Briefing: Hyperion Treatment Plant
5-Mile Outfall Structural Evaluation
Hyperion Wastewater Treatment Plant

Santa Monica Canyon  HTP 5-Mile Outfall  Redondo Canyon  HTP 1-Mile Outfall  San Pedro Sea Valley
Background

- 1-Mile Outfall placed in service in 1951
- 5-Mile Outfall placed in service in 1960
- Yearly Inspections
  - External visual
- Internal Outfall Information Required
Purpose

• Evaluate 5-Mile Outfall
  – Reliability, life expectancy
    • Identify measures to extend useful life
  – Structural condition
    • concrete
    • flow capacity
    • ballast rock
    • pipe joints
What We’ve Done

- Pipe Coring
- Pressure Tests
- Multi-Beam Scanning Sonar (3D picture)
What We Need To Do

• Internal Dive Inspection, 5-Mile
  - Send divers into the outfall to assess the structural condition of the 5-mile pipe
  - Divers will feel pipe joints at 3 points for the first 100 connections
Day by Day

- November 28 – Highly treated effluent will be diverted from the 5-mile to the 1-mile.
- November 29 – Up to three divers will enter the 5-mile outfall from the Hyperion access shaft.
- November 30 – Highly treated effluent will be returned to the 5-mile outfall.
Safety and Contingency Plan

• Safety measures include:
  – Backup breathing systems for divers
  – Diver tracking
  – Continuous hard-wire voice communications between divers and support crews

• Contingency plan (potential postponement)
  – Rain
  – Heavy surf
  – Safety
  – Equipment malfunction
Receiving Water Monitoring Plan

Mas Dojiri

Environmental Monitoring Division
Purpose of Monitoring Plan

• Comply with Permit Requirements
• Protect Public Health
  - Track discharge plume
  - Close beaches
• Assess Environmental Impact
  - Immediate impact
  - Temporal impact
Monitoring Plan

- Effluent Analyses
- Sampling Stations: shoreline & offshore
- High Frequency Radar & Drifters
- Satellite Imagery
- Water Quality
- Benthic Macrofauna
- Phytoplankton
Effluent Analyses

- 1-Mile effluent samples will be collected.
- All NPDES effluent constituents will be tested (handout available).
Water Quality Sampling Array

- Generally southern current direction
- Shoreline + 3 transects parallel to shore
  - 0.5 mile
  - 1.0 mile
  - 1.5 mile
- Sampling grid skewed slightly to the south
- Adaptive monitoring plan
Map of sampling stations: shoreline + 3 transects 0.5 miles apart.
High Frequency Radar

- USC - Southern California Ocean Observing System (SCCOOS): High Frequency Radar
  - Malibu
  - Imperial
  - Catalina
  - Current direction & speed
Drifters

- Southern California Coastal Water Research Project (SCCWRP)
- 10 Drifters
- Current direction & speed
- Pre-diversion and diversion data
Satellite Imagery

- NASA/ Jet Propulsion Laboratory
- Synthetic Aperture Radar (SAR)
- Shape and dispersion of plume

24 Dec 1997

Wastewater plume
Oil seeps
Water Quality

- CTD
- Microbiology
- Ammonia
- Chlorine
CTD – LA/EMD
conductivity-temperature-depth

• Conductivity (salinity)
• Temperature
• Pressure (depth)
• Colored dissolved organic matter (CDOM)
• Chlorophyll a
• Transmissivity (turbidity/water clarity)
• pH
• Dissolved oxygen (DO)
Salinity
MICROBIOLOGY

- Shoreline
- Nearshore
- Sand samples
- Lab studies
Beaches

- Dept. of Public Health (DPH) and Heal the Bay
- Beach closures
  - Ballona Creek
  - Manhattan Beach Pier
- Beach open: 2-3 days post-diversion??
- Adaptive based on Micro data
Beach Signs

- City of L.A. created & supplied signs.
- Dept. of Public Health approved.
- Lifeguards will post at beaches.
Benthic Macrofauna

- Stations A2
- 50 m upcoast
- 50 m downcoast
- Assess affect and recovery of benthic community (affects of discharge).
Phytoplankton

- Dept. of Public Health
- Phytoplankton bloom
- Harmful algae
- Affect of increased nutrients
Reporting

• **Bacterial Data**
  - Daily to RWQCB, DPH, & HTB
  - Separate report to RWQCB & EPA by Jan. 15, 2007

• **CTD water quality & benthic macrofauna**
  - Report to RWQCB & EPA by Jan. 15, 2007
  - SCCOOS website

• **Special Studies**
  - Publications in peer-reviewed journals
  - SCCOOS website
Questions?
Santa Monica Bay
Shoreline and Inshore Microbiology Stations

- Inshore stations
- Shoreline stations
- Storm drains
Microbiology

- Total coliform
- Fecal coliform (or E. Coli)
- Enterococcus

Chromogenic defined substrate method

Membrane filtration method (Permit specified)

Permit required stations (A2, 50 m upcoast of A2, and 50 m downcoast of A2)

- Total coliform
- *E. coli*
- Enterococcus

All other stations (24 offshore and 17 shoreline)