

CLEAR CREEK SYSTEMS, INC.

OVERVIEW OF ADVANCED TREATMENT FOR CONSTRUCTION STORMWATER IN CALIFORNIA

October 21, 2004



Presentation Overview

- I. Brief History
- II. Where We Were Last Season
- III. Where We Are This Season
- IV. Where Are We Going?

Definitions

- Polymer
 - “Any of numerous natural and synthetic compounds of usually high molecular weight consisting of up to millions of repeated linked units, each a relatively light and simple molecule.”
- Coagulate
 - “To cause transformation of (a liquid or sol, for example) into or as if into a soft, semisolid, or solid mass.”
- Flocculate
 - “To cause (soil) to form lumps or masses.
 - To cause (clouds) to form fluffy masses.”

As defined in Webster's Dictionary

Brief Background

- Technology adapted from industrial sector
- Polymer treatment & EC started in WA
 - Very tightly regulated
 - Case by case basis until confident in reliability
- CA much more incremental route to AT
 - Not as much political commitment
 - Reasonable cost more of an issue
 - Different regulatory structure
- Lack of regulation led to spills

CCS & UC Berkeley Polymer Evaluation for Fish & Game



The Results: Highly Effective



Where We Were Last Season

- Major increase in regulatory enforcement
- Brought about major change in operations
 - Just implementing SWPPP no longer enough
- Paradigm shift—End result matters
 - Effluent water quality in line with background
 - Need to handle entire storm volume
- About 15-20 projects in Sac. area
- Adaptations to construction operating env.

What This Meant

- Improvements developed in
 - Operations
 - Costs
 - Reliability
- Still two sites with unauthorized discharges
- Not good odds

Where We Are This Season

- Value of AT to provide clear water is proven
- Incorporation as BMP and BAT
- Use is greatly expanding
- Concerns about reliability & env. safety

What This Means

- Maybe 30-50 sites using AT
- New technologies and service providers
- Continued improvements in
 - Operations
 - Costs
 - Reliability
- New testing and monitoring requirements

Operational Issues

- Educating Contractors on site needs for AT
- Contractors planning ahead
- Equipment availability
- Improving existing system designs
- Trained personnel—only needed when it rains

Cost Issues

- Higher cost than in the past—doing nothing
- Cost continuing to decline
 - Better equipment designs
 - Contractors planning ahead
 - Economies of scale
- Temptations to cut corners

Reliability Issues

- High volume flow through systems are new
- Better conceptual designs for SW operations
 - Equipment from other sectors needs adaptations
 - Contractors originally used materials they knew
- Temptations to cut corners
- Very dynamic operations
- Practice of 100% compliance is relatively new

New Testing & Monitoring

- Must be able to test for any materials used and all known by-products
- Test must be quantitative & “scientifically defensible”!
- Detectable limit must be below chronic toxicity level
- Field tests not required, but at risk if results are delayed due to lab turnaround time
- “Qualified personnel” must monitor “frequently”
- Results of monitoring must be kept with the SWPPP

Testing & Monitoring (Continued)

- Limits the products due to available data
- Chronic toxicity data not common (understatement)
- Residual testing capability not common
- When forced, manufacturers are more helpful
- Main issue here is when used improperly
- Various level of security for different polymers
- By-products testing rule opens doors
 - “no exposure/no test”
- For what species is chronic toxicity data required?

Where Are We Going

- Much more widespread use
- Revision of regulatory language
- Tighter regulations of other contaminants?

What This Means

- Much greater number of sites
- Greater regulatory scrutiny?
- Continued improvements in
 - Operations
 - Costs
 - Reliability

Operational Issues

- Adaptations for a wide range of conditions
- New technologies and materials
- Organized training for operators?

Cost Issues

- Price will continue to go down
 - Volume
 - More cost effective technologies and designs

Reliability Issues

- Bugs worked out
- More environmentally safe designs
- Real time testing

A HIGHLY EFFECTIVE TOOL



TO ENSURE STORMWATER QUALITY

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