Source Control – How Deep into the System do we Need to go?

February 24, 2017
Northern California WateReuse Association Meeting

Tracy Clinton, Penny Carlo, Austa Parker
Agenda

• Presentation on a source control story using the City of Oxnard as a model case study

• Timeline Journey of:
  – GREAT Program
  – Integrated Master Plans
  – Gross Beta violation & explosion
  – Local Limits
  – Enforcement Response Plan
  – Enhanced Source Control Program
City of Oxnard

- 2015 Population ~210,000
- Oxnard Plain has large agriculture production
- Port Hueneme and Point Mugu Naval Base operations
- Water supplied from local groundwater and imported sources
- OWTP discharges to the Ocean
- AWPF produces recycled water for planned IPR/DPR
Established GREAT program

Commissioned 6.25 mgd AWPF

New NPDES permit issued, requiring new local limits

Explosion at SCWW

Start of integrated master plan

Start of Local Limits evaluation

SCWW gross beta exceedance

Draft Local Limits submitted

RWQCB requests new dilution study

Updated enforcement and response plan

Granted conditional approval for IPR, includes enhanced source control

Updated RPWD planned for submission

Submitted IPR draft enhanced source control program
GREAT Program and Integrated Master Plan

- Groundwater Recovery Enhancement and Treatment Program was established in 2002
- In 2012 Oxnard dedicated its new 6.25 mgd Advanced Water Purification Facility (AWPF)
- With the new AWPF, the City now needed to update their master plans, hence the PWIMP was awarded in 2014 for master planning:
  - Water
  - Wastewater
  - Recycled water
  - Stormwater
- The PWIMP included updating all of the regulatory components as well
The City of Oxnard is moving from Ocean Discharge to Advanced Water Reuse

- Expand AWPF to 18 mgd
- Add Dedicated IPR Line
- Complete RW Loop
- Add SST Potable Well
- Add 6 ASR Wells
- New Concentrate Pipeline
- Expand Desalter, Add 3 ASR Wells, Add 5 potable wells
- Extend RW Pipeline to Ag Users
- Extend RWPipeline to Ag Users
- Add 6 ASR Wells
- Add 5 potable wells
- CMWD Pipeline
Gross Beta Violation & Explosion
What is a Centralized Waste Treatment Facility (CWT)?

- Defined in 40 CFR 437
  - *Any facility that accepts hazardous or nonhazardous industrial wastes for pretreatment processing before discharge to a Publicly Owned Treatment Works (POTW) or a surface water*

- Four subcategories
  - A - Metals
  - B – Oily Wastes
  - C – Organic wastes
  - D – Multiple wastes (combination of A, B, or C)

CWTs service a variety of industries who want their wastes treated off site.
CWT Discharges Are Regulated at the Federal and Local Level

- Federal Limits
- Local Limits
- Recommended Removal Efficiencies
  40 CFR 437
- Additional Requirements Imposed By Permitting Authority
Santa Clara Wastewater (SCWW) is a Local Industry in Oxnard’s Service Area

- One of the largest CWTs in California
  - 0.2 mgd

- Private company
  - Established in 1959
  - Discharges to the City of Oxnard OWTP via the collection system

- Subcategory “D” CWT
  - Metals
  - Organics
  - Oily Waste
The City Suspended SCWW’s Permit

- High H₂S/odors detected, piping and manhole deterioration observed downstream of SCWW
- SCWW indicates issue with odor control system to be resolved
- Odor complaints/high H₂S at SCWW discharge
- OWTP exceeds gross beta
- SCWW discharge show high gross beta
- Cease and desist (10/22/14)
- Notice of violation – gross beta (11/6/14)
- Explosion (11/18/14)
- SCWW discharge locked by City(11/19/14)
- SCWW IWDP suspended (11/26/14)
- November gross beta (12/1/14)
- November gross beta (12/3/14)
Santa Clara Waste Water facility explosion

www.manufacturing.net/
More Rigorous Requirements Are Needed to Regulate CWTs

- 6 POTWs with Subcategory D CWTs surveyed
- 10 operating CWTs surveyed
- BMPs were established for CWT permits
BMPs Strengthen Local Control of CWTs

- Endorsed by the California Association of Sanitation Agencies (CASA)
- More stringent than federal regulations
- Strengthens a POTW’s Pretreatment Program
SCWW - Outcome

- Investigated by:
  - Ventura Co DA
  - US EPA
  - US DOT
  - Ventura Co Environmental Health
  - Ventura Co Fire Dept

- Indictment of 9 individuals & 2 corporate entities

- 67 individuals testified before the Grand Jury

- Charges:
  - Conspiracy to dispose of hazardous waste
  - Failure to warn of a serious concealed danger
  - Handling haz waste w/ reckless disregard for human life
  - Withholding info re: substantial danger to public safety
  - Filing a false or forged instrument
  - Dissuading a witness
Local Limits for Oxnard
Oxnard Wastewater Treatment Facility

- EPA-Approved Pretreatment Program
- Permitted Capacity 31.7 mgd
- Existing Flows 16 mgd
- 35 Significant Industrial Dischargers
Local Limits – What Are They?

1. Maximum discharge concentrations
2. Apply to all nondomestic dischargers to a POTW

3. Unique to Oxnard
Oxnard’s Local Limits are Designed to Protect the City’s Water Supply

- Protect WWTF processes
- Maintain effluent and biosolids compliance
- Protect reuse
- Protect collection system
- Protect staff and public
The Drinking Water MCLs were Considered in the Local Limits Development

- OWTP
  - Inhibition:
    - Activated sludge
    - Anaerobic digestion

- AWPF
  - AWPF TDS Impacts
  - WRR/WDR:
    - Effluent limits
    - Title 22 MCLs

- WRR/WDR:
  - Effluent limits
  - Title 22 MCLs

- NPDES Effluent limits
  - Ocean Plan WQOs

- Ocean Outfall

- Biosolids:
  - 40 CFR 503
  - General order
The Local Limits Address Multiple Linkages

- Industry
- PHWA Desalter
- Oxnard Desalter
- Domestic/Commercial
- Naval Bases

Flow diagram showing connections:
- OWTP
- MF
- RO
- PD08
- NREC
- SREC
Results: 19 new local limits developed, most more stringent than existing limits

- Over 100 pollutants were screened
- New limits established for:
  - BOD, TSS
  - Oil & Grease (vegetable and mineral)
  - Hydrogen sulfide (liquid)
  - 11 metals
  - Chloride
- No limits for trace organics were needed

The new limits strengthen the pretreatment program and the ability to protect the City’s water resources.
Local Limits That Will Impact Industries

Site Specific Allocations Developed

Nickel
Zinc
Selenium
Chloride

No Site Specific Allocations

Boron
H2S
Developing an Enhanced Source Control Program
Program Development

- Define the Source
- Evaluate existing source control program
- Identify gaps for potable reuse and how to fill them
- Feasibility of implementing enhanced source control
- Action and response plans
- Outreach for prevention
- Ensuring longevity of the program
Rethinking the Definition of “source” for DPR.

Pretreatment Program
Industrial and Nondomestic Discharges

Potable Reuse
WWTP Effluent
Current Monitoring Strategies

- **MCLs QUARTERLY MONITORING IN FINISHED WATER**
  - Detect
    - Collect and Re-analyze Sample within 72 Hours
    - Detect Annual Average Contaminant MCL
      - Letter and Response Plan to Board within 45 Days of the Same Quarter
    - Detect Single Action Contaminant MCL
      - Notify Board/Department within 24 Hours
    - Non-Detect
      - No Action Required
  - Non-Detect
    - No Action Required

**LEGEND**
- Red: Action Needed
- Green: No Action Required

**FLOWCHART**
- **COLLECTION SYSTEM**
  - Industrial Discharges
  - Residential Discharges
  - Raw Wastewater
  - Secondary Effluent
  - OWTP
  - OCEAN

- Board Option to Suspend Operations until Contaminant Source is identified

- **Notices**
  - 16 Weeks of Consecutive Violation
    - Notify Board within 48 Hours
    - 4 Weeks Increased Monitoring
    - Continued Detects
    - Notify Board/Department within 24 Hours
    - No Action Required

- **Compliance**
  - Detect and Re-analyze Sample within 72 Hours
  - Detect Annual Average Contaminant MCL
  - Detect Single Action Contaminant MCL
  - Non-Detect
    - No Action Required
What gaps need to be filled to enhance existing source control programs?

Secondary Effluent
  • NPDES

Finished Water
  • Frequency
  • Constituents

Online Monitoring
  • Data compilation
Feasibility of enhancing source control programs

- $$$
  - Analytical cost
  - Staff time
  - O&M requirements
  - Internal communications
  - Other considerations...

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<th>Inventory List</th>
<th>Short List</th>
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<tr>
<td>MCLs</td>
<td>Detected constituents from inventory monitoring</td>
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<tr>
<td>Secondary MCLs</td>
<td>Local limits and site-specific determined constituents</td>
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<td>CECs</td>
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<td>NLs</td>
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<td>Local Limits constituents</td>
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Acting fast and reducing risk for potable reuse
Acting fast and reducing risk for potable reuse
Outreach as a tool for source control

- Outreach for both industrial and household dischargers tailored to potable reuse.
Source Control Program Manager

- Industrial discharge
- Household discharge
- Collection system monitoring
- Wastewater treatment
- Advanced water treatment
- Online monitoring data
- Outreach programs
- Sampling protocols
- Communication with management and regulators
Considerations for ESCPs

- Size of community
- Technical, managerial and financial capabilities
- Number and type of industrial dischargers
- Inter-agency and cross-agency communications
- Existing source control program design
Thank You!  Questions?
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