

# Dose, Spray, Scrape or Cover

## Algae Control on Secondary Clarifiers



# Algae in Clarifiers causes a host of problems that affect the entire treatment plant.

- Disrupts flow of effluent
- Can cause poor scum filtering
- Reduces clarifier capacity
- Can damage downstream equipment such as filters and pumps
- In extreme cases, scum is allowed to pass over baffle and flow downstream

# Manual algae removal requires a huge time commitment

- Approximately 144 man-hours per clarifier per year are lost due to manual (typically fire hose and scrub brush) removal.
- This estimate is based on monthly cleaning in colder months and bi-weekly cleaning in warmer months
- Warmer climates typically have more algae issue than colder ones.



# Manual Algae removal



# Automatic algae control methods

- Dosing (chemical): an algicidal chemical is used to kill algae
- Spray (hydraulic): pressurized water is sprayed on wiers, spillways and lauders to break up algae as it forms
- Scrape (mechanical): A mechanical system makes direct contact with algae prone surfaces, breaking up algae as it forms
- Cover (UV inhibition): The clarifier is completely or partially covered to keep algae from getting sunlight.

# Dosing (chemical algae control)



# Dosing (chemical algae control)

Manufactured by:

?

(system usually designed by contractor)

# Dosing positives:

- A very effective method of algae control
- Algae is actually killed instead of being washed downstream
- Has added benefits of sanitizing the effluent somewhat
- Least invasive to installed clarifier hardware
- Compatible with all clarifiers



# Dosing negatives

- There is currently no established company who specializes in this method, thus no factory support for the system. Systems are typically designed and built individually by contractor.
- Requires chemically compatible tanks, pumps and piping to be installed, all of which will require filling and maintenance
- May not be allowed in certain areas due to EPA regulations
- Recurring chemical costs

# Spraying (hydraulic algae control)



# Spraying (hydraulic algae control)

Manufactured by:



# Spraying Positives

- Causes virtually no wear to clarifier components
- Does a decent job cleaning.
- Compatible with most shapes of clarifiers

# Spraying Negatives

- Requires installation of a pump, plumbing and rotary fittings which require maintenance
- Can be prone to clogging and freezing, depending on climate and whether clean water is used
- The most expensive option
- Is ineffective at cleaning baffle and weir brackets and the deeper parts of the trough
- Can cause biological spray hazards and disrupt proper scum skimming.



# Covering (UV inhibition algae control)



# Covering (UV inhibition algae control)

Manufactured by:



**Warminster Fiberglass**



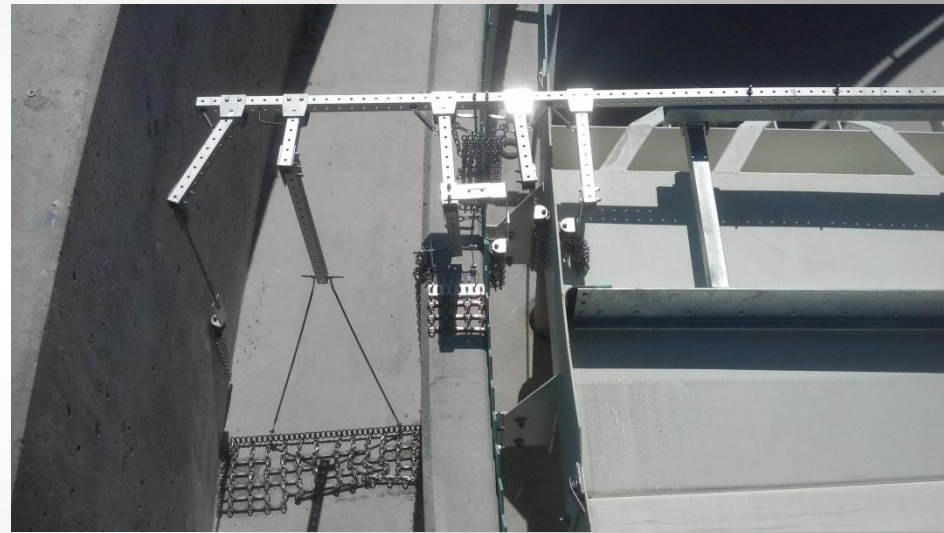
# Covering positives

- Lowest maintenance algae control method
- No clarifier wear
- Compatible with most clarifier shapes and designs
- Does not disrupt hydraulic patterns
- Completely negates algae growth when full covers are installed

# Covering negatives

- Covers must be removed for clarifier maintenance and inspection
- Mold can grow under them
- Typically very expensive build/install cost

# Scraping (mechanical algae control)





# Scraping (mechanical algae control)

Manufactured by:

Innovative Treatment Products, LLC

**CLARIFIER CLEANSWEEP™**



# Scraping positives

- Lowest overall costs
- Uses clarifier drive motor to function. No external pumps or motors are required
- Requires no special startup or shutdown procedures
- Does a reasonably good job cleaning

# Scraping negatives

- Mechanical damage and wear to clarifier is a risk since this method makes physical contact with clarifier hardware
- Cleaning components wear out and must be replaced to continue effective cleaning
- Only compatible with circular clarifiers

Questions?

