MINUTE ITEM
This Calendar Item No. C10
was approved as Minute Item
No. 16 by the State Lands
Commission by a vote of 2
to 0 at its 12/23/86
meeting.

CALENDAR ITEM

C10

12/23/86
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S 39

GENERAL PERMIT - PUBLIC AGENCY USE

APPLICANT: City of San Diego Water
Utilities Department
1222 1st Avenue
San Diego, California 92101

AREA, TYPE LAND AND LOCATION:
A 16.0-acre parcel of tide and submerged land, located in the Pacific Ocean, near Point Loma, City of San Diego, San Diego County.

LAND USE: Continued maintenance and operation of an existing 108-inch diameter ocean outfall line.

TERMS OF PROPOSED PERMIT:
Initial period: 25 years beginning January 1, 1987.

CONSIDERATION: The public health and safety; with the State reserving the right at any time to set a monetary rental if the Commission finds such action to be in the State's best interest.

BASIS FOR CONSIDERATION:
Pursuant to 2 Cal. Adm. Code 2003.

APPLICANT STATUS:
Applicant is owner of upland.

PREREQUISITE CONDITIONS, FEES AND EXPENSES:
Filing fee and processing costs have been received.

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STATUTORY AND OTHER REFERENCES:

A. P.R.C.: Div. 6, Parts 1 and 2; Div. 13.

B. Cal. Adm. Code: Title 2, Div. 3; Title 14, Div. 6.

AB 884: N/A.

OTHER PERTINENT INFORMATION:

1. The City of San Diego operates the Point Loma Wastewater Treatment Plant as part of its metropolitan wastewater program. This plant discharges treated wastewater through an existing outfall line into the Pacific Ocean. This existing line is now proposed to be covered by a permit from the State Lands Commission.

2. The applicant currently proposes to perform certain in-place modifications to the existing outfall line that will minimize any possible spillage into near shore coastal waters, yet maintain required dilution standards.

3. As to the existing ocean outfall, pursuant to the Commission's delegation of authority and the State CEQA Guidelines (14 Cal. Adm. Code 15061), the staff has determined that this activity is exempt from the requirements of the CEQA as a categorical exempt project. The project is exempt under Class 1, Existing Facilities, 2 Cal. Adm. Code 2905(a)(2).

   Authority: P.R.C. 21084, 14 Cal. Adm. Code 15300, and 2 Cal. Adm. Code 2905.

4. As to the proposed modification, a Negative Declaration was prepared and adopted for this project by the City of San Diego. The State Lands Commission's staff has reviewed such document and believes that it complies with the requirements of the CEQA.

5. The annual rental value of the site is estimated to be $252,000.

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6. This activity involves lands identified as possessing significant environmental values pursuant to P.R.C. 6370, et seq. Based, as proposed, is consistent with its use classification.

APPROVALS OBTAINED:
United States Army Corps of Engineers, and State Regional Water Quality Control Board.

FURTHER APPROVALS REQUIRED:
California Coastal Commission.

EXHIBITS:
A. Land Description.
B. Location Map.
C. Negative Declaration.

IT IS RECOMMENDED THAT THE COMMISSION:

1. AS TO THE EXISTING OCEAN OUTFALL, FIND THAT THIS ACTIVITY IS CONSISTENT WITH THE USE CLASSIFICATION DESIGNATED FOR THE LAND PURSUANT TO P.R.C. 6370, ET SEQ.

2. AS TO THE EXISTING OCEAN OUTFALL, FIND THAT THE ACTIVITY IS EXEMPT FROM THE REQUIREMENTS OF THE CEQA PURSUANT TO 14 CAL. ADM. CODE 15061 AS A CATEGORICAL EXEMPT PROJECT, CLASS 1, EXISTING FACILITIES, 2 CAL. ADM. CODE 2905(a)(2).

3. AS TO THE PROPOSED MODIFICATION TO THE EXISTING OCEAN OUTFALL, FIND THAT A NEGATIVE DECLARATION WAS PREPARED AND ADOPTED FOR THIS PROJECT BY THE CITY OF SAN DIEGO AND THAT THE COMMISSION HAS REVIEWED AND CONSIDERED THE INFORMATION CONTAINED THEREIN.

4. DETERMINE THAT THE PROJECT, AS APPROVED, WILL NOT HAVE A SIGNIFICANT EFFECT ON THE ENVIRONMENT.

5. AUTHORIZE ISSUANCE TO CITY OF SAN DIEGO WATER UTILITIES DEPARTMENT OF A 25-YEAR GENERAL PERMIT - PUBLIC AGENCY USE BEGINNING JANUARY 1, 1987; IN CONSIDERATION OF THE PUBLIC HEALTH AND SAFETY, WITH THE STATE RESERVING THE RIGHT AT ANY TIME TO SET A MONETARY RENTAL IF THE COMMISSION FINDS SUCH ACTION TO BE IN THE STATE'S BEST INTEREST; FOR CONTINUED MAINTENANCE AND OPERATION OF AN EXISTING 108-INCH DIAMETER OCEAN OUTFALL LINE ON THE LAND DESCRIBED ON EXHIBIT A ATTACHED AND BY REFERENCE MADE A PART HEREOF.

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EXHIBIT "A"

LAND DESCRIPTION W 3895

Three strips of tide & submerged land in the Pacific Ocean, San Diego County, California, fifty feet wide, being twenty-five feet on each side of the following described centerlines:

STRIP 1

BEGINNING at coordinates x=1,693,206.01, y=188,460.31, California Coordinate System - Zone 6; thence S75°30'W 11,450.00 feet to Point "Wye".

EXCEPTING THEREFROM any portion lying landward of the ordinary high water mark of the Pacific Ocean.

STRIP 2

BEGINNING at Point "Wye" described in the aforementioned Strip 1; thence S11°30'W 1402.66 feet to the end of the described centerline.

EXCEPTING THEREFROM any portions contained in the aforementioned Strip 1.

STRIP 3

BEGINNING at Point "Wye" described in the aforementioned Strip 1; thence N40°30'W 1402.66 to the end of the described centerline.

EXCEPTING THEREFROM any portions contained in the aforementioned Strip 1 and Strip 2.

Description based on the California Coordinate System of 1927, Zone 6.

END OF DESCRIPTION

REVISED NOVEMBER 24, 1986 BY BOUNDARY SERVICES UNIT, M. L. SHELTER, SUPERVISOR.

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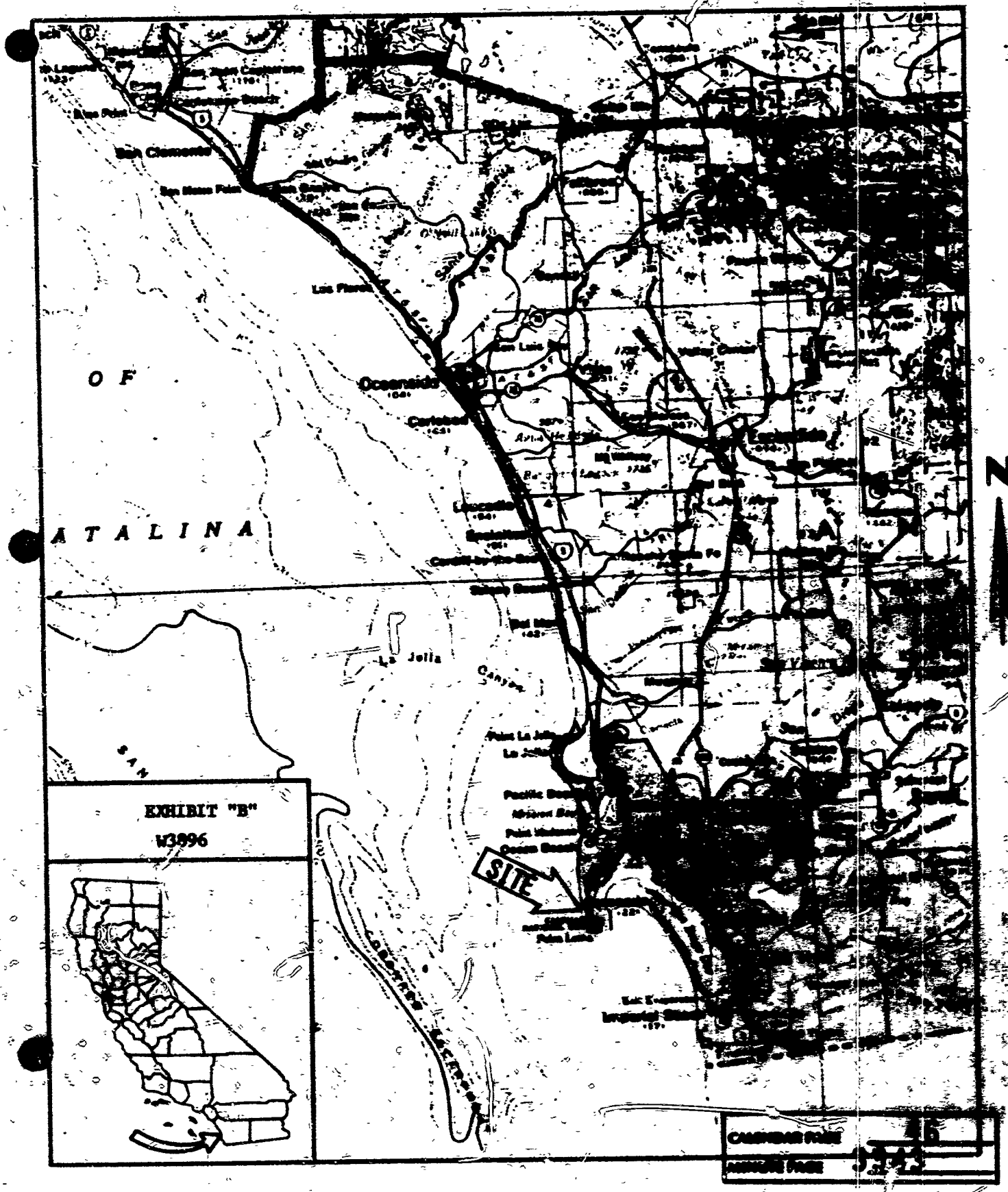
O F
A T A L I N A
Oceanside
Carlsbad
La Jolla
Point La Jolla
SITE
N
EXHIBIT "B"
W3996

City of San Diego
Planning Department

Environmental Quality Division

W. 39%

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SEP 29 1986

Water Utilities Engineering

Negative Declaration

EQD No. 86-0286

SUBJECT: Diffuser Ports Modification. CAPITAL IMPROVEMENTS PROJECT No. 46-103.0 to allow removal of 56 metal plates from port holes in the diffuser legs of the Point Loma Ocean Outfall. Located on the west side of Point Loma, approximately two miles offshore. Applicant: City Water Utilities Department.

I. PROJECT DESCRIPTION: See attached Initial Study.

II. ENVIRONMENTAL SETTING: See attached Initial Study.

III. DETERMINATION:

The City of San Diego has conducted an Initial Study and determined that the proposed project will not have a significant environmental effect and the preparation of an Environmental Impact Report will not be required.

IV. DOCUMENTATION:

The attached Initial Study documents the reasons to support the above Determination.

V. MITIGATING MEASURES: None required.

VI. PUBLIC REVIEW DISTRIBUTION:

Draft copies or notice of this Negative Declaration were distributed to:

State Clearinghouse
U.S. Army Corps of Engineers
Environmental Protection Agency
National Marine Fisheries Service
National Park Service, Cabrillo National Monument
Senator Pete Wilson
U.S. Fish and Wildlife Service
California Department of Fish and Game
State Health Department
Regional Water Quality Control Board
Coastal Commission, San Diego District
SANDAG
Sierra Club
California Native Plant Society
Park and Recreation Board, Coastal Area Committee
Peninsula Community Planning Board

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Councilmember Wolfsheimer, District 1
Councilmember Cleator, District 2
Councilmember McColl, District 3
Councilmember Jones, District 4
Councilmember Struiksma, District 5
Councilmember Gotch, District 6
Councilmember McCarty, District 7
Councilmember Martinez, District 8
Mayor O'Connor
Chris Wahlers
Robert Burns
Richard Mueller
Alice Duholt
Don Holmes
Nancy Skinner
Lee Olsen, San Diego Council of Divers
John Meiburne
Craig Barrietti
Catherine Miller

VII. RESULTS OF PUBLIC REVIEW:

( ) No comments were received during the public input period.

( ) Comments were received but did not address the Negative Declaration finding or the accuracy/completeness of the Initial Study. No response is necessary. The letters are attached.

(X) Comments addressing the findings of the draft Negative Declaration and/or accuracy or completeness of the Initial Study were received during the public input period. The letters and responses follow.

Copies of the draft Negative Declaration and any Initial Study material are available in the Office of the Environmental Quality Division for review, or for purchase at the cost of reproduction.

Diana L. Dugan, Deputy Director
City Planning Department

AUG 7 1986
Date of Draft Report

September 15, 1986
Date of Final Report

Analyst: HUFFMAN

CHAIRMAN'S PAGE
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[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

September 3, 1986

File Ref: W 2006

City of San Diego
Attn: Diane L. Dugan, Deputy Director
City Planning Department
202 C Street
San Diego, California 92101

Dear Ms. Dugan:

The staff of the State Lands Commission has reviewed the draft Negative Declaration on the Point Loma Ocean Outfall project, and found this facility is situated on sovereign lands of the State of California for which no lease or permit has been issued. Therefore, you must secure a permit from the State Lands Commission for the use of State-owned submerged land over which your improvements now extend. 1

We have enclosed information relative to the Commission's application requirements. If you need more information or any assistance in preparing the application, please call James E. Fox at (916) 445-7996.

Very truly yours,

LESLIE E. GUINES, Deputy Chief
Division of Land Management
and Conservation

[redacted]

cc: [redacted].E.P.
17001

RESPONSE TO COMMENTS

1 This comment is noted. The Water Utilities Department is aware of the need for a permit from the State Lands Commission and will comply with any terms and conditions the requirements of this agency.

OFFICE OF PLANNING AND RESEARCH

(916/445-0613)

Tom Hoffman
City of San Diego
202 C Street
San Diego, CA 92101

September 11, 1986

Subject: Diffuser Port Modification - SCH# 86091313

Dear Mr. Hoffman:

The State Clearinghouse submitted the above named environmental document to selected state agencies for review. The review period is closed and none of the state agencies have comments. This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act.

Please call Tom Baker at 916/445-0613 if you have any questions regarding the environmental review process. When contacting the Clearinghouse in this matter, please use the eight digit State Clearinghouse number so that we may respond promptly.

Sincerely,

John C. Keene
Chief Deputy Director
Office of Planning and Research

City of San Diego
Planning Department
ENVIRONMENTAL QUALITY DIVISION
202 "C" Street, M.S. 5A
San Diego, CA 92101
(619) 236-5775

INITIAL STUDY
EQD No. 86-0286

SUBJECT: Diffuser Ports Modification. CAPITAL IMPROVEMENTS PROJECT No. 46-103.0 to allow removal of 56 metal plates from port holes in the diffuser legs of the Point Loma Ocean Outfall. Located on the west side of Point Loma, approximately two miles offshore. Applicant: City Water Utilities Department.

I. BACKGROUND:

In 1963 the City of San Diego constructed the Point Loma Ocean Outfall. The outfall consists of a 108-inch diameter reinforced concrete pipe extending approximately two miles west of Point Loma into the Pacific Ocean. The 108-inch pipe separates into two 78-inch diameter reinforced concrete pipe diffuser legs. The diffuser legs extend approximately 1/4-mile north and south from the end of the 108-inch diameter pipe in a "Y" shaped configuration.

Each diffuser leg has 28 circular ports spaced 48 feet apart on alternating sides of the pipe, and one 10-inch by 12-inch rectangular flushing port at the end of the leg. The ports are located an average of 205 feet below the water surface. The original and proposed port configuration was designed to provide optimal mixing and dispersion of the treated wastewater into the ambient ocean water. The circular ports were originally covered with metal plates with 6 1/2- and 7-inch diameter holes to maintain pressure in the pipe during low flows at the initial start-up of the outfall. Adequate pressure needs to be maintained in the pipe during low flows to prevent saltwater intrusion into the pipe through the diffuser ports, and to maintain optimum effluent mixing and dispersion.

II. PURPOSE AND MAIN FEATURES:

The project would involve the removal of 56 metal plates with 6 1/2- and 7-inch diameter port holes from the outfall pipe. After the metal plates are removed, the existing 8- and 9-inch diameter port holes in the pipe would be exposed. The removal of the metals plates would increase the total port hole area from approximately 15.9 square feet to approximately 24.6 square feet. It is anticipated that the work would involve the use of hardhat divers working from a diving boat anchored on the surface above the diffuser pipe. The purpose of the project would be to reduce the back pressure in the existing pipe. This would be necessary to prevent overflows on the shore as flows to the Point Loma Wastewater Treatment Plant increase.

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The ocean outfall has a peak hydraulic capacity of approximately 296 million gallons per day (mgd) at high tide with the existing port configuration. The outfall presently receives an average daily flow of approximately 163 mgd with a peak flow of approximately 301 mgd. Projected peak flows for this year are expected to exceed existing capacity this year. When the outfall capacity under its present condition (with diffuser port covers in place) is exceeded, wastewater effluent will overflow the onshore vortex structure at Point Loma and flow down the cliffside reaching local intertidal waters. The proposed removal of port covers would allow the entire system to handle these flows and avoid potential overflow problems onshore.

III. ENVIRONMENTAL SETTING:

The diffuser ports are located in the two diffuser legs of the Point Loma Sewage Outfall, approximately two miles west of Point Loma (see Figure 1), at a depth of 205 feet below the water surface. The ocean outfall extends seaward from the Point Loma Wastewater Treatment Plant (see Figure 1). The Point Loma plant serves a population in excess of 1.52 million people. Treatment units provide for screening, grinding, grit removal, primary sedimentation with chemical addition, and sludge digestion. Primary sludge is stabilized by an aerobic digestion and transported to offsite sludge processing areas for drying and subsequent reuse or disposal. The facility currently provides advanced primary treatment for an average dry-weather flow of 163 mgd and a peak hourly wet-weather flow of 301 mgd.

Recreational activities which occur in the general vicinity of the San Diego Point Loma effluent discharge include fishing, shellfishing, boating, surfing, swimming, wading, underwater diving, picnicking, and aesthetic enjoyment. In terms of number of participants, water-contact sports are by far the most important use of the marine waters of San Diego.

IV. ENVIRONMENTAL ANALYSIS: See attached Initial Study checklist.

V. DISCUSSION:

Water Quality

An assessment of potential water quality impacts associated with the proposed project was prepared by K.P. Lindstrom and Associates (see attached). The following discussion is based on that report.

The 56 Monel orifice plates which now cover the ocean outfall diffuser ports were initially installed in 1963 with the intention of restricting flow to assure high initial dilution of effluent during the initial years of use when flows were low. The removal of the orifice plates is proposed in order to increase the outfall capacity in response to increased sewage generation. Studies conducted by

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City's engineering consultants indicate that initial dilution will be only moderately affected by removing the ports (on the order of plus or minus 5 percent). Hydraulic capacity will be increased by about 21 percent, from the current capacity of 296 mgd to 358 mgd. According to the attached report, initial dilution should be maintained at or near existing levels, thereby achieving compliance with NPDES Permit limitations.

As flows increase and dilution decreases, additional efforts (industrial pretreatment, source control, improved treatment, etc.) may have to be undertaken to assure compliance with Ocean Plan toxic materials limitations or to comply with beneficial use protection needs. Ongoing monitoring will be used to indicate compliance or noncompliance with applicable standards.

As flows increase, so will mass emissions of wastewater constituents. Quantifying such increases is difficult given the present status of wastewater improvements taking place at the Point Loma facility which will change effluent quality (improve it). Should the City be successful in its efforts to obtain a modified NPDES (National Pollution Discharge Elimination System) Permit under Section 301(h) of the Clean Water Act, then the effluent quality will be that achievable through advanced primary treatment. Without such a modification, full secondary treatment will be required and a new treatment plant will have to be constructed due to limited land availability at Point Loma. Regardless of what level of treatment is needed, outfall hydraulic capacity will need to be increased to accommodate peak flows. The proposed project is the least costly and most expeditious means of achieving this objective on an interim basis (until long-term treatment and disposal issues are resolved). Regulation of the discharge in terms of mass emission limitations is governed by an existing NPDES permit. No change in this permit is expected as a result of this project.

Consistency with Existing Plans and Permits

The projected peak flow which can be accommodated once the modifications are completed is consistent with those projected under the SANDAG Series VI population forecasts for the Point Loma Plant's service area using the appropriate average to peak factor ratio. The proposed project has been approved by the City Council as one of its budgeted 1986 Capital Improvement Projects. The project is consistent with short-term wastewater facilities planning. Long-term planning needs are at present unresolved pending a final determination on the City's request for a modified NPDES Permit under the auspices of Section 301(h) of the Federal Clean Water Act and a modification of Waste Discharge Requirements from the Regional Water Quality Control Board related to the dedesignation of local kelp beds as shellfish harvesting areas and water contact recreational areas (used by sport divers).

The peak flow capacity is estimated to increase to 368 mgd. Such an increase will not be growth-inducing since other portions of the wastewater system (Parshall flumes at the headworks and treatment capacity) are the factors which limit hydraulic capacity and regulatory compliance with effluent limitations.

Initial dilution will not be significantly changed by the proposed project assuming flows increase. With no increase in flow, the project will result in an increase in initial dilution. Changes in initial dilution can result in changes in water quality in the vicinity of the outfall. Such changes are routinely monitored and reported to the Regional Water Quality Control Board. It is not anticipated that the project will result in any significant changes in water quality which will be quantifiable. Thus, no changes in the status of compliance or noncompliance with receiving water limitations is expected. It is expected that bacteriological levels in the kelp beds will still exceed present limitations. Resolution of this issue is outside the scope of this project.

The only permits and approvals which may be required appear to be a permit from the U.S. Army Corps of Engineers using ENG Form 4345 since an existing outfall pipe is being modified. The Corps regional office has indicated this is a routine matter.

Other agencies which will review the proposed project include the California Coastal Commission and Regional Water Quality Control Board.

Summary

The proposed project is not anticipated to have a significant short-term impact on water quality since initial dilution of effluent discharge will not change significantly. The increased capacity of the City's ocean outfall which will result from this project is an issue which is outside the scope of this project. Long-term water quality standards are addressed by applicable state and federal permit requirements as explained above.

IV. RECOMMENDATION:

On the basis of this initial evaluation:

__X__ The proposed project would not have a significant effect on the environment, and a NEGATIVE DECLARATION should be prepared.

_____ Although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described in Section IV above have been added to the project. A MITIGATED NEGATIVE DECLARATION should be prepared.

____ The proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT should be required.

PROJECT ANALYST: HUFFMAN

Attachments: Figure 1: Location Map
Initial Study Checklist
Environmental Impact Assessment, City of San Diego Outfall Diffuser Modification Project, prepared by K.P. Lindstrom and Associates

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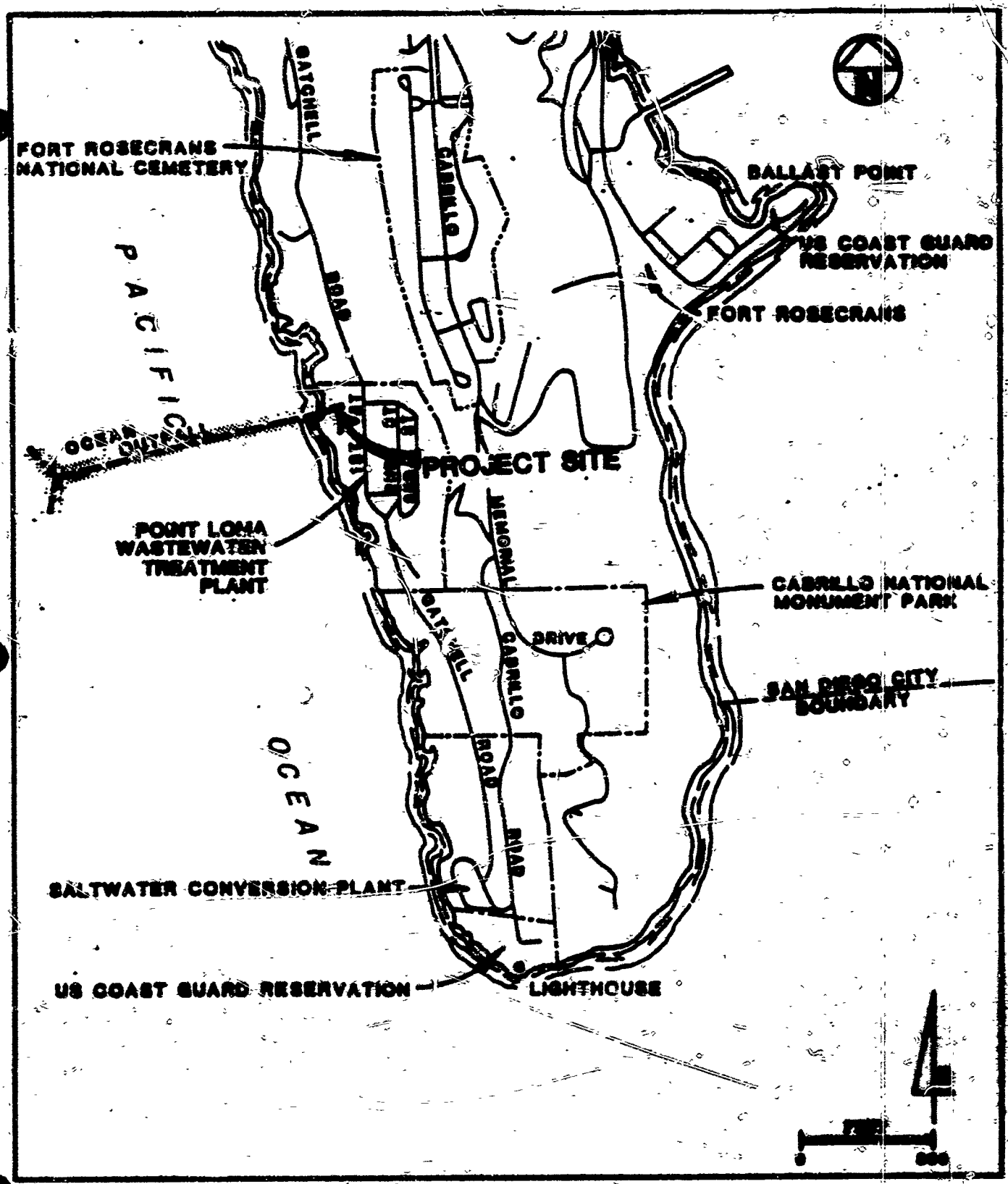

LOCATION MAP

POINT LOMA OCEAN OUTFALL DIFFUSER LEG MODIFICATIONS

Environmental Quality Division

CITY OF SAN DIEGO · PLANNING DEPARTMENT

FIGURE 1

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III. ENVIRONMENTAL ANALYSIS:

This Initial Study checklist is designed to identify the potential for significant environmental impacts which could be associated with a project. All answers of "yes" and "maybe" indicate that there is a potential for significant environmental impacts and these determinations are explained in Section IV.

	Yes	Maybe	No
A. Geology/Soils. Will the proposal result in:			
1. Unstable geologic or soil conditions according to the Seismic Safety Study Geotechnical Land Use Capability Map or other evidence?	—	—	✓
2. Any increase in wind or water erosion of soils, either on or off the site?	—	—	✓
B. Air. Will the proposal result in:			
1. Substantial air emissions or deterioration of ambient air quality?	—	—	✓
2. The exposure of sensitive receptors to substantial pollutant concentrations?	—	—	✓
3. The creation of dust or objectionable odors?	—	—	✓
4. A substantial alteration of air movement, moisture, or temperature, or any change in climate, either locally or regionally?	—	—	✓
C. Hydrology/Water Quality. Will the proposal result in:			
1. Changes in currents, or the course of direction of water movements, in either marine or fresh waters?	—	—	✓
2. Changes in absorption rates, drainage patterns, or the rate and amount of surface runoff?	—	—	✓
3. Alterations to the course or flow of flood waters?	—	—	✓
4. Discharge into surface waters, or in any alteration of surface water quality, including, but not limited to temperature, dissolved oxygen or turbidity?	—	✓	—

Continued 3/13/87 5?
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	Yes	Maybe	No
5. Discharge into surface or ground waters, significant amounts of pesticides, herbicides, fertilizers, gas, oil or other noxious chemicals?	—	—	✓
6. Change in deposition or erosion of beach sands, or changes in siltation, deposition or erosion which may modify the channel of a river or stream or the bed of the ocean or any bay, inlet or lake?	—	—	✓
7. Exposure of people or property to water related hazards such as flooding?	—	—	✓
D. **Biology**. Will the proposal result in:			
1. A reduction in the number of any unique, rare, endangered, sensitive or fully protected species of plants or animals?	—	—	✓
2. A substantial change in the diversity of any species of animals or plants?	—	—	✓
3. Introduction of invasive species of plants into the area?	—	—	✓
4. Interference with the movement of any resident or migratory fish or wildlife species?	—	—	✓
5. An impact on a sensitive habitat, including, but not limited to streamside vegetation, oak woodland, vernal pools, coastal salt marsh, lagoon, wetland, or coastal sage scrub or chaparral?	—	—	✓
E. **Noise**. Will the proposal result in:			
1. A significant increase in the ambient noise levels?	—	—	✓
2. Exposure of people to noise levels which exceed the City's adopted noise ordinance?	—	—	✓
3. Exposure of people to current or future transportation noise levels which exceed standards established in the Transportation Element of the General Plan?	—	—	✓

	Yes	Maybe	No
F. Light, Glare and Shading. Will the proposal result in:			
1. Substantial light or glare?	—	—	✓
2. Substantial shading of other properties?	—	—	✓
G. Land Use. Will the proposal result in:			
1. An alteration of the planned land use of an area?	—	—	✓
2. A conflict with adopted environmental plans and goals of the community where it is located?	—	—	✓
3. Land uses which are not compatible with aircraft accident potential as defined by a SANDAG (ALUC) Airport Land Use Plan?	—	—	✓
H. Natural Resources. Will the proposal result in:			
1. The prevention of future extraction of sand and gravel resources?	—	—	✓
2. The conversion of agricultural land to nonagricultural use or impairment of the agricultural productivity of agricultural land?	—	—	✓
I. Hazardous Materials: Will the proposal involve a risk of an explosion or the release of hazardous substances (including, but not limited to gas, oil, pesticides, chemicals or radiation)?	—	—	✓
J. Population. Will the proposal alter the planned location, distribution, density, or growth rate of the population of an area?	—	—	✓
K. Housing. Will the proposal affect existing housing, or create a demand for additional housing?	—	—	✓
L. Transportation/Circulation. Will the proposal result in:			
1. Traffic generation in excess of specific/ community plan allocation?	—	—	✓
2. An increase in projected traffic which is substantial in relation to the capacity of the street system?	—	—	✓
3. An increased demand for off-site parking?	—	—	✓
4. Substantial impact upon planned transportation systems?	—		

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	Yes	Maybe	No
5. Alterations to present circulation movements including effects on existing public access to beaches, parks, or other open space area?	—	—	✓
6. Increase in traffic hazards to motor vehicles, bicyclists or pedestrians?	—	—	✓
M. Public Services. Will the proposal have an effect upon, or result in a need for new or altered governmental services such as police or fire protection, schools, parks or recreational facilities?	—	—	✓
N. Utilities. Will the proposal result in a need for new systems, or substantial alterations to utilities, including power or natural gas, communications systems, water, sewer, storm water drainage, solid waste and disposal?	—	✓	—
O. Energy. Will the proposal result in the use of excessive amounts of fuel or energy?	—	—	✓
P. Water Conservation. Will the project result in:			
1. Increased demand for water on a regional basis which exceeds planned or projected needs?	—	—	✓
2. Landscaping which is predominantly non-drought resistant vegetation?	—	—	✓
Q. Aesthetics. Will the proposal result in:			
1. The obstruction of any vista or scenic view from a public viewing area?	—	—	✓
2. The creation of a negative aesthetic site or project?	—	—	✓
3. Project bulk, scale, materials or style which will be incompatible with surrounding development?	—	—	✓
4. The loss of a stand of distinctive, landmark or mature trees?	—	—	✓
5. Substantial change in topography or ground surface relief features (generally more than 5,000 cubic yards of grading per acre)?	—	—	✓
6. The loss, covering or modification of any unique geologic or physical features such as a natural canyon, sandstone bluff, rock outcrop or hillside with a slope in excess of 25 percent?	—		

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	Yes	Maybe	No
R. **Cultural/Scientific Resources.** Will the proposal result in:			
1. Alteration of or the destruction of a prehistoric or historic archaeological site?	—	—	✓
2. Adverse physical or aesthetic effects to a prehistoric or historic building, structure, or object?	—	—	✓
3. Adverse physical or aesthetic effects to an architecturally significant building, structure, or object?	—	—	✓
4. The loss of paleontological resources?	—	—	✓
S. **Mandatory Findings of Significance.**			
1. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	—	—	✓
2. Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals? (A short-term impact on the environment is one which occurs in a relatively brief, definitive period of time while long-term impacts will endure well into the future.)	—	—	✓
3. Does the project have impacts which are individually limited, but cumulatively considerable? (A project may impact on two or more separate resources where the impact on each resource is relatively small, but where the effect of the total of those impacts on the environment is significant.)	—	—	✓
4. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	—	—	✓

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ENVIRONMENTAL IMPACT ASSESSMENT

CITY OF SAN DIEGO

OUTFALL DIFFUSER MODIFICATION PROJECT

RECEIVED
JUL 31 1986
ENR

Prepared by:

K. P. Lindstrom & Associates
Sacramento, California

Under Contract to:

John Carollo Engineers

July 1986

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ENVIRONMENTAL IMPACT ASSESSMENT FOR CITY OF SAN DIEGO OUTFALL IMPROVEMENT PROJECT

INTRODUCTION

The proposed project is one of many planned wastewater capital improvement projects presently being either planned, designed or constructed by the City of San Diego. The City's Environmental Quality Division made the determination that the engineering design studies and any design work related to the Ocean Outfall Diffuser Arms was categorically exempt (California Environmental Quality Act Guidelines, Section 15262) under EQD File No. 85-0553. Based on the evaluation made by consulting engineers retained by the City, it was concluded that the ocean outfall has a peak hydraulic capacity of approximately 295 MGD at high tide with the existing port configuration. Projected peak flows are expected to exceed this capacity this year. When the outfall capacity under its present condition (with diffuser port covers in place) is exceeded, wastewater effluent will overflow the onshore vortex structure at Point Loma and flow down the cliffside reaching local intertidal waters. The City has deemed such an overflow to be unacceptable and has initiated corrective actions based on the recommendations of their consultant's May 1986 Technical Memorandum (John Carollo Engineers, 1986).

The recommendation was made to remove all Monel orifice plates now covering the diffuser ports (JCE, 1986). This recommendation was made after studying the original design, structural and hydraulic constraints, modeling initial dilution under varying wastewater flows and oceanographic conditions and making a physical inspection of the outfall using both divers and a submarine.

Background Information

The City of San Diego operates the Point Loma Wastewater Treatment Plant (Figure 1). Effluent from this treatment plant is discharged in the Pacific Ocean through the Point Loma ocean outfall (Figure 1). This ocean outfall, built in 1963, consists of 11,316 feet of 108-inch diameter reinforced concrete pipe. At the terminous of the outfall is a two-legged outfall diffuser (Figure 1). Each leg of the diffuser is 1,368 feet long and has 28 circular ports at the s ng line of each pipe (Figure 2). There is also a 10-inch by 1?-inch rectangular flushing port at the end of the leg of each diffuser (Figure 2). The circular diffuser ports are eight to nine inches in diameter and are presently covered with orifice plates which have openings of six and a half to seven inches in diameter. The outfall extends offshore to a depth of 205 feet below the ocean surface west of the Point Loma Treatment Plant. The present outfall has a rated hydraulic capacity of 295 mgd at peak flow using the existing port arrangement and orifice covers. By removing all of the orifice covers the capacity can be increased to 358 mgd peak flow. To extend capacity beyond this will require extending the diffuser leg or modifying the existing onshore vortex structure.

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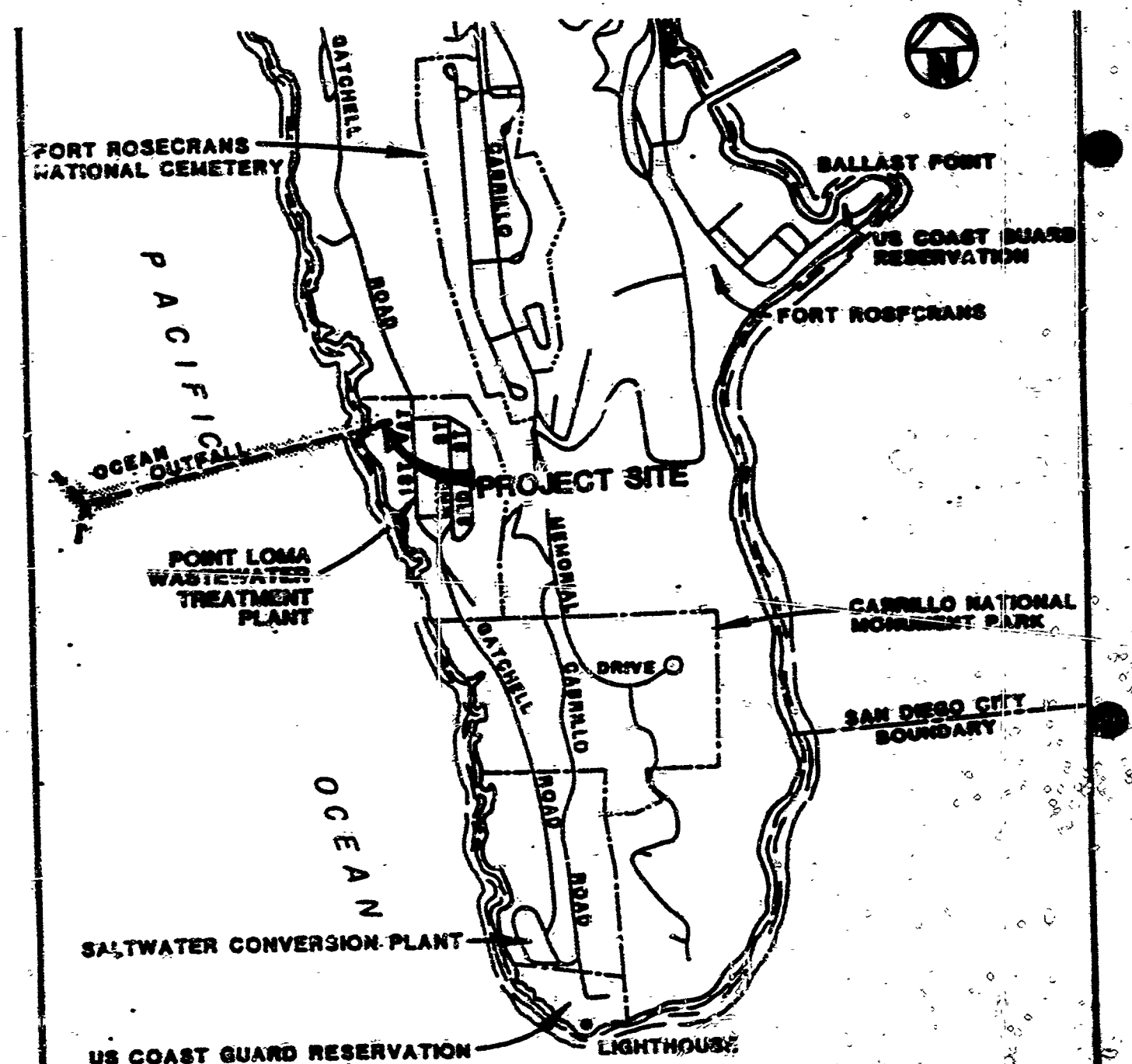

LOCATION MAP

Figure 1

Point Loma Ocean Outfall Diffuser Leg Modifications

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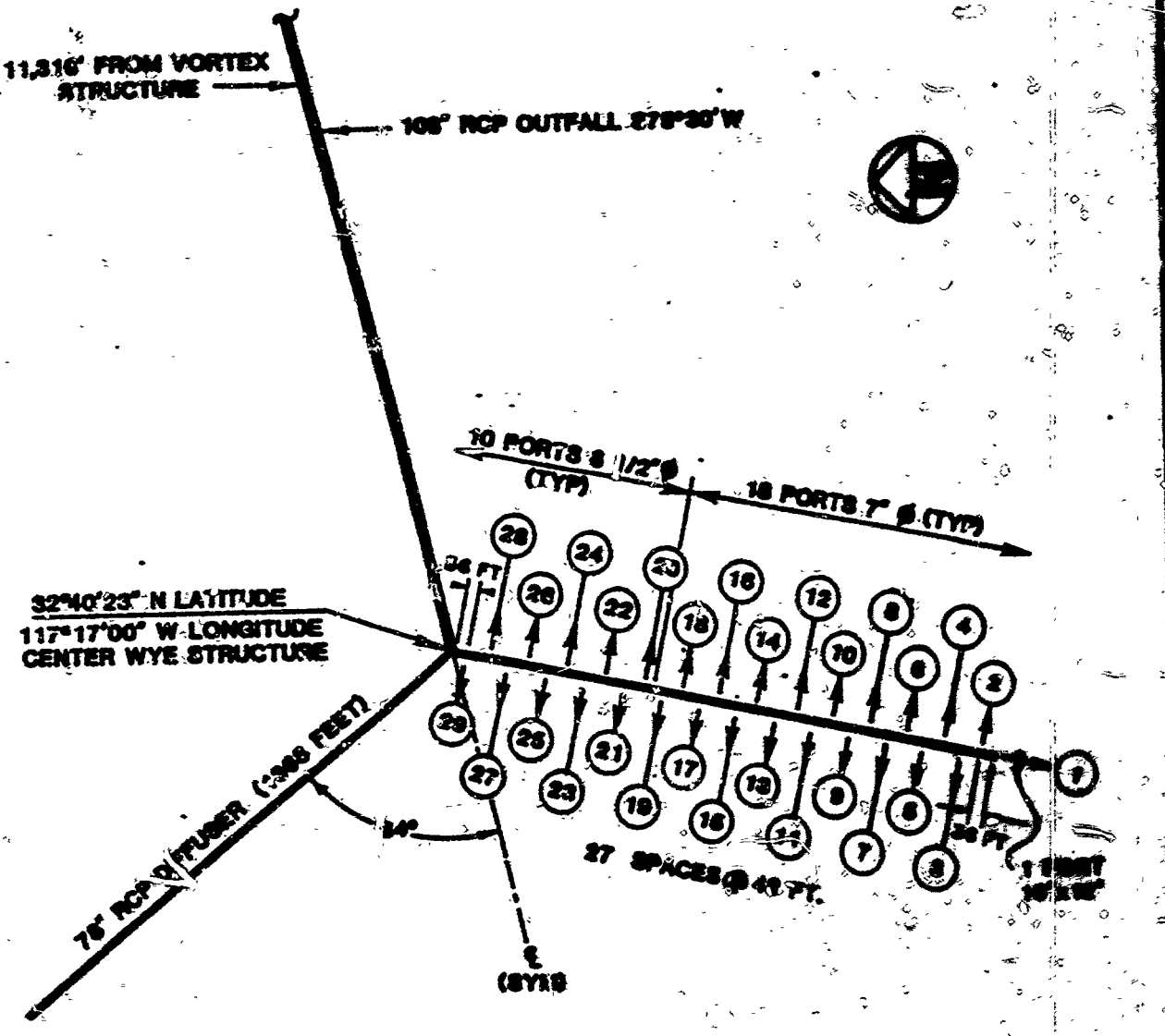

(2) TO (19) 7" ORIFICE PLATE COVERING 6" BELLMOUTH PORT

(20) TO (29) 6 1/2" ORIFICE PLATE COVERING 6" BELLMOUTH PORT

DIFFUSER PORT ARRANGEMENT

Figure 2

Point Loma Ocean Outfall Diffuser Leg Modifications

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The outfall presently receives an average daily flow of approximately 163 mgd with a peak flow of approximately 301 mgd. Projected flows for the Point Loma Treatment Plant are expected to average 240 mgd ultimately (beyond the year 2010) with a projected peak flow of 444 mgd. To immediately accommodate peak flows will require modification of the existing outfall. In February of 1986, the City hired John Carollo Consulting Engineers to prepare a technical memorandum on modifications to the outfall diffuser legs to provide for increased capacity of the present outfall system. Part of their scope of work was to prepare an environmental assessment on the final technical memorandum to evaluate the impacts of any recommended project alternatives. In April of 1986, Carollo JCE completed a draft technical memorandum which was circulated for review. This was finalized in June of 1986. This environmental assessment evaluates the recommended project and provides an evaluation of its environmental impacts.

Existing Outfall Constraints

At present the critical structural constraint affecting the capacity of the ocean outfall is the designed hydrostatic pressure of the pipeline which ranges from 96.8 feet of pressure near the Point Loma plant to 90 feet of pressure in either of the two outfall diffuser legs. Other possible hydraulic factors which can influence outfall capacity include pipe friction, diffuser losses, density losses and tidal influences. The density losses and tidal influences are highly variable and cannot be controlled. They are dependent upon the natural variability of the marine environment. The diffuser losses can be reduced by increasing the total available port area which would necessitate removing the present port covers. The pipe frictional losses can be reduced by periodically flushing or cleaning the outfall. To evaluate the nature of the hydraulic constraints on the outfall four different conditions considering a full range of flows were evaluated. Under all of these conditions and the current and modified port conditions a number of head curves were developed through the hydraulic evaluation. This evaluation indicated an existing hydraulic capacity of 295 mgd at high tide. By removing the port covers from the existing diffuser, the outfall hydraulic capacity could be increased to 358 mgd at high tide.

Present and Projected Wastewater Flows

During the last full calendar year of record (1985), the Point Loma ocean outfall final effluent flow averaged 156.18 MGD (Graff, R.C., et al., 1986). This flow average is about 10 MGD greater than projected wastewater flows made in the past few years (Table 1). In 1985, monthly flows averaged from a low of 140.54 MGD in April to a high of 173.98 MGD in December. In May 1985, flow measurements were determined using a recalibrated metering system and Parshall flumes which are deemed to be accurate within 5% of the flow for all flow conditions (RWQCB, 1985). The recalibrated meters account in part for the higher flows now reported.

Recent flow projections made by the City are summarized in Table 1. More recent flow projections for both average daily and peak hour flows are shown in Figure 3.

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Table 3

COMPARISON OF PROJECTED POPULATIONS AND AVERAGE FLOWS TRIBUTARY TO POINT LOMA TREATMENT FACILITIES

	September 1979 301(h) Application	November 1983 301(h) Application Revision	July 1984 301(h) Additional Information[c]
1986			
Flow, MGD	146[1]	146.2[2]	150[3]
Population	1,491,200[a]	1,526,868[b]	1,526,868[b]
1990			
Flow, MGD	155	164[2]	177[3]
Population	1,586,600[a]	1,366,561[b]	1,686,861[b]
1995			
Flow, MGD	165	176.6[2]	190[3]
Population	1,682,100[a]	1,743,388[b]	1,743,388[b]

---

[1] Plus 10 MGD for Tijuana, Mexico on a standby emergency basis.

[2] Average daily flow.

[3] Flows based on SANDAG Series VI with 13 MGD contingency for City of Tijuana.

[a] Comprehensive Planning Organization of the San Diego Region, 1978. Series IV(b) population projection.

[b] Based on SANDAG Series VI population projections.

[c] Item 8 of response to EPA Information Request.

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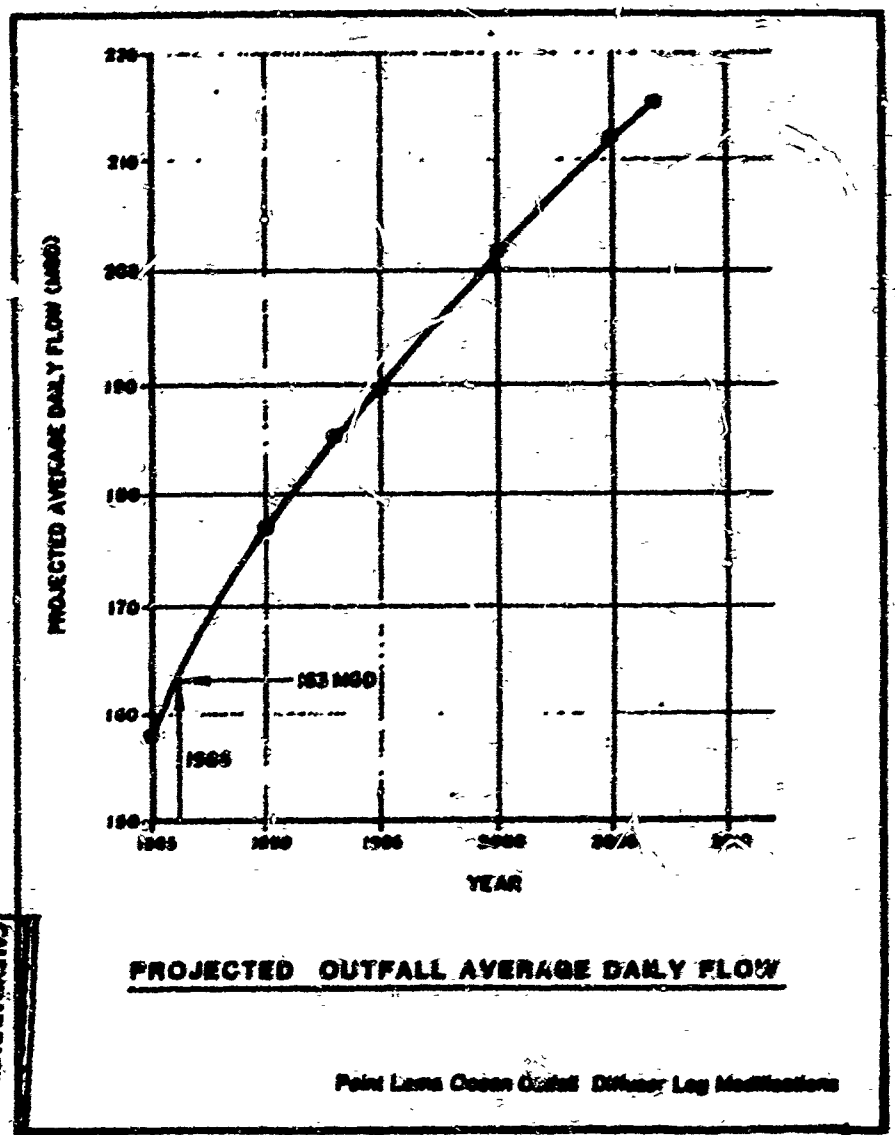
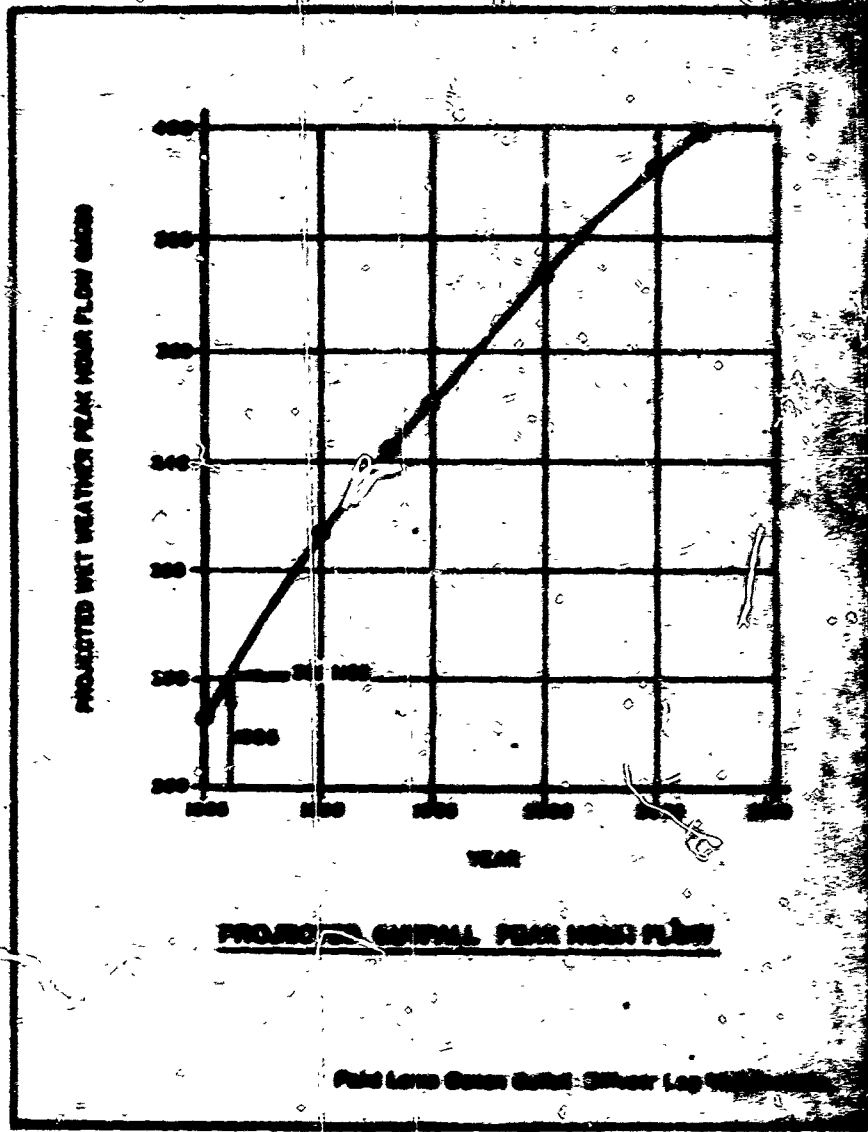


PROJECTED OUTFALL AVERAGE DAILY FLOW

Point Loma Ocean Outfall Diffuser Leg Modifications



PROJECTED OUTFALL PEAK HOUR FLOW

Point Loma Ocean Outfall Diffuser Leg Modifications

Figure 3

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Evaluation of Present Flow Conditions

The review of present flow information indicated that peak hour flows to the existing outfall exceeded the 295 mgd existing capacity several times during 1985. This indicates the ocean outfall has reached hydraulic capacity with its existing port configuration. There are several different alternatives for increasing outfall capacity. The first alternative is to remove the existing covers which would provide for a peak hour capacity of 388 mgd by the year 1996. The original outfall was designed to allow removal of the port covers. The second alternative would be to extend the ocean outfall diffuser to increase the effective port area by providing more ports in the extended diffusers. The original outfall was constructed to allow such an extension. However, they involve great expense compared to removing the outfall covers. The third alternative is to modify the existing onshore vortex structure to provide for pressurization to create the higher head needed to get more water out the outfall. At present, severe corrosion of the vortex structure results in leakage during pressure operations with possible water quality impacts on intertidal waters.

Initial Dilution and Compliance with Water Quality Standards

Initial dilution is the process which results in the rapid and irreversible turbulent mixing of wastewater with ocean water around the point of discharge (State Water Resources Control Board (SWRCB), 1983). The initial momentum of the discharge (as measured by port velocity) combined with its initial buoyancy (freshwater rises) act together to produce turbulent mixing. Initial dilution between the wastewater and seawater is generally completed when the diluted wastewater ceases to rise further in the water column and first begins to spread horizontally (plume entrainment period which generally occurs within minutes).

Well designed and properly located marine outfalls generally achieve initial dilution values of about 100 to 1 or better before the plume begins a transition from essentially vertical flow to an essentially horizontal flow dominated by ambient oceanographic conditions (Tetra Tech, Inc., 1982).

Adequate initial dilution is required to assure compliance with the water quality objectives set forth in the California Ocean Plan (SWRCB, 1983). Initial dilution is influenced by a number of factors including:

- Discharge depth
- Density of effluent
- Ambient current speed and direction
- Ocean temperature and salinity (density gradients)
- Diffuser characteristics
- Port size
- Port spacing
- Port orientation

Several methods are commonly used to complete initial dilution including computer models available from the U.S. Environmental Protection Agency (US EPA). These are used by the SWRCB and Regional Water Quality Control Board

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(RWQCB) in determining initial dilution for calculating the effluent limitations specified in NPDES Permits or Waste Discharge Requirements.

The particular model employed in the recent Technical Memorandum for the Outfall Diffuser Leg Modifications was the EPA "PLUME" model to be consistent with the results performed previously as part of the City's 301(h) NPDES Permit Application now under consideration by EPA (John Carollo Engineers, 1986). The PLUME model analyzes a single, positively buoyant plume in an arbitrarily stratified stagnant environment (no currents) and this provides conservative estimates of dilution using a weighted average of all the outfall points. Initial dilution calculations are based on varying density profiles and flows were performed by John Carollo Engineers to determine how initial dilution would be affected by removal of the orifice plates and to compare results with previous calculations (John Carollo Engineers, 1986). Comparison of initial dilution results for specified density profiles showed that initial dilution is in the range of 93-105 parts of seawater to one part of effluent under existing conditions and 97-110 to 1 with all the plates removed assuming peak flows of 291.8 MGD and 213.6 MGD, respectively. Note that initial dilution decreases as flows increase. The flows used to calculate NPDES dilution for determining effluent limitations for RWQCB Order 85-16 was 169.9 MGD (average daily flow) which yielded an initial dilution factor of 210.41 (RWQCB, 1985) with all ports open. NPDES permit limitations are based on average daily flow or 30-day flow averages. Effluent toxicant levels are based on a 6-month median, daily maximum (four times 6-month median value), or instantaneous maximum values (ten times six month median).

Overall, initial dilution calculations for 48 different conditions were reviewed with 24 separate flow and density combinations both with and without all of the Monel orifice plates removed (John Carollo Engineers, 1986). Based on this review, it was shown that initial dilution was improved by an average of 0.85 percent by removing all the cover plates as proposed with the range of difference being about +5.0 percent depending upon the combination of flow and selected density profile. The lowest initial dilution calculated under present conditions was 89:1 using an October density profile and a 248 MGD average daily flow. With all ports removed, the lowest initial dilution was 91 to 1 using a December density profile and similar flow. It is estimated that under peak flow conditions, initial dilution on the order of 80 to 1 is achieved.

Effluent limitations for twenty-one different toxic materials (excluding radioactivity) are based on calculating compliance with receiving water standards based on concentration after initial dilution (accounting for natural background levels) based on the following equation:

$$Ce = Co + Dm\ (Co - Cs)$$

where:

Ce = the effluent concentration limit,
Co = the concentration to be met at the completion of initial dilution,
Cs = background seawater concentration (provided in Ocean Plan),
Dm = minimum probable initial dilution expressed as parts seawater per part wastewater.

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The RWQCB has used an initial dilution of 110 to 1 for specifying the City's present effluent limitations. The higher the initial dilution the higher the level of certain toxicants which can be present in an effluent and still provide for permit compliance. However, there are also mass emission limitations based on a maximum allowable average flow which limits the maximum amounts which can be discharged.

Overall, the initial dilution factor will decrease as the outfall flows increase provided that the diffuser length remains the same. By removing all Monel orifice plates there will not be a significant change in the outfall initial dilution at a given flow rate. However, greater flows will be able to be discharged (368 MGD peak flow instead of 295 MGD), thus providing for sufficient capacity to serve the City's peak hydraulic flow requirements without undertaking a major outfall improvement project such as lengthening the diffuser or modifying the vortex structure.

Zone of Initial Dilution

After initial dilution, the concentrations of waste constituents are a function of the average dilution achieved and their concentrations in ambient ocean waters and the effluent.

If the City's effluent has been adequately treated and disposed of in compliance with permit limitations, the final concentrations of various constituents should comply with applicable quality criteria.

The zone surrounding the outfall diffuser which geometrically bounds the critical initial dilutions is termed the zone of initial dilution (ZID). It defines, theoretically, a concentration isopleth which continually changes based on varying densities and current velocities. The ZID defined for Clean Water Act Section 301(h) purposes is regularly shaped and for the San Diego outfall is "Y" shaped and has the dimensions shown in Figure 4. This theoretical ZID does not attempt to describe the area bounding the entire initial mixing process for all conditions (e.g., high currents and low stratification) or the area impacted by the sedimentation of particulate organic material.

Within the ZID, concentrations of pollutants in the water column may exceed Ocean Plan water quality criteria. There will be times when dilution will be much higher than calculated and consequently water quality may be met within the ZID. Beyond the ZID boundaries water quality standards are expected to be met essentially all the time. If biological impacts are detected beyond the ZID they would not be expected to have been due directly to water column concentrations. Since the models do not attempt to predict physical, chemical, and biological accumulation of constituents following initial dilution, other monitoring methods are used to evaluate possible biological impacts beyond the ZID boundary. These methods account for seabed accumulation of particulates and bioconcentration in tissues of marine organisms. If problems are identified by such monitoring, additional initial dilution may be required. Additional treatment or pre-treatment control constitute other effective means of minimizing impacts and assuring permit compliance. In the case of San Diego, all of these methods are being applied.

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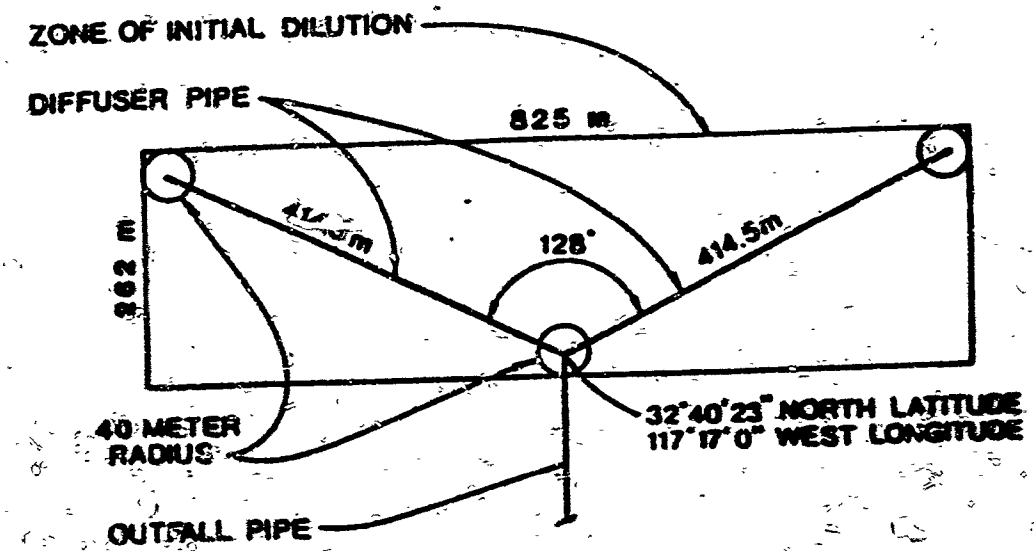

ZONE OF INITIAL DILUTION

Figure 4

Source: City of San Diego, 1983.

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The ZID dimensions and location are defined to establish a sampling perimeter at which adherence to water quality criteria is to be evaluated through monitoring. These dimensions can be specified by analyzing model results for a range of critical conditions. However, it can be simply approximated using the height of rise predicted for the critical conditions as a radial distance measured horizontally from the outfall diffuser or port. This distance will often equal the depth of water at the discharge site. During periods of higher currents, the plume will be carried further horizontally and initial dilutions will be higher than predicted for the critical current conditions.

The ZID is relatively insensitive to changes in peak flow as calculations done as part of the City's 301(h) NPDES Permit Application (and subsequent revisions) have indicated. Changing peak hourly flow from 248.0 MGD to 291.8 MGD changed the ZID dimension by one meter (City of San Diego, 1979 and City of San Diego, 1983). Comparative initial dilutions changed from 0.96-6.0 percent (City of San Diego, 1983).

DESCRIPTION OF PROPOSED PROJECT

The proposed project consists of removing 56 Monel orifice plates now covering the circular diffuser ports of the two legs of the Point Loma outfall. These plates were originally installed when the outfall was constructed in 1963 with the intention of restricting flow to assure high initial dilution during the initial years of use when flows were low. The removal of the Monel orifice plates is the most practical and least expensive means of increasing present outfall capacity.

Removing the covers can consist of removal of the fastening bolts, cutting the bolts (if corroded) or cutting the plate corners, depending upon the condition of each cover. The work would be undertaken by divers working from a support vessel.

ENVIRONMENTAL SETTING

Facility

The Point Loma treatment plant serves a population in excess of 1.52 million people. In addition to the City of San Diego, the facility accepts emergency discharges from the City of Tijuana, Mexico. Wastewater is received from industrial, commercial, and residential sources. Treatment units provide for screening, grinding, grit removal, primary sedimentation with chemical addition, and sludge digestion. Primary sludge is stabilized by anaerobic digestion and transported to offsite sludge processing areas for drying and subsequent reuse or disposal.

The facility currently provides advanced primary treatment for an average dry-weather flow of 163 mgd and a peak hourly wet-weather flow of 300 mgd. In 1985, the effluent BOD averaged 127 mg/l; suspended solids monthly average ranged between 56 and 80 mg/l; and the pH averaged 7.35.

Annually, a comprehensive report is prepared on the plant operations and receiving water monitoring program (Graff, R.C., et al., 1985).

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Receiving Waters

Generally, the surface waters off Southern California are nutrient poor except during periods when persistent offshore or downcoast winds in combination with prevailing ocean currents periodically drive nutrient rich and oxygen deficient bottom water to the surface.

This upwelling of bottom waters in the Point Loma vicinity generally occurs from March to June. April through June is identified as the period of minimum ambient dissolved oxygen concentrations in deep waters. Current flow in the vicinity of Point Loma most frequently parallels the depth contours with surface flow to the south, and net, long-term mid-water flow to the north (parallel to shore). Average current speed within 49.5 ft of the bottom is about 0.26 to 0.39 ft/sec. and has a tidally induced component causing current reversals several times daily.

Giant kelp is a submerged aquatic plant indigenous to shallower waters of the Southern California coast. Kelp beds represent an important habitat for many ocean species and are the primary focus of recreational fishing activities in the Point Loma area. The importance of this habitat contrasts with low productivity of the surrounding ocean waters. Several species of fish are of particular commercial and recreational importance in Southern California.

Recreational activities which occur in the general vicinity of the San Diego Point Loma effluent discharge include fishing, shellfishing, boating, surfing, swimming, wading, underwater diving, picnicking, and aesthetic enjoyment. In terms of the number of participants, water-contact sports are by far the most important uses of the marine waters of San Diego. Seasonal restrictions may occur for the harvesting of filter-feeding shellfish during periods when "red tide" plankton are present.

The Basin Plan established the following beneficial uses for the Pacific Ocean adjacent to Point Loma:

(a) Industrial service supply
(b) Navigation
(c) Water contact recreation
(d) Noncontact water recreation
(e) Ocean commercial and sport fishing
(f) Preservation of areas of special biological significance
(g) Preservation of rare and endangered species
(h) Marine habitat
(i) Fish migration
(j) Shellfish harvesting

The City has requested a revision of water quality objectives and discharge requirements which would seek an exemption from meeting water quality objectives to protect certain beneficial uses (primarily shellfish harvesting and body contact recreation in the outer edge of the kelp beds) (City of San Diego, 1985).

Studies done to support these requests showed the following (Hendricks, 1985):

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1. The primary source of high total coliform concentrations (>1,000/100 ml) is the wastefield from the Point Loma municipal wastewater outfall.

2. The inshore transport of resuspended outfall-related sediments and associated bacteria is negligible.

3. Direct contact of the main body of the wastefield with the outer edge of the kelp bed appears to be relatively rare. When it does occur, the contact seems to occur within one day of a reversal of the longshore component of the currents from upcoast to downcoast flow.

4. "Wisps" of the wastefield, resulting from oceanic mixing, that contact the kelp bed are probably the source of total coliform concentrations in excess of 1,000 per 100 ml but less than the concentrations that exist in the main body of the wastefield.

5. Isopycnal (constant density) surfaces tend to "shoal" near the coast. This reduces the effectiveness of water column density stratification as a "barrier" to the transport of effluent constituents into shallow water. However, density stratification of the water column plays an important role in regulating the onshore transport of wastewaters.

6. The net movement of the currents at typical wastefield depths is upcoast, but periods of downcoast or onshore flow also occur. Surprisingly, periods of onshore flow generally are not accompanied by very high coliform concentrations.

7. Subsequent "dilution" (associated with oceanic mixing and bacterial die-off) results in relatively minor reductions in the concentration of total coliform during the first few hours following the initial dilution process. The daily reduction in total coliform concentrations appears to be no greater than a factor of about 2-1/2, and may be less.

8. Based on the total coliform concentrations observed near the kelp bed, typical effluent-particulate suspended solids concentrations in that area will probably be substantially less than 0.1 mg/l. Therefore the wastefield does not seem to be the dominant source of particulates settling in the kelp bed.

9. The analysis has led to a conceptual model of the processes regulating the outfall-associated concentrations of total coliform in the kelp bed. In this model, density stratification of the water column and ocean currents are the primary processes, with bacterial die-off playing a secondary role. This conceptual model can be used to examine outfall-oriented mitigation procedures. The most promising technique appears to be the extension of the outfall farther offshore and into deeper water. However, the present data is insufficient to adequately estimate the required extension.

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The later conclusion indicates that in the long-term, extension of the outfall may be needed. However, additional research is now underway to verify these preliminary findings.

The City of San Diego has pursued parallel planning for both secondary treatment and advanced primary treatment facilities for Metro System wastewater flows while awaiting EPA's decision on their secondary treatment waiver application. If the EPA does not grant the City of San Diego a waiver of secondary treatment requirements, the advanced primary treatment facilities will be converted to a 45 MGD secondary treatment plant. In addition, a 140 MGD capacity secondary treatment plant would be constructed at a site in south San Diego. Effluent from the new treatment plant would be discharged to a new ocean outfall in south San Diego. In the interim period, improvements in the hydraulic capacity of the existing outfall are needed to prevent overflows at the onshore vortex structure during peak flows.

Environmental Effects

Potential environmental impacts of projects subject to the requirements of the California Environmental Quality Act are evaluated by the City's Planning Department Environmental Quality Division through preparation of an Initial Study Checklist. This checklist was completed for the proposed diffuser arms modification project and is included as Attachment 1. The project would remove the existing Monel covers, thus providing for greater hydraulic capacity without a significant reduction in initial dilution.

The checklist does not lend itself particularly well to this project, so some supplemental information on water quality impacts has been provided to aid in making a decision on the significance of potential environmental impacts.

Water Quality Effects

The City's wastewater discharge is regulated under Orders 85-16 and 85-26 issued by the California Regional Water Quality Control Board, San Diego Region. Presently, interim effluent limitations derived from Tables A and B of the California Ocean Plan are in effect. These set a 30-day BOD$_5$ limit of 150 mg/l and a 75 percent removal requirement for suspended solids. Toxic pollutant limitations for the effluent are specified as well as receiving water bacteriological standards and chemical and biological characteristics which must be maintained in the receiving waters.

The City's compliance with certain limitations has not been achieved. Indicator bacteria (total and fecal coliforms) are on occasion violated at onshore stations, and at three stations at the 30-foot depth contour which happen to be within a kelp bed. The City has requested redesignation of the kelp bed as a body contact sports area (City of San Diego, 1985).

Water quality sampling is conducted by the City of San Diego at three groups of stations. Shore stations are sampled to determine whether or not bathing beaches in the San Diego area meet bacteriological standards for body contact sports. Kelp stations are monitored for effects of wastewater discharge on waters in and around the kelp bed. Monthly stations comprise a

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large-scale grid that ranges from Imperial Beach to Ocean Beach and up to five miles offshore. Measurements taken at monthly stations produce an indication of the extent of the wastewater plume and trends over longer periods of time.

An extensive sediment sampling effort comprises the other part of the monitoring program. Bottom-dwelling animals are identified, enumerated and correlated with chemical constituents in the sediments in an attempt to identify possible causes for changes in populations around the outfall.

Water Quality Changes

Without undertaking the proposed project to provide for increasing hydraulic capacity and maintain initial dilution values at their initial values, dispersion of wastes will be diminished. This will mean that the potential for dissolved oxygen suspension will increase slightly (although Ocean Plan compliance can still be expected), turbidity and suspended solids levels will increase slightly, and toxic pollutant levels will be somewhat higher assuming the effluent quality remains the same.

A comparison of California State Receiving Water Standards for toxic pollutants with the estimated ocean concentrations under "worst case" conditions (highest measured effluent concentration and peak hour flow of 360 + MGD) is shown in Table 2. A similar comparison with EPA ambient marine water quality criteria for priority pollutants found in the City's final effluent in 1985 is shown in Table 3.

Initial dilution will be only moderately affected by removing the ports on the order of ±5 percent. However, hydraulic capacity will be increased by about 21 percent. A comparison of the existing outfall characteristics (first Column 4) and the revised outfall characteristics (last column) with other Pacific coast outfalls is shown in Table 4. As indicated, removal of the port covers will increase the design flow by 63 MGD, reduce the discharge velocity by about 6.1 feet per second (still leaving it twice as much as other outfalls), and increasing the port area/pipe area quotient to be more like other outfalls. As indicated, cost of the project is estimated at $200,000, making it the least costly and most easily achieved means of increasing outfall hydraulic capacity.

By maintaining initial dilution at or near existing levels, compliance with NPDES Permit limitations can be achieved. As flows increase and initial dilution decreases, additional efforts (industrial pretreatment, source control, improved treatment, etc.) may have to be undertaken to assure compliance with Ocean Plan toxic materials limitations or to comply with beneficial use protection needs. Ongoing monitoring will be used to indicate compliance or noncompliance with applicable standards. Without the project, it is more likely that receiving water limitations for bacteria indicator will not be achieved since initial dilution will decrease as flows increase.

As flows increase, so will mass emissions of wastewater constituents. Quantifying such increases is difficult given the present status of wastewater improvements taking place at the Point Loma facility which will change effluent quality (improve it). Should the City be successful in its

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Table 2

COMPARISON OF CALIFORNIA STATE OCEAN RECEIVING WATER STANDARDS FOR TOXIC POLLUTANTS AND CURRENT CITY OF SAN DIEGO DISCHARGE

	Limiting Concentrations (ug/l)			[illegible] Effluent Concentration (ug/l)[1]	Concentration After [illegible]:1 Dilution (ug/l)[2]
	[illegible] Median	Daily Maximum	Instantaneous Maximum		
Arsenic	8	32	80	5.6	3.07
Cadmium	3	12	30	15	0.20
Chromium (hexavalent)	2	8	20	<0.05	[illegible]
Copper	5	20	50	100	4.25
Lead	8	[illegible]	80	140	[illegible]
Mercury	0.14	0.56	1.4	0.8	[illegible]
Nickel	20	[illegible]	200	70	[illegible]
Silver	0.45	1.8	4.5	30	0.30
Zinc	20	80	200	[illegible]	45
Cyanide	5	20	50	6	[illegible]
Phenolic compounds (non-chlorinated)	30	120	300	40	2.53
Ammonia (expressed as nitrogen)	600	2,400	6,000	[illegible]	300
Toxicity concentration, [illegible]	0.05	–	–	[illegible]	[illegible]
Total chlorine residual	2	–	–	–	–
Chlorinated phenolics	1	11	125	[illegible]	[illegible]
Aldrin and dieldrin	0.002	[illegible]	15	[illegible]	[illegible]
Chlordane and related compounds	0.003	[illegible]	[illegible]	[illegible]	[illegible]
DDT and derivatives	0.001	[illegible]	[illegible]	[illegible]	[illegible]
Endrin	0.002	[illegible]	[illegible]	[illegible]	[illegible]
HCH	0.004	[illegible]	[illegible]	[illegible]	[illegible]
PCBs	0.003	[illegible]	[illegible]	[illegible]	[illegible]
Toxaphene	0.007	[illegible]	[illegible]	[illegible]	[illegible]

[1] Based on highest measured value in 1985 as reported in [illegible], et al., 1986.

[2] Background seawater levels included (assumes lowest possible dilution under [illegible] [illegible] generally [illegible] lower concentration of toxic pollutants, thus this is WORST CASE).

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Table 3

SUMMARY COMPARISON OF FEDERAL EPA WATER QUALITY CRITERIA AND CITY OF SAN DIEGO MAXIMUM EFFLUENT CONCENTRATIONS

Compound	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

* [illegible]

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Table 4

SUMMARY OF CHARACTERISTICS OF MAJOR PACIFIC OCEAN OUTFALLS

	Existing San Diego	Hyperion[2]	White Point No. 3[1]	White Point No. 4[3]	West Point[4]	CSDOC[5]	Sand Island[6]	Revised San Diego
Year Operation Began	1963	1960	1956	1965	1965	1971	1975	[illegible]
Pipe diameter (Inside)-(Inches)	108	144	90	120	96	120	84	N.C.[7]
Length of Main Outfall (excl. diff.)-(ft)	11,500	27,325	7,900	7,400	3,050	21,400	9,100	N.C.
Length of Diffuser L_d (ft)	2,400 (2 legs)	7,920	2,400	4,440	600	6,000	3,384	N.C.
Depth of Discharge (nominal)	200-210	195	200-210	165-190	230-240	175-195	200-235	N.C.
Design Average Flow Q (ft^3/sec)	464[d]	681	232	341	194	480	[illegible]	[illegible]
(mgd)	299	440	150	220	125	310	[illegible]	[illegible]
Port Diameters[a] (Inches)	8.0-9.5[b]	6.75-8.13	6.5-7.5	2.0-3.6	4.5-5.75	2.96-4.15	[illegible]	[illegible]
Port Spacing (average)[c]-(ft)	48	48	24	6	3	12	12	N.C.
Velocity of Disch. (average) for ave. flow - (fps)	10.7[d]	13	8	9	6	13	[illegible]	[illegible]
Q/L 2 d (ft^2/sec)	0.135	0.082	0.097	0.077	0.323	0.079	0.046	N.C.
Area Factor (Total) Port Area/Pipe Area)	0.26	0.46	0.43	0.51	0.40	0.45	0.44	0.38
Date Contract Awarded	9/61	5/57	10/54	5/64	7/64	10/15/68	10/73	9/8[illegible]
Construction Cost (Million $)	7.70	20.[illegible]1	2.10	4.45	1.25	8.95	15.37	[illegible]

1 Sanitation Districts of Los Angeles County Whites Point No. 3.

2 City of Los Angeles, Hyperion Ocean Outfall.

3 Sanitation Districts of Los Angeles County White Point No. 4.

4 Metropolitan Seattle (West Point).

5 County Sanitation Districts of Orange County, CA.

6 City and County of Honolulu (Sand Island).

7 N.C. - No change.

a Exclusive of end ports, which are usually somewhat larger.

b Blocked by orifice plates with openings of 6.5-7 inches for early years' low flow.

c Length of diffuser divided by number of ports; real spacings on each side of the pipe are [illegible] indicated.

d Peak flow.

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efforts to obtain a modified NPDES Permit under Section 301(h) of the Clean Water Act, then the effluent quality will be that achievable through advanced primary. Without such a modification, full secondary treatment (30 mg/l) thirty day average for both BOD_5 and suspended solids) will be required and a new treatment plant will have to be constructed due to limited land availability at Point Loma. Regardless of what level of treatment is needed, outfall hydraulic capacity will need to be increased to accommodate peak flows. The proposed project is the least costly and most expeditious means of achieving this objective on an interim basis (until long-term treatment and disposal issues are resolved). Regulation of the discharge in terms of mass emission limitations is governed by an existing NPDES permit. No change in this permit is expected as a result of this project.

Summary of Impacts and Mitigation Measures

There will be no significant impacts associated with removing the port covers other than the need to assure safe diving and underwater operations. Removal of the covers was originally intended when the outfall was designed and built once flows reached their present level.

If this project is not undertaken, then other alternatives may have to be undertaken. These alternatives (including constructing outfall diffuser extensions, pressurizing the vortex structure, or cutting more diffuser ports in the existing pipe) are more costly, more environmentally damaging, less practical, and will take longer to implement. Without the project, overflows at the onshore vortex structure are likely to occur with resultant effluent overflows to the nearby cliff face and beaches below Point Loma with the effluent reaching nearshore waters without sufficient initial dilution and dispersion. The project itself serves as a means of mitigating this potential impact.

The projected peak flow which can be accommodated once the modifications are completed is consistent with those projected under the SANDAG Series VI population forecasts for the Point Loma Plant's service area using the appropriate average to peak factor ratio.

Consistency with Existing Plans and Permits

The proposed project has been approved by the City Council as one of its budgeted 1986 Capital Improvement Projects. The project is consistent with short-term wastewater facilities planning. Long-term planning needs are at present unresolved pending a final determination on the City's request for a modified NPDES Permit under the auspices of Section 301(h) of the Federal Clean Water Act and a modification of Waste Discharge Requirements from the Regional Water Quality Control Board related to the designation of local kelp beds as shellfish harvesting areas and water contact recreational areas (used by sport divers).

The flow projection used in projecting outfall hydraulic capacity are consistent with those adopted by SANDAG for the Treatment Plant's service area. The project will provide for flow increases beyond the present estimated 295 MGD peak hydraulic flow limitation of the outfall.

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The peak flow capacity is estimated to increase to 358 MGD. Such an increase will not be growth-inducing since other portions of the wastewater system (Parshall flumes at the headworks and treatment capacity) are the factors which limit hydraulic capacity and regulatory compliance with effluent limitations.

Initial dilution will not be significantly changed by the proposed project assuming flows increase. With no increase in flow, the project will result in an increase in initial dilution. Changes in initial dilution can result in changes in water quality in the vicinity of the outfall. Such changes are routinely monitored and reported to the Regional Water Quality Control Board. It is not anticipated that the project will result in any significant changes in water quality which will be quantifiable. Thus, no changes in the status of compliance or noncompliance with receiving water limitations is expected. It is expected that bacteriological levels in the kelp beds will still exceed present limitations. Resolution of this issue is outside the scope of this project.

The only permits and approvals which are potentially required fall under the jurisdiction of either the U.S. Army Corps of Engineers permit for a modification of an existing outfall pipe using ENG Form 4345), the Regional Coastal Commission and the Regional Water Quality Control Board. The Corps regional office has indicated processing of such a permit a routine matter. Letters have been sent to these three agencies requesting a written response on whether any additional construction permits are required. Such a determination will be made and addressed as part of the CEQA process.

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