and studies to determine the source of the contamination as well as to divert or filter the contaminated creek water. As a part of these efforts, a public awareness outreach program has been initiated to educate the residents of this area on the issue.
3. In a cooperative effort with the City of Laguna Hills, the County, and the California Department of Fish and Game, the City has developed an endangered species protection project in Aliso - Wood Canyon Regional Park for some 30 pond turtles that were displaced by development in the City.
4. The Moulton-Niguel Water District approached the watershed Study Management Team in 1999 in regards to the relocation of a sewer pipeline along the south side of Aliso Creek through the regional park. Rather than initiate a major infrastructure protection project including placement of tons of rip-rap and concrete, the District has requested County and resource agency assistance to relocate the pipeline to the north side of the creek under the AWMA road alignment. Although more expensive, the proposed new alignment has far fewer areas of potential damage from flood flows and has received favorable review from the resource agencies.

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5. Additional public awareness and watershed education projects are expected to be developed and implemented over the next two years. Initial proposals have been presented in detail to the Orange County Planning Commission in September of 1999 and in a briefing to the Orange County Board of Supervisors in the Spring of 2000. The Watershed Management Plan for the Aliso Creek Watershed will be provided by the Corps of Engineers in early 2001 as one of the products of the Feasibility Study. The Plan is expected to include a number of strategies for increasing public education and awareness activities. All local agencies are expected to be involved in this short term strategy, through increased NPDES funding for the activities. A special \$50,000 outreach fund for Aliso Creek NPDES agencies has been proposed by the County for the coming fiscal year.
6. The primary structural approaches for water quality issues in the short term are, as mentioned above, diversion and filtration. The logistics for short term diversion projects has been worked through on a number of sites around the County and is now accepted as a rational tool by most agencies for specific situations. Localized filtration projects are an emerging new technology. With a two-week demonstration test at J03P02 in July of 2000, it has shown to be another viable tool, although each approach has certain benefits and detractions that must be balanced by decision-makers.

V. Medium Range Strategy

A. Purpose:

1. to implement watershed solutions including those specific to water quality problems in the Aliso Creek Watershed through the existing collaborative watershed process.
2. To continue and expand public awareness and watershed education projects developed and implemented for Aliso Creek.

B. Structure, Participants and Methods

The medium term strategies are broader tasks that should involve most if not all of the twelve watershed study participants. Their implementation timeframes are the 2002 - 2004 fiscal years.

1. The medium-term projects identified by the Corps of Engineers in the F-4 Draft Feasibility Report are summarized as follows:

| | | |
|--------------------|-----------------------------|-------------------------------|
| Section 14 | Six Month Process | 75% Federal Cost-Share |
| | AWMA Treatment Plant Bridge | \$ 300,000 Total Cost |
| Section 206 | One Year Process | 65% Federal Cost-Share |
| | Wood Canyon Restoration | \$ 1,500,000 Total Cost |

COASTAL COMMISSION

| | |
|------------------------------|-------------------------|
| Invasive Species Eradication | \$ 500,000 Total Cost |
| Sulpher Creek Restoration | \$ 1,000,000 Total Cost |

The Draft Feasibility Report contains additional detail on these proposed projects as well as the relationships of each project to the overall watershed restoration goals designated by Congress and agreed to by the Orange County Board of Supervisors in their approval of the Local Cooperation Agreement for the study.

In addition, the Corps may participate in other identified projects if authorized by Congress that could include invasive species eradication and the retrofitting of drainage systems for improving water quality treatment. The County also intends to pursue local agency partnerships to implement the modification of existing drop structures for water temperature improvement, review of Best Management Plans (BMP's), landscaping control programs and stronger enforcement of existing water quality ordinances. The Aliso Creek Watershed Water Quality Study contains additional information on these projects in specific detail for the improvement of water quality conditions in the watershed system. Finally, the science driving existing water quality regulations using indicator bacteria for determining the likelihood of pathogens that are human health hazards is an issue of statewide interest. Specific concerns for the fate and transport of indicator bacteria and their relative threats to humans are recommended for further study including modeling to better understand how they move, live and die.

The Watershed Management Plan for the Aliso Creek Watershed will provided by the Corps of Engineers in early 2001 as one of the products of the Feasibility Study. The Plan is expected to include a number of strategies for increasing public education and awareness activities. All local agencies are expected to be involved in this medium term strategy, through increased NPDES funding for the activities.

VI. Long Range Strategy

A. Purpose:

1. to implement watershed solutions, including those specific to water quality problems, in the Aliso Creek Watershed through the existing collaborative watershed process.
2. To continue and expand public awareness and watershed education projects developed and implemented for Aliso Creek.

B. Structure, Participants and Methods

The long term strategies are major tasks that should involve most if not all of the twelve watershed study participants. Their implementation timeframes are the 2003 - 2008 fiscal years.

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1. The long-term (or "General Investigation") projects identified by the Corps of Engineers in the F-4 Draft Feasibility Report are summarized as follows:

| <i>General Investigation</i> | <i>2 Year Process</i> | <i>65% Federal Cost-Share</i> |
|--------------------------------|-----------------------|-------------------------------|
| Pool & Riffle Structures | | \$12,000,000 Total Cost |
| ACWEP Habitat Restoration | | \$ 200,000 Total Cost |
| Pacific Park Basin Restoration | | \$ 300,000 Total Cost |
| Horseshoe Bend Restoration | | \$ 500,000 Total Cost |

The Watershed Management Plan for the Aliso Creek Watershed will be provided by the Corps of Engineers in early 2001 as one of the products of the Feasibility Study. The Plan is expected to include a number of strategies for increasing public education and awareness activities. All local agencies are expected to be involved in this long term strategy, through increased NPDES funding for the activities.

VII. Management Structure and Participants

Utilizing the leadership of the U.S. Army Corps of Engineers and the County of Orange, the Aliso Creek Watershed Study Management Team is comprised of the stakeholders mentioned above in Section III. and the various interested parties, investigators and cooperating agencies. In addition, spin-off committees have assembled on an ad hoc basis to focus attention on specific problems in the watershed and have reported back to the full Team as required. To date, the Study Management Team has worked with the Corps in the development of the Draft Feasibility Report (the "F-4 Report") that has identified over a dozen potential projects that may be implemented in the watershed. In addition, the Aliso Creek Watershed Water Quality Study has identified additional projects to assist in the improvement of water quality in the creek system. A number of these projects may be viable for implementation in the next two years.

A. Current Structure

1. Study Management Team

- a. Roles: Manage the overall watershed activities, administer the committee structure, recommend policy initiatives, communicate with officials as appropriate, support duties.
- b. Members: Corps of Engineers Study Manager, County Watershed Manager, City Managers and/or Public Works Directors and special District General Managers.

2. Executive Committee

- a. Role: Forum for settling policy issues.
- b. Members: Supervisor Tom Wilson, Colonel John P. Carroll

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B. Funding Sources

1. Approved Funding

Funding for six projects in the Aliso Creek Watershed has been approved in the FY 2000-01 budget of the County or other participating watershed stakeholder agencies. The first elements of the watershed education plan and the non-point source public awareness plan have been implemented through the "Designing for Healthy Watersheds" seminars conducted in the Winter of 1999-2000 as well as outreach efforts in the J03P02 sub-watershed in the City of Laguna Niguel. An on-site mobile filtration demonstration at J03P02 was conducted and test/cost results are pending for further review as to adaptability for continued use and use at other locations. The Aliso Creek Diversion Project was demonstrated for two weeks in the Summer of 1999 and utilized throughout the Summer of 2000, with substantial reductions in surf-zone water quality closures at Aliso Beach. The diversion of J03P02 was also implemented in the Summer of 2000 to a wastewater treatment facility. The total cost of implementing these projects probably exceeds \$500,000 in shared expenses by the various participating agencies. The analysis of their success has already commenced for decisions on activities for the Summer of 2001. In addition, the Aliso Water Management Agency (AWMA) has entered into an agreement with the Corps of Engineers to implement the Section 14 Streambank Stabilization Study to retrofit the AWMA Treatment Plant Bridge. Design work for this medium term project is expected to be completed in Spring of 2001 with construction potentially starting in late Summer of 2001.

2. Future Funding

- a. County of Orange and local agency cost-sharing.
- b. Proposition 13 - State Water Bond
- c. State Water Resources Control Board
- d. U.S. Army Corps of Engineers

As part of the Watershed Study, a range of structural and non-structural solutions are identified to accomplish planning objectives. These solutions are all potential components of an integrated watershed management plan. Assessments of the impacts of each solution are evaluated (on a preliminary basis) in the study and include environmental resource and economic aspects. Each solution proposed for inclusion in the watershed management plan has been identified as an effective means for addressing particular watershed problems and opportunities. Each measure is independent of the other, however, when collectively implemented, will most likely yield greater benefits to the overall watershed. When federal and local efforts are combined, an even greater return in the restoration of watershed health can be realized.

COASTAL COMMISSION

ALISO CREEK WATERSHED IMPLEMENTATION STRATEGIES

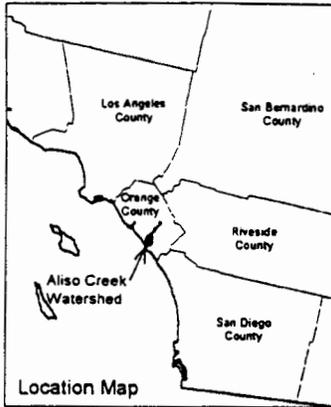
9/12/2000

| | INITIAL COST | ANNUAL COST | PRIORITY RANKING |
|---|---------------------|--------------------|------------------|
| SHORT TERM STRATEGIES | | | |
| Watershed Education Plan (Medium and Long Term also) (M) | undetermined | | high |
| Non-point Source Public Awareness Plan (Medium and Long Term also) (N) | undetermined | | high |
| On-Site Mobile Filtration at four sites (Clear Creek Systems) | 375,000 | 34,000/mo.* | high |
| Aliso Creek Diversion Project | 25,000 | 12,000 | high |
| J03P02 Diversion Project | 175,000 | 25,000 | high |
| MEDIUM TERM STRATEGIES | | | |
| Modification of Existing Drop Structures Plan (I) | 6,000 | 428 | high |
| Invasive Species Eradication Plan (J) | undetermined | | high |
| Spin-off Bank Stabilization Study (AWMA Treatment Plant Bridge) (K) | 95,000 | 6,775 | high |
| BMP's Monitoring and Evaluation Plan (O) | undetermined | | high |
| Retrofit Existing Drainage System for Water Quality Treatment (Q) | undetermined | | high |
| Landscape Controls that Reduce Water, Fertilizer, and Pesticide Demands (R) | 150,000 | 250,000 | high |
| Enforcement of City and County Water Quality Ordinances as they Relate to Pet Fecal Material (S) | 185,000 | 120,000 | high |
| Rubber Dam | 1,800,000 | 50,000 | medium |
| 319 (h) Water Quality Implementation Grant - Dairy Fork Biofiltration Basin in Aliso Creek (T) | 345,000 | | high |
| 319 (h) Water Quality Implementation Grant - Bioswale Treatment for Rancho Niguel Subwatershed of Aliso (T) | 225,000 | | high |
| 319 (h) Water Quality Implementation Grant - Wet Pond Treatment for JO3PO2 subwatershed of Aliso (T) | 345,000 | | high |
| 319 (h) Water Quality Implementation Grant - Munger Filtration Basin Demonstration Project in Aliso (T) | 345,000 | | high |
| Bacteria Fate and Transport Model | 750,000 | 250,000 | medium |
| LONG TERM STRATEGIES | | | |
| Lower Aliso Creek Stream Stabilization Plan (A) | 7,740,000 | 551,992 | high |
| Middle Aliso Creek Stream Stabilization Plan (B) | 2,702,000 | 192,698 | low |
| Aliso Creek Watershed Wetlands Habitat Restoration Plan (Aliso/Wood Canyon Site) (C) | 288,000 | 20,539 | high |
| Aliso Creek Watershed Wetlands Habitat Restoration Plan (Pacific Park Basin) (D) | 261,000 | 18,614 | medium |
| Aliso Creek Watershed Aquatic Habitat Restoration Plan (Aliso/Wood Canyon Site) (E) | 463,000 | 33,020 | high |
| Aliso Creek Watershed Aquatic Habitat Restoration Plan (Sulfur Creek Site) (F) | 55,000 | 3,922 | medium |
| Laguna/Laguel Lake Management Plan (G) | 3,923,000 | 279,775 | medium |
| Wood Canyon Stream Stabilization and Restoration Plan (H) | 357,000 | 26,529 | high |
| Water Quality Wetlands Construction in Lower Watershed (Aliso/Wood Canyons, Pacific Park Basin) (P) | 1,460,000 | 128,000 | high |
| TOTAL COST | \$22,070,000 | \$1,969,292 | |

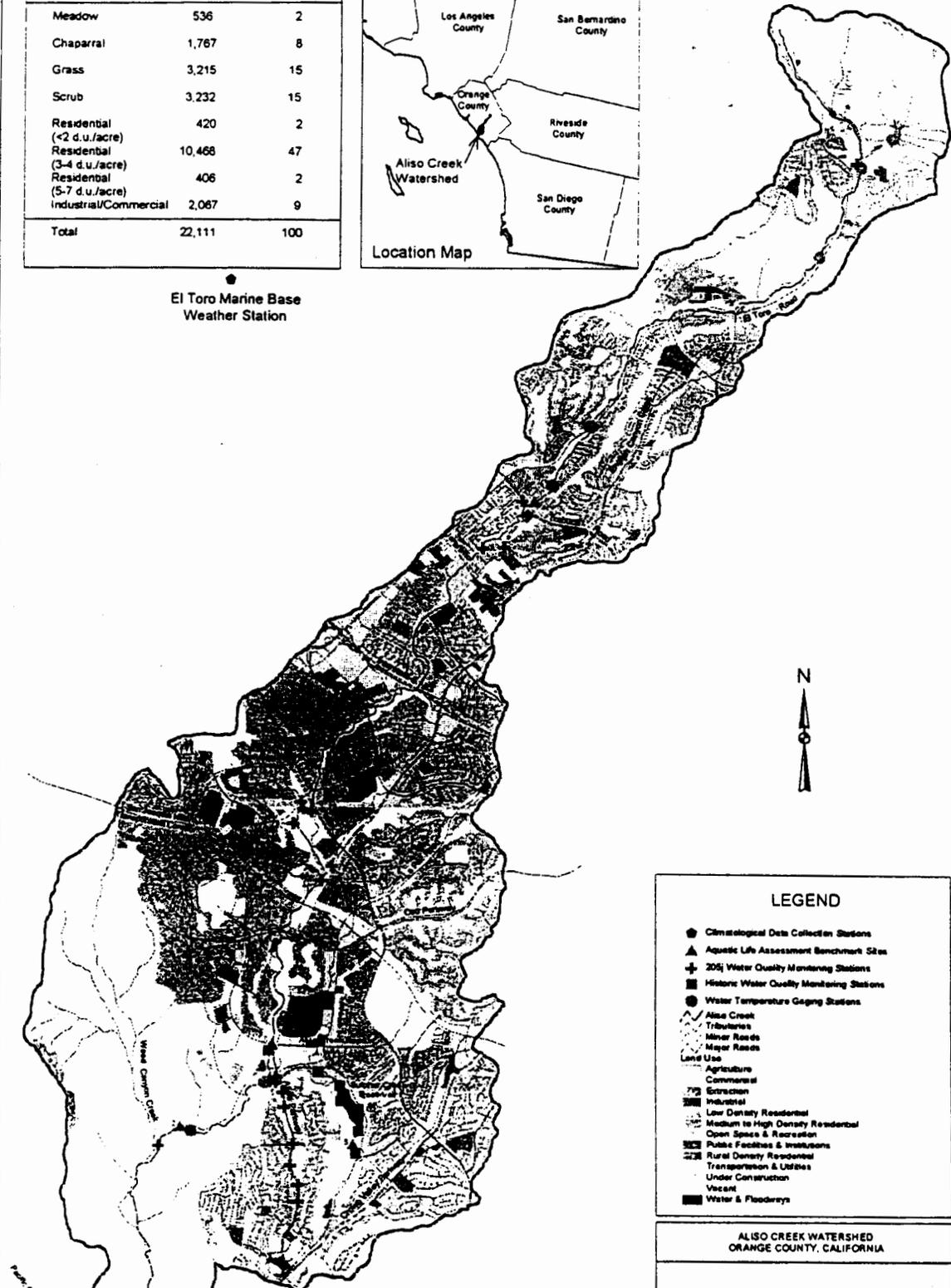
* Clear Creek System's Cost varies with amount of flow treated. (\$664 per million gallons treated at 500 gallons per minute, etc.)

ALISO CREEK WATERSHED

| ALISO CREEK WATERSHED LAND USE | | |
|--------------------------------|---------------|----------------|
| LAND USE | AREA (ACRES) | % OF WATERSHED |
| Meadow | 536 | 2 |
| Chaparral | 1,767 | 8 |
| Grass | 3,215 | 15 |
| Scrub | 3,232 | 15 |
| Residential (<2 d.u./acre) | 420 | 2 |
| Residential (3-4 d.u./acre) | 10,468 | 47 |
| Residential (5-7 d.u./acre) | 406 | 2 |
| Industrial/Commercial | 2,067 | 9 |
| Total | 22,111 | 100 |



El Toro Marine Base
Weather Station



| LEGEND | |
|----------|--|
| ● | Climatological Data Collection Stations |
| ▲ | Aquatic Life Assessment Benchmark Sites |
| + | 20% Water Quality Monitoring Stations |
| ■ | Historic Water Quality Monitoring Stations |
| ○ | Water Temperature Gauging Stations |
| — | Aliso Creek |
| — | Tributaries |
| — | Minor Roads |
| — | Major Roads |
| Land Use | |
| ■ | Agriculture |
| ■ | Commercial |
| ■ | Extraction |
| ■ | Industrial |
| ■ | Low Density Residential |
| ■ | Medium to High Density Residential |
| ■ | Open Space & Recreation |
| ■ | Public Facilities & Institutions |
| ■ | Rural Density Residential |
| ■ | Transmission & Utilities |
| ■ | Under Construction |
| ■ | Vacant |
| ■ | Water & Floodways |

ALISO CREEK WATERSHED
ORANGE COUNTY, CALIFORNIA

WATER QUALITY BASE MAP



SCALE 1:60,000 1"=5000'

ORANGE COUNTY
PUBLIC FACILITIES AND RESOURCES DEPARTMENT

COASTAL COMMISSION

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Exhibit B

ALISO CREEK TREATMENT OPERATIONS
6/8/01

ACTIVITY

COST

TEMPORARY UNTREATED SEWER DIVERSION

\$ 600.00 /day

Duration: 21-35 days

\$ 18,000.00 /month

Direct Diversion to sewer lines

3,000 gallons per minute (gpm)

PLAN A--REC. 1 TREATMENT STANDARDS FOR BACTERIA
MURF SYSTEM

\$ 210.00 /acre foot

In place in 21-35 days

\$ 2,782.82 /day at 3,000 gpm

Duration: 3 years

\$ 1,855.21 /day at 2,000 gpm

Treated water can be discharged into both the creek for native flows
and into the outfall line for the remainder.

PLAN B--RECLAIMED WATER STANDARDS--600 TO 700 TDS
MERIT SYSTEM

\$ 600.00 /acre foot

In place in 90 days

Duration: Minimum of 5 years-better at 10 years

Treated water can be used in existing reclaimed water lines.

This price is in addition to the price paid in Plan A

PLAN C--HIGH PURITY WATER--100 TDS
MERIT SYSTEM

\$ 650.00 /acre foot

In place in 90 days

Duration: Minimum of 5 years-better at 10 years

Treated water can be blended to lower TDS of existing reclaimed water

EXAMPLES OF RAPID RESPONSE INDUSTRIAL PROJECTS

All projects had less than 1 week to be operational

2,000-4,000 gpm stormwater and project water at a Los Angeles Refinery

Effluent had to meet drinking water standards for hydrocarbons

200 gpm treatment of oil leak into San Francisco Bay

Effluent had to meet drinking water standards for hydrocarbons

800 gpm stormwater project removing hydrocarbons on the Central Coast

Effluent had to meet drinking water standards for hydrocarbons

2,000 gpm dewatering project at construction site in Reno, NV

Effluent had to meet drinking water standards for hydrocarbons

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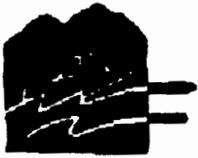
**ENERGY REQUIREMENTS OF WATER TRANSFERS
IN SOUTHERN CALIFORNIA AND THE GWR SYSTEM***

| | Kilowatt hours per acre foot (kWh/af) | | |
|----------------------|---------------------------------------|---------------------|----------------------|
| | Colorado River Aqueduct | State Water Project | GWR Treatment System |
| Delivery | 2,000 | 3,260 | 20 |
| Waste Treatment | 110 | 110 | 140 |
| Ocean Discharge | 130 | 130 | - |
| GWR Treatment System | - | - | 900 |
| Reuse Conveyance | - | - | 430 |
| Total | 2,240 | 3,500 | 1,490 |

From Desalination and Water Reuse Vol 10/2

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ORANGE COUNTY COASTKEEPER

3416 Via Oporto, Suite 201 Newport Beach, California 92663

Office: (949) 723-5424 Fax: (949) 675-7091 Email: coastkeeper1@earthlink.net

<http://www.coastkeeper.org>

June 11, 2001

The California Coastal Commission
45 Fremont Street, Suite 200
San Francisco, CA 94105-2219
VIA FACSIMILE TO COMMISSION AND STAFF

Re: Items Th20d, Th 20 and TH 20f Aliso Creek Diversion

Dear Commissioners:

It is unfortunate that we are once again faced with an application to dump untreated runoff into our ocean. Orange County Coastkeeper is committed to improving our marine habitat and watersheds; this project is not productive to those means. This will be the fourth year of diverting polluted water from Aliso Creek into the outfall pipe just 1.5 miles offshore. This will be the fourth year of streambed alteration and habitat disturbance and yet we are still calling the diversion a temporary solution.

The time has come to rapidly deploy a long-term solution. Mechanical filtration and substantial flow-reduction should be required and completed within the next year and in the interim we should be diverting the Aliso Creek runoff to a treatment facility. This is not an unreasonable request considering that the health of our ocean is at stake.

The costs of treatment although higher than simply dumping the runoff offshore, truly pale in comparison to the costs of having a polluted ocean. Costs for the proposed diversion period would not exceed \$100,000 and would represent a true interim solution not simply moving the pollution around as diversion to the outfall does. A long-term solution will involve flow reduction and hot-spot identification but it will also require mechanical filtration.

Our initial consultation with Clear Creek Systems indicates mechanical filtration could be in place by late August and yield profits from reclaimed water sales of \$900,000 annually. Such alternatives need to be strongly considered.

There is simply no excuse for the applicant to not have a completed long-term plan at this point, the problem has been well known for a decade. In the event that the commission does grant the permit for summer diversion it should be clear that this is the final year, that restoration will be completed to return the Creek to historical conditions and that a

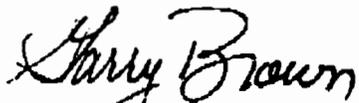
COASTAL COMMISSION

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long-term solution will be formulated by August of 2001 and be implemented by January of 2002. We feel this is more than lenient.

We appreciate your taking the time to consider our opinion on this matter.

Sincerely,



Garry Brown, Executive Director

COASTAL COMMISSION

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Aliso Creek Contamination Solution Draws Criticism

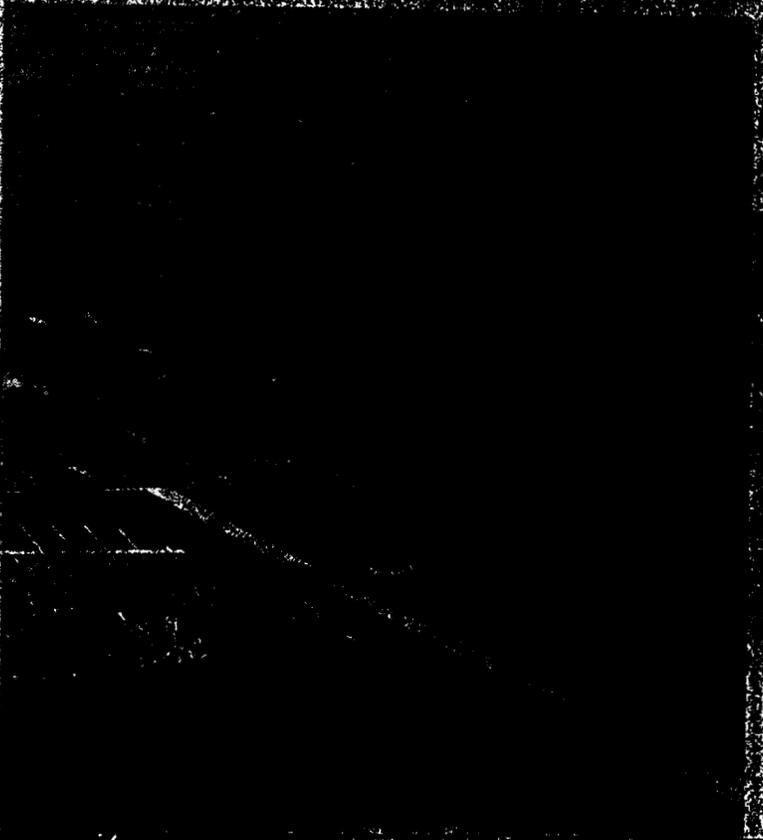
A quick-fix solution to the ongoing health hazards posed by contaminated Aliso Creek has drawn fire from some local residents who want the problem fixed at the source, not simply shunted to another location.

The Aliso Water Management Agency (AWMA), in concert with the Orange County Environmental Health Agency (EHA), has proposed a simple solution that would divert beachfront pollution from Aliso

Received at Commission Meeting

JUN 14 2001

From: _____



COASTAL COMMISSION

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ALISO, from page 3

the contaminated flow 8,000 feet offshore in nearly 200 feet of water—where even the most adventurous beachgoer would be highly unlikely to come in direct contact with it.

Following a recent in-office hearing, Laguna Beach has given its administrative blessing to the project.

Diluting Effluent

The outfall pipe conducts secondarily treated effluent from the AWMA treatment plant in Aliso Canyon to the deep waters offshore.

It is a measure of Aliso Creek's level of contamination that the secondary effluent can be cleaner than the creek. If effluent escaped into the creek, it would by many standards of evaluation improve the creek's water quality by diluting it.

Because of intense inland development in the last 15 years, Aliso Creek is now a year-round stream. But what it carries is urban runoff from developed areas, and nothing like the clear water of mountain streams.

The usual Aliso Creek flow is a heady mix of organic and chemical pollutants, with rich representation in the form of animal wastes, crankcase drippings, spilled gasoline, illegally dumped motor oil, household fertilizers, garden poisons, antifreeze, and whatever the stuff is that gets loose when containers fall off of trucks and break on neighborhood streets.

When inland families go to Aliso beach, their children wade, splash and play in the wastes that their dogs left at the curb the week before.

It is a problem that cries out for resolution.

Fix It Where It Broke

But in the eyes of members of the South Laguna Civic

Association, it is a problem that should be solved at the inland end of Aliso Canyon, not the ocean end.

"This problem should be attacked at the Alicia Parkway entrance rather than at the end of the creek," SLCA Vice President Mike Beanan told Laguna Beach Councilmembers in a recent letter.

"The technology is readily available to accomplish this."

What Beanan and other South Lagunans fear is that the proposed berm will simply transfer the stagnant and polluted pool that regularly forms on the beach to a new point a few hundred feet away. Diverting pollution is no solution, they argue.

Beanan, charging the pollution of the creek is a direct result of inadequately managed inland development, called for a moratorium on growth until water quality could be brought under control.

The berm in the creek would not be a year-round artifact. During the rainy months, water would be allowed to run freely to the sea. But during the drier months, when the creek carries water that almost exclusively originates in developed areas, the flow would be diverted.

The Natural Solution

Over the years, several individuals have advocated natural forms of pollution control, such as vegetating the watercourse in a way that would cool the water and slow its speed, so that riverine plant communities could filter it naturally.

One water professional who has explored such an approach is South Coast Water District General Manager Mike Dunbar. (SCWD, like Laguna Beach, is a member of AWMA; but Dunbar has long been at odds with AWMA over management and policy issues.) Last weekend,

Dunbar led a walk along the lower reaches of Aliso Creek to point out some of the problems that its new year-round status poses.

It's not just polluted summertime flow that makes problems. It's increased winter flows as well. Aliso Creek is, by County definition, a drainage channel. The extra water volume that the creek now carries in the rainy season promotes increased erosion in the river banks.

That increased flow and erosion poses threats to the Aliso Creek Inn and its golf course, which has been ruinously flooded and mudded twice in recent years.

While any stream can flood naturally (and Aliso Canyon was the site of a memorable flood in the 1880s, when there was virtually no inland development to exacerbate the problem), inland growth has contributed to the frequency with which flooding can occur by increasing the amount of water the creek must carry.

The erosion also creates an increased pollution threat. Sewer lines and force mains carry raw sewage to and sludge from the AWMA treatment plant in Aliso Canyon. Streambed erosion can expose these lines, allowing their rupture and the escape of treated solids or raw sewage.

It has happened before. It will again. And bank reinforcement is now almost an item of annual maintenance following the rainy season.

A walk along the creek reveals several sites where tons of rock have been dumped in order to slow the increased erosion that would expose lines which must be kept protected.

And sometimes, as happened in December, the cure may be as threatening as the disease.

Late last year, an AWMA contractor put in rock riverbank

See ALISO, page 6

COASTAL COMMISSION

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**STEPHEN'S
HOME INSPECTION**

(714) 607-6575

