



THE CITY OF SAN DIEGO

# City of San Diego Pt. Loma Wastewater Plant Modified 301(h) Permit

Presentation to Metro TAC

June 18, 2014



# Pt Loma Wastewater Treatment Plant (Pt Loma) Began Operations in 1963



- Originally a primary plant
- Outfall discharge 2.5 mi offshore at 220 ft deep
- Converted to advanced primary in 1986
- Outfall extended to 4.5 mi and 310 ft deep in 1993



# Pt Loma is the Metro System Backbone



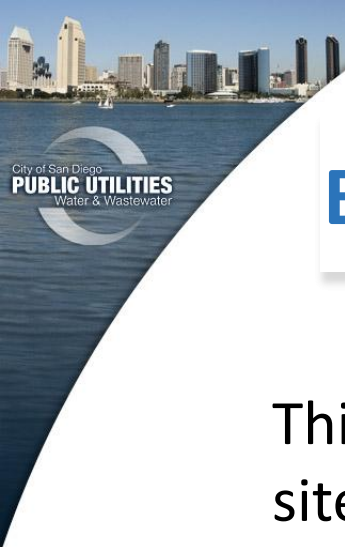
- 240 MGD permitted capacity is 77% of total system capacity
- Currently operates under what has commonly become known as a “Waiver from Secondary Treatment”



# Background - Modified Permits (“Waivers”)

**Clean Water Act of 1972** established secondary treatment standards for all discharges.

- Defined secondary by regulating only three constituents
  - **pH** (acidity)
  - **Total Suspended Solids (TSS)**: particles in the wastewater
  - **Biochemical Oxygen Demand (BOD)**: measure of organic matter that can deplete oxygen and can be either particles or dissolved.



## Background - Modified Permits (“Waivers”)

This was a technology-based standard that did not consider site-specific discharge issues (ie: into the ocean, lake or stream)

The National Pollutant Discharge Elimination System **(NPDES)** permitting program was also established to regulate all wastewater discharges



# Background - Modified Permits (“Waivers”)

Wastewater Dischargers were given NPDES permits containing the universal secondary effluent standards:

- pH
  - must be between 6.0 and 9.0
- TSS
  - Must remove at least 85% and not exceed 30 mg/l in effluent
- BOD
  - Must remove at least 85% and not exceed 30 mg/l in effluent
- The standard became known as the 30/30 standard



# Background - Modified Permits (“Waivers”)

- Compliance date for Pt Loma was eventually July 1, 1988
- Apparent that new standards may not be necessary in all cases to protect the environment
- As the CWA was setting a national discharge standard, California already had its own standards for Ocean Dischargers

# California Standards for Ocean Discharge

The **California State Ocean Plan** regulates ocean discharges through a “water quality” based approach. The Ocean plan requirements for secondary treatment standards are:

- pH
  - must be between 6.0 and 9.0
- TSS
  - Must remove 75% (no effluent requirement but need not be reduced below 60mg/l)
- BOD
  - No % removal or effluent requirement)
  - BOD is regulated by taking dissolved oxygen measurements in the ocean to assure oxygen levels are not depleted by more than 10%



# California Standards for Ocean Discharge

- Pt Loma complies with all Ocean Plan requirements
- However, with the adoption of the CWA, the federal “*one size fits all*” secondary standards were required



# Amendments to the Clean Water Act (Modified NPDES Permits)

- In 1977 Congress recognized the CWA secondary standards may not be necessary in all cases
- Section 301(h) was added to allow EPA to grant case-by-case secondary treatment variances to ocean dischargers
- The variances would result in a **modification to their NPDES Permits for only pH, TSS and BOD**
  - They are not removed from the permit, but alternative standards are put in their place
  - To obtain a modified permit the discharger must demonstrate that the alternative standards are fully protective of the ocean



# Amendments to the Clean Water Act (Modified NPDES Permits)

- All other standards such as toxic substances, bacteria etc. come from other sources are the same or more stringent than in a secondary permit
- These “modified NPDES Permits” became commonly referred to as “Waivers” and are in **full compliance with the CWA**

## Pt Loma's modified permit

- In 1987 San Diego chose to not pursue future modified permits but to upgrade Pt Loma to secondary treatment.
- As a result it became ineligible to apply again under the provisions of section 301(h)
- In 1994, when reviewing the upgrade plan and after an extensive lawsuit with EPA, a federal judge ruled:
  - That there was no harm to the ocean from the Pt. Loma discharge
  - Ordered the City to proceed with system upgrades that did not include secondary
  - Urged the City to find a way to again apply for a modified permit

## Pt Loma's modified permit

- Additionally, in 1993, the National Research Council completed a study on regulating discharges in coastal areas which found:
  - advanced primary is an effective treatment for controlling TSS
  - BOD was of minor concern when discharged into deep ocean waters through a well designed outfall



# Ocean Pollution Reduction Act “OPRA”

- San Diego worked with local congressional delegation and the Sierra Club to secure legislation allowing Pt Loma to apply for a modified permit
- The Ocean Pollution Reduction Act, was signed into law by President Clinton on October 31, 1994



# Ocean Pollution Reduction Act “OPRA”

- For congressional approval and support from the environmental community, OPRA had special conditions not found in any other 301(h) modified permit:
  - Meet all standard 301(h) requirements
  - 80% removal of TSS
  - 58% removal of BOD
  - Reduce TSS discharge during the period of modification
  - Build 45 MGD of water reclamation capacity
- San Diego applied under OPRA and the modified permit was approved Nov. 9, 1995



# Pt Loma's unique modified permit

## (Comparison of discharge requirements)

Constituent	CWA Secondary	CWA 301(h)	CA Ocean Plan	OPRA (current Pt Loma permit)
TSS	85% removal	30% removal	75% removal	80% removal
	30 mg/l	No Limit	60 mg/l	No Limit
				< 13,598 mt/yr (Must be reduced during period of modification)
BOD	85% removal	30% removal	No Limit*	58% removal
	30 mg/l	No Limit	No Limit*	No Limit
pH	6.0 -9.0	6.0-9.0	6.0-9.0	6.0-9.0

\*D.O. samples taken in ocean

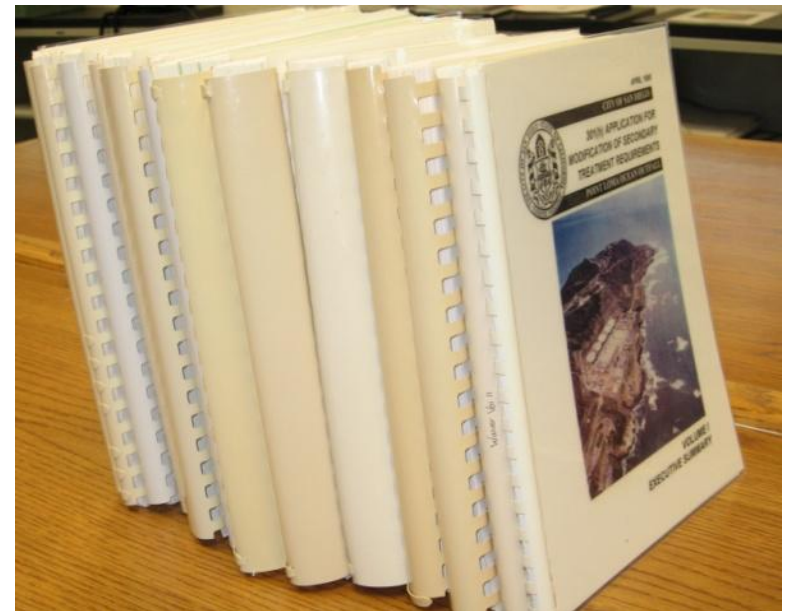


## Pt Loma Modified NPDES Permit status

- NPDES permits (modified or secondary) must be renewed every five years
- The renewal application must include re-justification for the waiver
- The current Pt. Loma modified permit expires August 1, 2015
- Regulations require that the renewal application be submitted 180 days before a permit expiration
- The Pt. Loma NPDES permit and waiver renewal application must be submitted by February 1, 2015

# Pt Loma Modified NPDES Permit status

- Since initial approval in 1995 the modified permit has been renewed twice
- A modified permit application is a highly technical document
- The USEPA prescribes detailed instructions
- A City and consultant team has begun preparing it



## CWA 301(h) Approval Criteria

- Must meet primary treatment standards and must be in compliance with permit
- Must maintain water quality, protecting fish, wildlife, recreation and public water supplies
- Cannot cause environmental bioaccumulation of toxics
- Must meet all State Water Quality Standards (CA Ocean Plan)
- Must not result in additional requirements for other point source and non-point source discharges

## CWA 301(h) Approval Criteria

- Must meet urban area industrial pretreatment and non-industrial source control requirements
- Must be consistent with:
  - Coastal Management Act
  - Endangered Species
  - Essential Fish Habitat laws
- Must have a monitoring program sufficient to evaluate the impacts on biota and the effects of the discharge

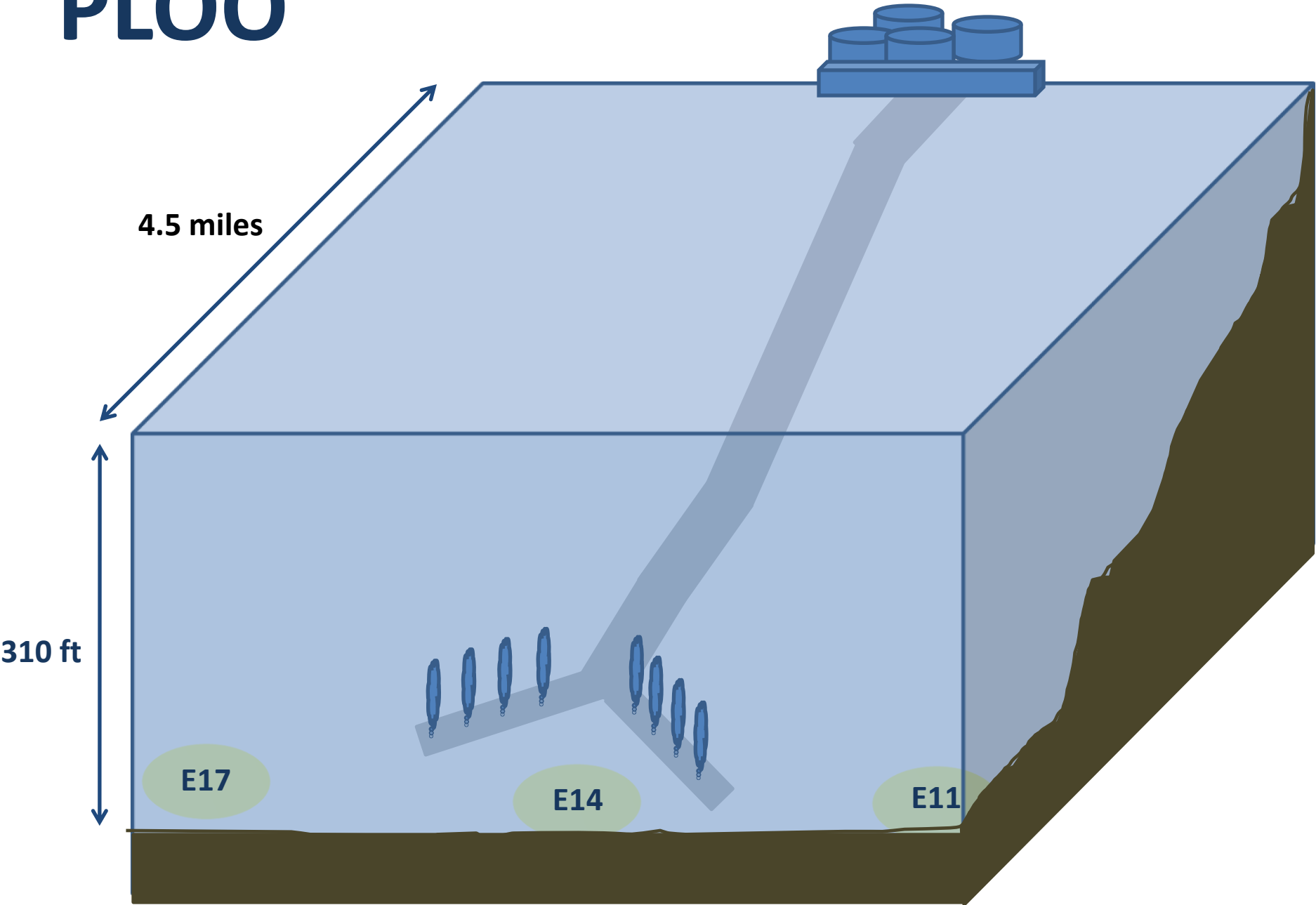


# It's More Than Pt Loma That Justifies a Modified Permit

- Must Practice Industrial Source Control
  - To meet the 301(h) criteria the industrial source control program is enhanced beyond if Pt Loma was at secondary
  - Complies with CWA 301(h) “urban area” requirements
- Chemically Enhance Primary Treatment (CEPT) at Pt Loma
  - Outstanding performance as an advanced primary plant
- Long, deep ocean outfall
  - The outfall was designed to distribute effluent into deep ocean waters with a high degree of initial dilution
- Comprehensive Ocean Monitoring Program
  - Exceeds standards required of 301(h) permits and is one of the most comprehensive of its type in the world

# PLOO

PLWTP: Advanced Primary Treatment (APT)





# The Future of Pt. Loma Permitting

## If We Continue with Waivers

- Could be threatened by differing interpretations of legislation
- Could be threatened by changes in regulations
- Lack of certainty for rate payers and planners



# The Future of Pt. Loma Permitting: A Better Approach

- 1. Obtain legislation so that the discharge from Pt. Loma is considered equivalent to secondary for purposes of compliance with the CWA standards**
  - No more modified permit renewals required every five years
  - Provides certainty for the ratepayer and planners
  - Resources can be allocated for other issues
  
- 2. Achieve Equivalent Total Suspended Solids Discharge**
  - Pt Loma's current rated capacity is 240MGD. At secondary (30mg/l TSS discharge) it would put out 9,942 metric/tons per year of TSS
  - Set a cap on TSS discharge from Pt Loma to never exceed 9,942 mt/yr
  - Keep current permitted removal rate for TSS: 80%
  - Set a maximum level of TSS in the effluent: 60 mg/l



# The Future of Pt. Loma Permitting: A Better Approach

## **3. Achieve Biochemical Oxygen Demand Requirements**

- Keep current permitted removal rate of 58%
- Comply with CA Ocean plan requirements for ocean dissolved oxygen

## **4. Achieve pH Requirements**

- Meet current CWA/CA Ocean Plan requirements

## **5. Maintain enhanced Ocean Monitoring and Industrial Source Control**

## **6. Implement upstream Potable Reuse Facilities**

- Off-load Pt Loma flows to achieve compliance with Secondary Equivalency Standards

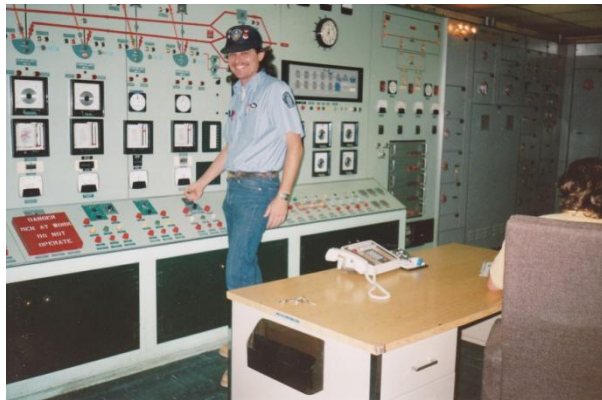


# The Future of Pt. Loma Permitting: A Better Approach

## **This approach:**

- Resolves the long term Pt. Loma Wastewater Treatment permitting issues
- Continues to protect the ocean
- Ultimately develops a cost-effective supply of reliable, locally-control water for San Diego's future that would otherwise be wasted to the ocean

# Questions





# Secondary Equivalency

## Comparison of Standards

Constituent	CWA Secondary	CWA 301(h)	CA Ocean Plan	OPRA Waiver (current Pt Loma permit)	Secondary Equivalency
TSS	85% removal	30% removal	75% removal	80% removal	80% Removal
	30 mg/l	No Limit	60 mg/l	No Limit	60 mg/l
	Ultimately: 9,942 mt/yr.			< 13,598 mt/yr (Must be reduced during period of modification)	Not to exceed: 9.942 mt/yr
BOD	85% removal	30% removal	No Limit*	58% removal	58% Removal
	30 mg/l	No Limit	No Limit*	No Limit	No Limit*
pH	6.0 - 9.0	6.0 - 9.0	6.0 - 9.0	6.0 – 9.0	6.0 – 9.0
Other	Normal: Ocean Monitoring Industrial Control	Enhanced: Ocean Monitoring Industrial Control	Normal: Ocean Monitoring Industrial Control	Enhanced: Ocean Monitoring Industrial Control	Enhanced: Ocean Monitoring Industrial Control

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