Nitrate Reduction
at
Finch Paper LLC
Who We Are

- Integrated pulp and paper mill, Glens Falls
  - 750 employees
  - hemlock and hardwood logs
  - ammonium bisulfite pulping process
    - $\text{NH}_4^+ + \text{HSO}_3^- \text{ vs } \text{NaOH} + \text{Na}_2\text{S}$
  - High quality alkaline digital printing papers
    - Finch Fine Color Copy
    - Finch Fine ID
Toxic Chemical Release Inventory (TRI) Data For NYS from '06-11

- #1 in NY
- #5 in NY
- #10 in NY
- Finch Paper
TRI Compounds Reported

TRI Data For Finch from '08-'11

- Ammonia
- Benzo(g,h,i)perylene
- Chlorine
- Chlorine Dioxide
- Formaldehyde
- Formic Acid
- Lead Compounds
- Manganese Compounds
- Methanol
- Nitrate Compounds
- PACs
- Dioxin and Furans
- Total

TRI Emissions and Discharges in lbs/yr
Task 1: Site Visit Conducted - The project team evaluated production lines, waste generation areas, and waste storage areas, Dec. 2011

Task 2: Process Info & Data Collected - Identified areas where nitrate is formed and the quantity generated. Information and data provided by Finch Paper:
- Data for completion of the NYSP2I Data Intake Form
- Process flow diagrams of the pulp and paper making processes
- TRI reporting data for years 2010 and 2011
- Operation data from the wastewater treatment system for 2010 and 2011
- Waste Treatment Costs
- SPDES Permit
- Policies & Procedures Log – Waste Treatment

Task 3: Waste Assessment and Root Cause Analysis Performed – Performed an analysis to identify the potential key causes of Nitrates from the wastewater treatment plant

Task 4: Presented Focused Assessment Opportunities – Final presentation of findings and recommendations
Finch Waste Treatment System
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Nitrate Reduction at Finch Paper

- TRI Releases in 2010 = 1.81M lbs Nitrate compounds
- NYSP2I evaluated potential to reduce total annual nitrate discharge to Hudson River from Finch’s on-site Activated Sludge Wastewater Treatment Plant
- SPDES permit does not include a limit for nitrate; TRI reporting is required
- NYSP2I made recommendations for improved operation of Treatment Plant using abundant data provided by Finch
  - Alter Dissolved Oxygen concentration levels to reduce Nitrates
  - Modify the target Food to Mass (F:M) ratio operating parameter
  - Add Phosphorous to meet bio-growth needs

<table>
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<th>2010</th>
<th>2011</th>
<th>Potential with suggested controls</th>
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<tbody>
<tr>
<td>Average effluent NO₃ (PPY)</td>
<td>1,810,000</td>
<td>1,560,000</td>
<td>421,965</td>
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Finch Waste Treatment System
Trial NO$_3$ Discharge Rate

Cummulative Nitrate Discharges From Feb. To Dec. (Trial Started Feb.)

- 22% Reduction Compared to 2011
Added Benefit – Electrical Savings

Kilowatt hours Used At Waste Treatment


2012 Daily Avg. Hourly Usage
2011 Monthly Avg. Hourly Usage
BUY LOCAL BUY FINCH!