CLEAR CREEK SYSTEMS, INC.

OVERVIEW OF

ADVANCED TREATMENT FOR

CONSTRUCTION STORMWATER

IN CALIFORNIA

October 21, 2004
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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