

Boiler Emissions Control Evaluation

Regional Haze Improvement Requirements

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Introduction

The Amalgamated Sugar Co. LLC (TASCO)
Nampa, Idaho Facility

- Over the last 5 years, significant environmental and legal effort to address EPA regional haze requirements for one coal-fired industrial boiler
- Efforts have focused on negotiating reasonable boiler SO₂ and NO_x emissions controls or approved alternatives

Overview

Regional Haze Regulations & Plans

Background

EPA Regional Haze Requirements

- 1977 Clean Air Act Amendments – Require protection of visibility and regional haze in national parks and wilderness areas (Class I Areas)
- 156 parks and wilderness areas in the U.S.
- 1999 EPA Regional Haze Rules (40 CFR Part 51)
 - States required develop detailed plans including emissions reduction measures
 - In 60 years, improve visibility to natural background

Hells Canyon Wilderness, Oregon

Best Days
17.3 Mm-1
5.5 dv's

Worst Days
64.2 Mm-1
18.6 dv's



State Regional Haze Plans

(40 CFR 51.308)

- Includes a detailed assessment of pollutants, emissions sources, impact analysis and control measures
- Emissions Sources:
 - Natural fires
 - Mobile sources (automobiles & trucks)
 - Wind blown dust
 - Point sources (power plants & industrial sources)

Haze Causing Pollutants & Sources

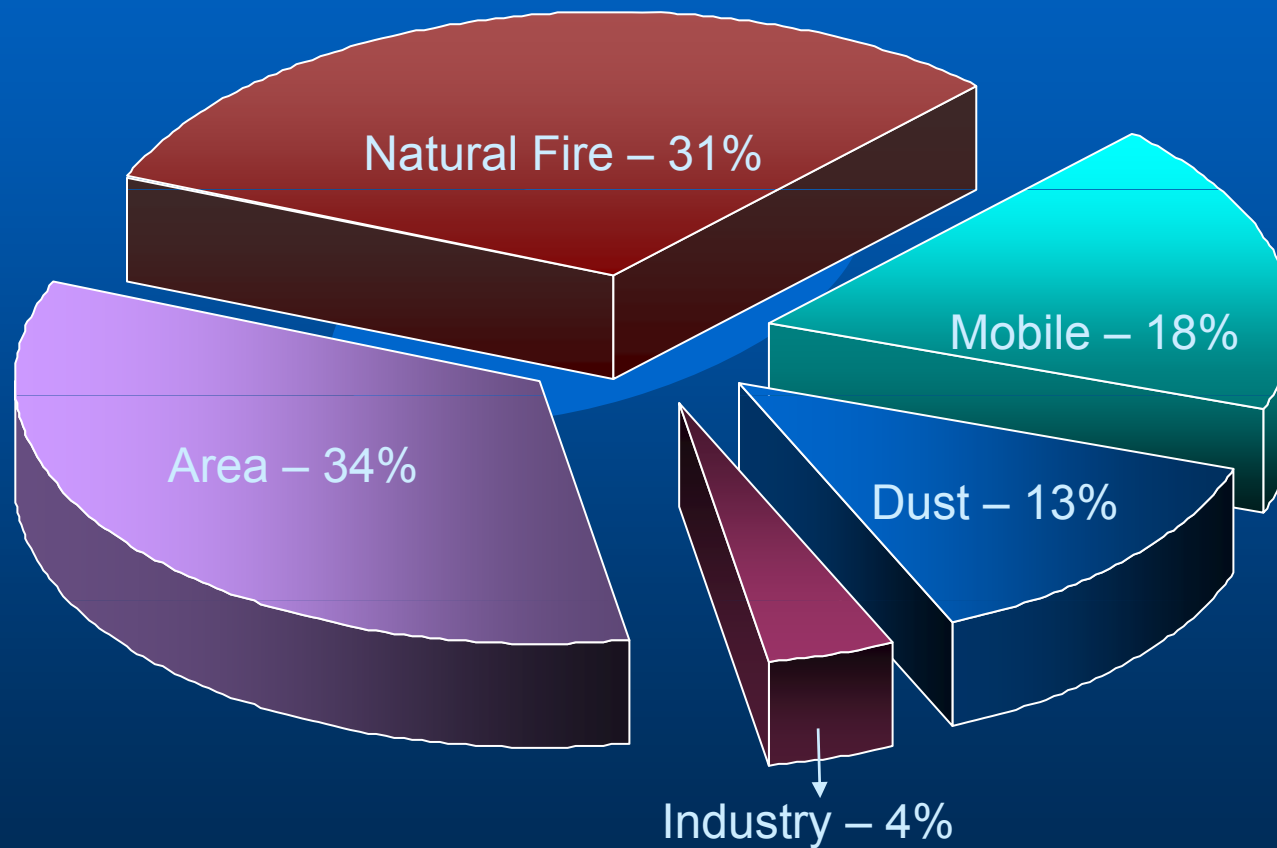
- Organic carbon – Forest Fires
- Nitrates – Fossil fuels (mobile sources, fires, power plants, industry)
- Sulfates – Fossil fuels (power plants, industry, fires)
- Soil – Wind blown dust
- Water Vapor – Fog, precipitation events

Idaho(IDEQ)

Regional Haze Plan

- Regional Haze Plan submitted to EPA for approval in October 2010
- Plan requires visibility impact evaluation within Idaho and in neighboring states
- Five (5) Wilderness Areas
- Idaho is part of Western Region Air Partnership (WRAP)

Idaho Statewide Emissions Inventory



SO₂ & NO_x Emissions

States Bordering Idaho

States	%
Bordering States ^a	91
Idaho	9
Riley Boiler	0.12

^a Washington, Oregon, Nevada, Utah, Wyoming, Utah

Idaho Regional Haze Plan

2018 Emissions Reduction Measures

- Industrial emissions controls
- Federal Motor Vehicle Control Program
- Burning control programs – Crops and prescribed forestry
- Many other existing regulations

Emissions Control Evaluation
Riley Boiler
The Amalgamated Sugar Company LLC
Nampa Facility

Emission Control Evaluation

Power Plants and Industrial Sources

- Best Available Retrofit Technology (BART) Determination (40 CFR 51.308e)
- EPA BART Guidelines (Appendix Y to Part 51) developed for large coal-fired power plants
- BART determinations focus on reducing SO₂ and NO_x emissions

EPA BART Evaluation

Key Criteria

- Identify feasible control technologies
- Cost
- Degree of visibility improvements as determined by computer modeling (not actual measurements)

BART Eligible Sources and Class I Areas

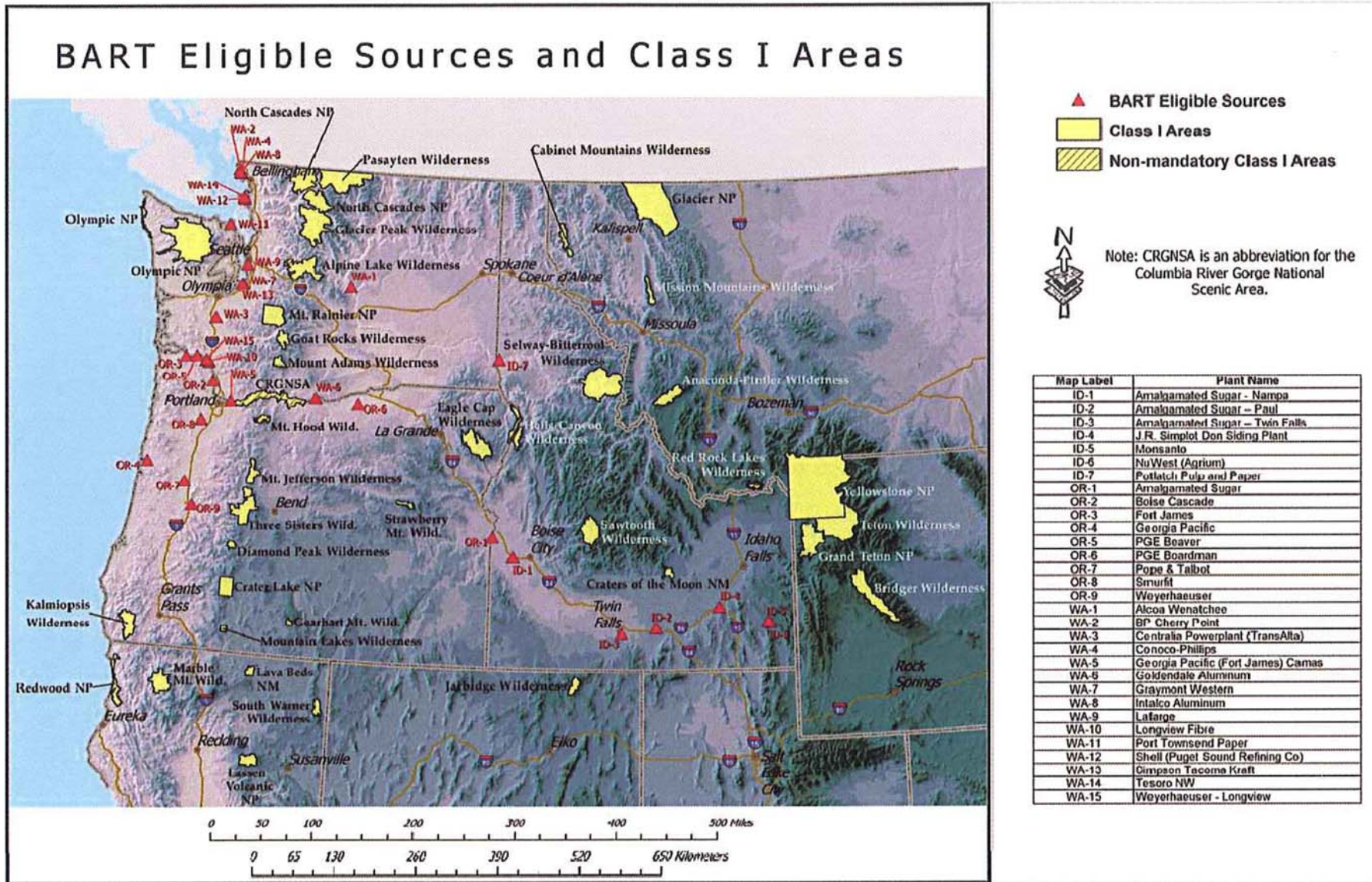


Figure 1. BART eligible sources and Class 1 areas in the northwest.

Riley Boiler

TASCO Nampa Facility

- 250,000 lb steam per hour industrial boiler with a baghouse
- Fired by pulverized coal or natural gas
- Estimated emissions
 - NO_x 1000 tons/y
 - SO₂ 1500 tons/y

Predicted Visibility Impacts

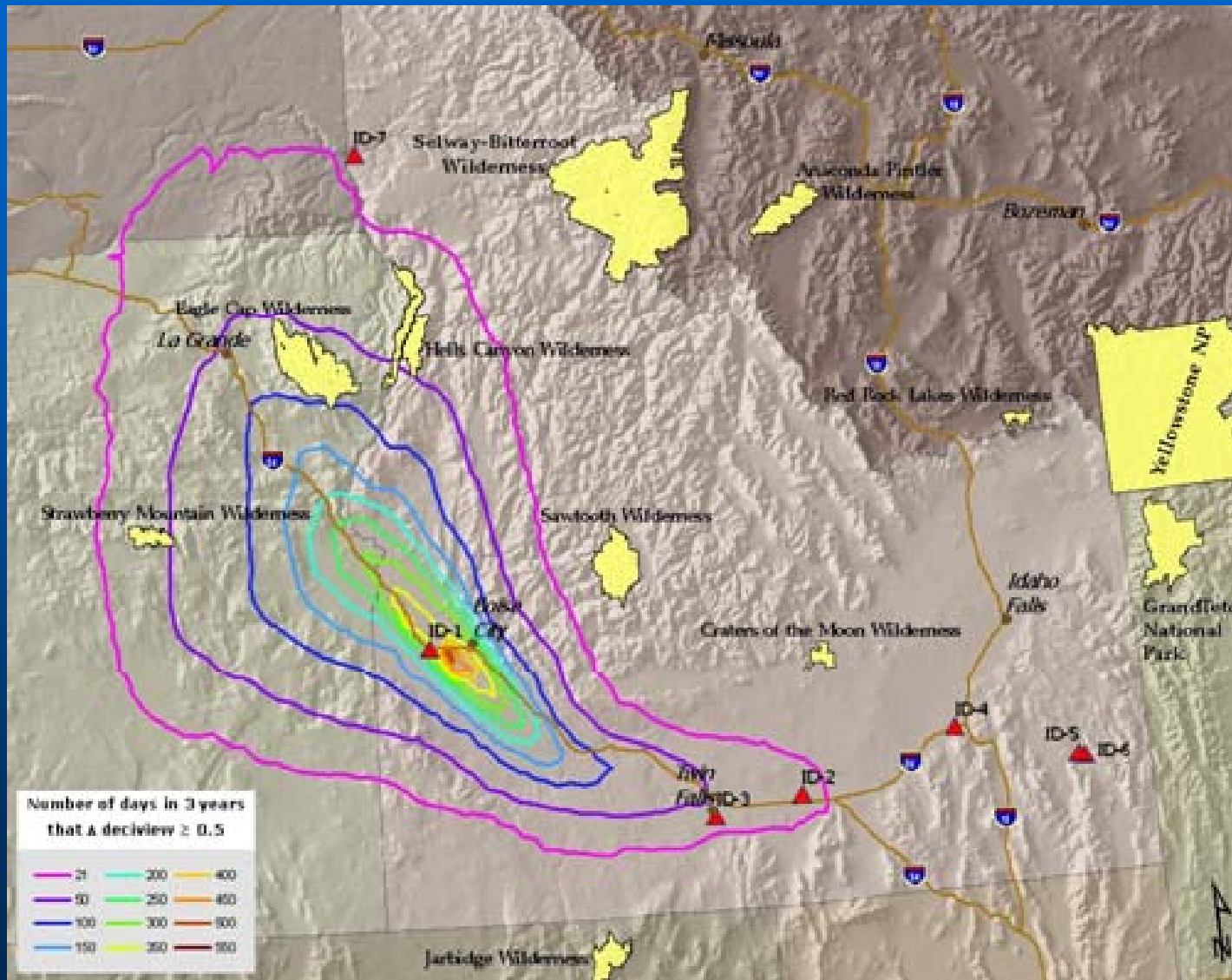
Riley Boiler

- Computer modeling predicts impacts at 3 wilderness areas in Oregon
- Areas over located 100 miles upwind of the facility
- Model predicts highest impacts during winter time periods



Paul

Number of Days $> 0.5 \Delta dv$ in 3 yrs Due to TASC0 Nampa Riley Boiler



BART Determination

Riley Boiler SO₂ & NO_x Controls

- Amalgamated's BART determination submitted to IDEQ in November 2007 and revised in February 2009
- Cost/benefit for SO₂ and NO_x controls not justified
- BART alternatives presented

TASCO Proposal

Riley Boiler BART Controls

- Combination of three (3) alternatives
- Alternative #1 – Install **low NO_x burners** on the Riley Boiler (50% NO_x reduction)
- Alternative #2 – Credit for **shutdown of coal-fired pulp dryers** in 2007 (50% NO_x reduction & other AQ benefits)
- Alternative #3 – Credit for **shutdown of coal-fired boilers(3) and pulp dryers(3) at the Nyssa, Oregon facility** in 2005 (74% reduction in SO₂, 111% reduction in NO_x)

IDEQ Requirements

Riley Boiler BART Controls

- Permit issued on September 7, 2010
- For SO₂, install Spray dryer flue gas desulfurization
 - 80 % emissions reduction
 - Capital cost \$13 million

IDEQ Requirements

Riley Boiler BART Controls (Cont.)

- For NO_x install Low NO_x Burners
 - 50% reduction
 - \$4 million capital cost
- For NO_x credit for shutdown of coal-fired pulp dryers
 - 50% reduction

Major Negotiation Issues

- IDEQ's requirement to install SO₂ emissions controls on the Riley boiler at a capital cost of \$13 million
- No emissions reduction credit for the shutdown of the Nyssa, Oregon facility
- IDEQ has not recognized that there are no other sugar beet processing facilities subject to BART capital cost expenditures

BART Determination Concerns

- 1) The significant cost of mandated controls for no reasonably anticipated benefit in visibility
- 2) State agencies and EPA continue to mandate millions of dollars in expenditures for emissions controls based on non calibrated computer models and not actual measurements

BART Determination Concerns

3) State agencies and EPA continue to:

- Ignore the largest sources impacting visibility
- Mandate costly emissions controls for industrial sources which account for a small fraction of the total emissions

Hells Canyon Wilderness, Oregon

17.3 Mm-1

19.2 Mm-1



Questions ???

