

# **ENVIRONMENTAL COMPLIANCE OVERVIEW**

**The Amalgamated Sugar Company LLC**

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## **Introduction Environmental Compliance**

- Summary of Facilities and Environmental Permits
- Current High Priority Projects
- Future Challenges

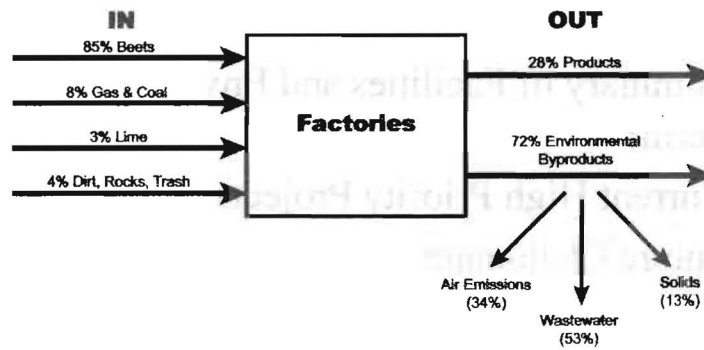
# Overview

The Amalgamated Sugar Company LLC

- Amalgamated operates 3 facilities in Southern Idaho
- Operating Periods

FACTORY	BEET	JUICE RUNS
Mini-Cassia 17,500 t/d	185 days (Sept.-March)	125 days (March-Aug.)
Twin Falls 7,000 t/d	185 days (Sept.-March)	190 days (March-Aug.)
Nampa 12,000 t/d	125 days (Oct.-Feb.)	240 days (March-Aug.)

## Sugar Beet Processing Mass Balance



## **Emissions Sources, Wastewater Treatment & Solids Management**

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<b>Media</b>	<b>Description</b>	<b>Reduction Measure</b>
Emissions	Coal-Fired Boilers, Pulp Dryers, Lime Kilns	Baghouses, Scrubbers, Steam Dryer
Wastewater	Beets, Surface or Well Water	Reuse, Land Application, City Treatment, Aeration
Solids	Dirt, Precipitated Calcium Carbonate, Coal Ash	Onsite Storage, Offsite Uses

### **Environmental Improvements Steam Pulp Dryer Project Nampa Facility**

- Steam dryer replaced 3 coal-fired pulp dryers.
- Estimated coal reduction ~ 200 tons/d.
- Overall emissions reduced by ~ 670 tons/y.
- Reduced ash and sulfur loadings to ponds.
- 300,000 gal/d additional wastewater (40% increase)

# Environmental Permits

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Media	Permit
Air Quality	Operating Permits Construction Permits
Water Quality	Wastewater Land Application <sup>a</sup> City Discharge Permits Surface Water Discharge Permits

<sup>a</sup> Includes solids management activities.

## Current High Priority Environmental Projects

- Hazardous Air Pollutant Emissions Standards for Boilers
- Regional Haze/Visibility Improvement Standards
- Permitting

**Coal-Fired Boiler**  
**Hazardous Air Pollutant (HAP) Standards**  
**40 CFR Part 63 Subpart DDDDD**

- Industrial boilers > 100 million Btu's per hour.
- Also known as Maximum Available Control Technology (MACT) Requirements
- Emission Standards for Total Select Metals (Arsenic, Beryllium, Cadmium, Chromium, Lead, Manganese, Nickel, Selenium, Mercury, Hydrochloric Acid)

**Coal-Fired Boiler**  
**Hazardous Air Pollutant (HAP) Standards**  
**(Cont.)**

- Compliance Plan Required by 9/13/07
- Significant monitoring, record keeping, reporting requirements
- Compliance Demonstration Methods
  - Periodic Stack Testing (PM or TSM)
  - Periodic Fuel Analysis (HCl, Hg)
  - Continuous Monitoring (baghouse leak detectors)

## Process Vents/Stacks

### Idaho Facilities

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Constituent	Tons per Year	%
H <sub>2</sub> O Steam	1,300,000	80.36
CO <sub>2</sub> as Carbon	300,000	18.54
Combustion Gases (PM <sub>10</sub> , SO <sub>2</sub> , CO, NO <sub>x</sub> , VOC's)	16,500	1.02
Ammonia	1,200	0.08
HAP's	60	0.004

## Regional Haze Requirements & Visibility Improvements

40 CFR 51.308

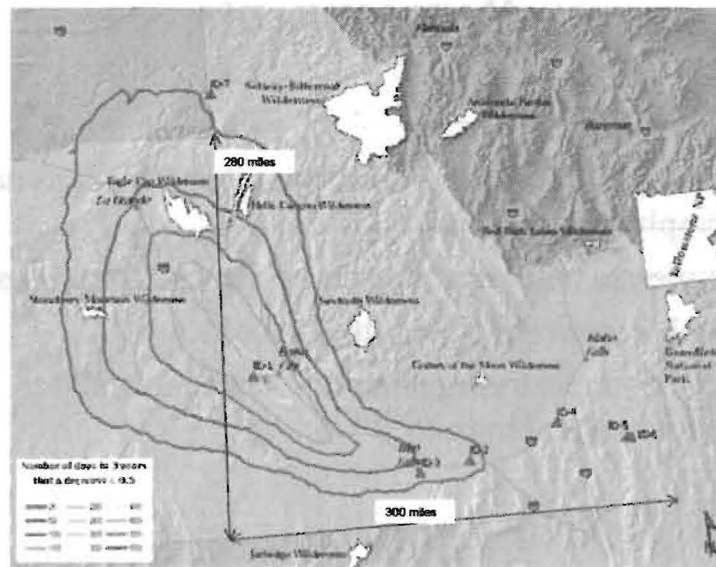
- States required to develop plans to improve visibility in National Parks and Wilderness Areas. (Due 12/07)
- Industrial Sources – Eligibility based on construction date (after 1962) and emissions > 250 t/y.
- Class I Areas ~50 to 100 miles from TASC0 facilities

# Regional Haze Requirements

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- One coal-fired boiler at each facility evaluated (~200,000 lb steam per hour each).
- Computer modeling conducted to determine if impacts above threshold levels (uncalibrated model).
- Best Available Control Technology (BART) Evaluation
  - NO<sub>x</sub> Reductions (low NO<sub>x</sub> burners, overfire air, etc.)
  - SO<sub>2</sub> Reductions (dry or wet scrubbers, etc.)

## Number of Days > 0.5 Δ<sub>dv</sub> in 3 yrs Due to TASCO Nampa Riley Boiler



## **Environmental Permitting & Compliance**

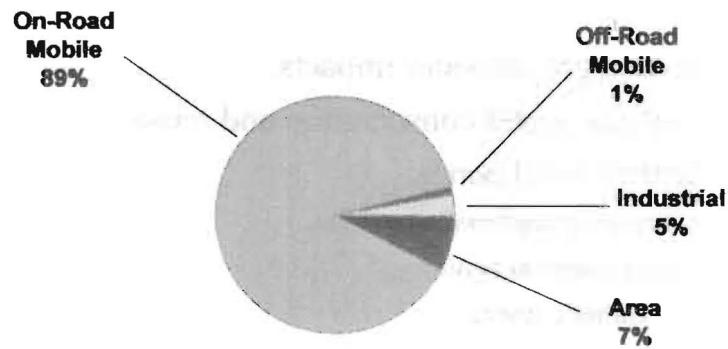
- Eight (8) full time equivalent employees for environmental compliance.
- Environmental permitting and regulations generally assume a continuous year round operation.
- Often permitting requirements don't easily apply to seasonal operations.

## **Environmental Permitting Requirements**

- Increased efforts to prepare permit applications and comply with permits.
- Burden to both regulatory agencies and industries.
- Goal – Streamline permitting efforts.
- Why? – Industry small contributor to overall environmental impacts.



## Boise, ID Area PM-10 Emissions



## Future Challenges Air Quality

- Coal Firing – Increased pressure to reduce emissions (NO<sub>x</sub>, SO<sub>2</sub>, mercury, greenhouse gases).
- Pulp Drying – Replace with steam dryers or sell more pressed pulp.
- Main Mill Vents
- Fine Particulate Matter (PM<sub>2.5</sub>) Compliance

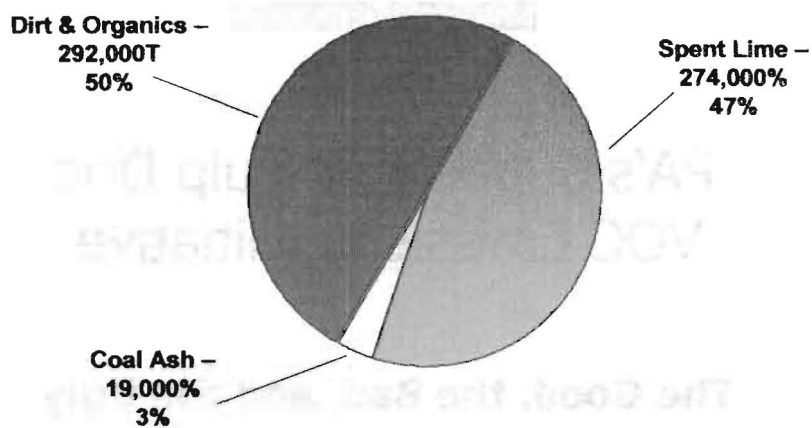
## **Future Challenges Wastewater Treatment**

- Reduce groundwater impacts.
- Continue water conservation and reuse.
- Earthen lined ponds.
  - Improve wastewater quality.
  - Dry material handling.
  - Synthetic liners.

## **Future Challenges Solids Management**

- Reduce onsite accumulation of dirt, lime and coal ash.
- Develop offsite markets for materials.
- Goal – No net increase in solids.

## Total Solids Byproducts All Factories



**End**



## **EPA's Sugar Beet Pulp Drier VOC Emissions Initiative**

### **The Good, the Bad, and the Ugly**

#### **In the beginning**

- It all started with a harmless appearing, semi-bored couple of EPA people curious about sugar production.
- But behind the scenes.....

# **The Good**

**Know your facts**

*- they can help*

**There must be an end to all of  
this . . .**

*PLEASE!*

# **The Bad**

So, you thought you had a permit for your  
pulp drier . . .

*think again . . . and get ready for a . . .*

- Demand for Thermal Oxidizers

# The Bad

- EPA's VOC Enforcement Initiative

# The Bad

## Method 25

- **Acknowledged Weakness**
  - Inaccurate if  $\%H_2O \times \%CO_2 > 100$
- **Traditional rotary drum pulp drier**
  - $\%H_2O \sim 35\%$
  - $\%CO_2 \sim 4\%$

# **The Bad**

## **Method 25**

- ***The conversion to a surrogate VOC!***
  - **Actually measures carbon**

# **The Bad**

## **Method 25A**

- ***The Borrowed Design***
- **Dilution Probe Problems**
- **Again, Results Produced: “as carbon”**
- ***Midwest Scaling Factor***

# **The Bad**

**Speciation ~vs~ Simulation?**

**Method 18**

- **Visually Impaired?**

# **The Bad**

**EPA**

- **Settlement with Corn Processors**
  - **Desire to develop “new methods”**
  - **Admission of Inaccuracy**
- **Conflict**
  - **EPA disagrees with itself**



# The Bad

- **Ozone ~ Criteria for Concern**
  - **Surrogate VOCs**
    - **Sugar Beet Process Impact**
      - **VOCs & Ozone Formation**
    - **Sugar Beet Process**
      - **Seasonal Operation – no ozone impact!**

# The Ugly

- **Carbon Monoxide Stack Test method**
  - **More accurate**
- **Finding CO present in pulp dryers**
  - **Can be over the PSD threshold**
- **AP-42 CO Emission Factor**

**Important facts to know . . .**  
**The history of PSD**

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- First started by a Judge 1972-1975**  
(not really legal)
- Made into law 1978**
- Several changes made in 1980**
- Next major change 1990**
- Along the way several Interpretations**

**Knowing History May Help . . .**

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- Help avoid enforcement action**
- Or cause EPA to be less aggressive**

## Do you feel lucky?

- The Duke Energy Case**
  - before the US Supreme Court this year.**
  
- The Supreme Court is looking back to 1980.**
  - How could this issue remain unresolved for so long?**

## In Summary

- EPA's Pulp Drier Initiative**
  - **VOCs: Enforcement based on bad-science.**
  - **CO: *Oops!***
    - Twenty years ago no one considered this (including the agencies).**
  - **AP-42 Conflict**

## What will be the result?

**Anybody have  
a crystal  
ball?**



**EPA enforcement  
is charging  
ahead**

## Additional Point of Interest

- **EPA's Region-V Environmental Engineer working on our enforcement case, relocated in January of 2007.**
  - **Has transferred to Region VIII.**



**American Society of Sugar Beet  
Technologists**

**Environmental Forum**

March 2, 2007

Southern Minnesota Beet Sugar Cooperative  
Glenn Augustine

**Ranking of Environmental  
Issues**

■ #1 – Water Quality

■ #2 – Solid Waste

## **Water Quality**

- **Surface Discharges**
  - Whole Effluent Toxicity (Acute) Testing
    - Each quarter for 2 years then annually
  - Tile Line Discharges
    - Intervention Limits vs. Permit Limits

## **Whole Effluent Toxicity**

- **Acute WET Tests**
  - Fathead minnow
  - Daphnia magna
  - Ceriodaphnia dubia
- **CO<sub>2</sub> Headspace**
  - Stabilizes pH drift

## **Response to Failures**

- MPCA has not mandated TRE
- Voluntary TIE
  - No toxicant identified

## **Solid Waste**

- Quantities of solids generated (wet tons)
  - 120,000 Precipitated Calcium Carbonate
  - 35,000 Alternative Cattle Feed
  - 25,000 Pressed Pulp
  - 95,000 Tare 1
  - 30,000 Tare 2
  - 60,000 Biosolids
  - 70,000 Pond Sediment
  - 9,000 Coal Ash

## **Compliance Interpretation**

- Recent changes in enforcement
  - Interpretation of compliance
  - Lack of consistency
  
- Shared tile lines with neighbors
  - SMBSC responsible for discharge

## **What Does the Future Hold?**

- MN River Basin TMDL
  - Impaired Water
    - Eutrophication
  
  - Dischargers > 1,800 lbs Phosphorous/year
    - Permit Limit of 1.0 mg/L
    - Evaluate 30 and 50% mass reduction