

# BART Recommendations for Arizona Stationary Sources October 19, 2010

# BART Eligibility

- BART applies at the emission unit level
- BART-eligibility set by three criteria:
  - One of 26 listed source categories (typically largest industrial sources of air pollution);
  - Began operation after August 7, 1962, and in existence before August 7, 1977; and
  - Potential emissions from all BART-eligible units is greater than 250 tons per year of any single visibility impairing pollutant.

# Subject to BART Determination

- BART-eligible sources use air dispersion modeling analysis to determine impacts in Class I Areas.
  - EPA indicates that if the impact is:
    - $> 0.5$  dv, the source contributes to Regional Haze
    - $> 1.0$  dv, the source causes Regional Haze
    - States have flexibility to differ from EPA if properly justified.

# BART Process

- Arizona uses 7 steps:
  - Identify existing controls already in use<sup>1</sup>
  - Identify all available retrofit control options
  - Eliminate technically infeasible control options
  - Evaluate control effectiveness for control options
  - Evaluate energy and non-air quality environmental impacts of each option (includes cost)
  - Evaluate visibility impacts (benefits)
  - Select BART<sup>1</sup>

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1. These steps are in addition to EPA's requirements

# BART in Arizona

- Arizona sources considered BART-eligible.
  - APS West Phoenix
  - Arizona Portland Cement (Rillito)
  - Chemical Lime Nelson (Peach Springs)
  - Catalyst Paper (Snowflake)
  - AEPCO Apache Generating Station (near Benson)
  - APS Cholla Power Plant (Joseph City)
  - ASARCO Smelter (Hayden)
  - Freeport McMoRan Smelter (Miami)
  - SRP Coronado Generating Station (St. Johns)

# BART in Arizona

- 6 Arizona sources went through BART determination process
  - Catalyst Paper (Snowflake)
  - AEPCO Apache Generating Station (near Benson)
  - APS Cholla Power Plant (Joseph City)
  - ASARCO Smelter (Hayden)
  - Freeport McMoRan Smelter (Miami)
  - SRP Coronado Generating Station (St. Johns)

# Source Determined Not Subject to BART

- Visibility impact was below 0.5 dV threshold
  - APS West Phoenix
  - Arizona Portland Cement (Rillito)
  - Chemical Lime Nelson (Peach Springs)

# Catalyst Paper

- One coal-fired power boiler
  - NO<sub>x</sub> and SO<sub>2</sub> BART
- Current controls
  - NO<sub>x</sub> – No controls
  - SO<sub>2</sub> – Scrubber with an overall efficiency of 63.9%
- Proposed BART determination
  - NO<sub>x</sub> – No additional controls
    - BART Limit - 0.7 lb/MMBtu
  - SO<sub>2</sub> – Upgraded SO<sub>2</sub> scrubber
    - BART Limit - 0.8 lb/MMBtu



# AEPCO Apache Generating Station

- Steam Unit 1 – primarily natural gas (very limited oil-fired)
  - NO<sub>x</sub>, PM<sub>10</sub> and SO<sub>2</sub> BART
- Current controls
  - NO<sub>x</sub>: No control
  - PM<sub>10</sub>: No control
  - SO<sub>2</sub>: No control
- Proposed BART determination
  - NO<sub>x</sub>: LNB with Flue Gas Recirculation (FGR)
    - BART Limit - 0.056 lb/MMBtu
  - PM<sub>10</sub>: Good combustion practices/co-benefit of LNB
    - BART Limit - 0.0075 lb/MMBtu while burning natural gas
    - BART Limit - 0.0015 lb/MMBtu when burning #2 fuel oil
  - SO<sub>2</sub>: Good combustion practices
    - BART Limit - 0.00064 lb/MMBtu while burning natural gas
    - BART Limit - 0.051 lb/MMBtu while burning #2 fuel oil

# AEPCO Apache Generating Station

- Steam Units 2 and 3 – coal-fired
  - NO<sub>x</sub>, PM<sub>10</sub> and SO<sub>2</sub> BART
- Current controls
  - NO<sub>x</sub>: OFA and under-fire air
  - PM<sub>10</sub>: Hot-side Electrostatic Precipitator (ESP)
  - SO<sub>2</sub>: Wet limestone scrubbers
- Proposed BART determination
  - NO<sub>x</sub>: LNB with new OFA
    - BART Limit – 0.31 lb/MMBtu
  - PM<sub>10</sub>: ESP Upgrade
    - BART Limit – 0.03 lb/MMBtu
  - SO<sub>2</sub>: No additional control
    - BART Limit - 0.15 lb/MMBtu

# APS Cholla Power Plant

- Units 2, 3 and 4 – coal-fired
  - NO<sub>x</sub>, PM<sub>10</sub> and SO<sub>2</sub> BART
- Current controls
  - NO<sub>x</sub>: LNB and Close-coupled OFA
  - PM<sub>10</sub>: Mechanical dust collector/scrubber & fabric filters (baghouse)
  - SO<sub>2</sub>: Unit 2 – scrubber/adsorber, Unit 3 – no control, Unit 4 - scrubber
- Proposed BART determination
  - NO<sub>x</sub>: LNB with new SOFA
    - BART Limit – 0.22 lb/MMBtu
  - PM<sub>10</sub>: Fabric filter
    - BART Limit – 0.015 lb/MMBtu
  - SO<sub>2</sub>: Wet Lime Scrubbers on Units 3 and 4, upgrades to scrubber on Unit 2
    - BART Limit - 0.15 lb/MMBtu

# ASARCO Smelter

- Converters 1-5
  - SO<sub>2</sub> BART
- Current controls
  - Double contact acid plant
- Proposed BART determination
  - SO<sub>2</sub>: No further control
    - BART Limit – 650 ppm

# Freeport McMoRan Smelter

- Electric furnace, four converters, remelt/mold furnace
  - PM<sub>10</sub> and SO<sub>2</sub> BART
- Current controls
  - PM<sub>10</sub>: Wet scrubber, wet ESP and steam injection
  - SO<sub>2</sub>: Acid plant tail gas system and vent fume scrubber
- Proposed BART determination
  - PM<sub>10</sub>: no further control
    - BART Limit - NESHAP for Primary Copper Smelters
  - SO<sub>2</sub>: no further control
    - BART Limit – 650 ppm

# SRP Coronado Generating Station

- Units 1 and 2 – coal-fired
  - NO<sub>x</sub>, PM<sub>10</sub> and SO<sub>2</sub> BART
- Current controls
  - NO<sub>x</sub>: Good combustion practices and OFA
  - PM<sub>10</sub>: Hot-side ESP
  - SO<sub>2</sub>: Low sulfur coal and partial wet desulfurization
- Proposed BART determination
  - NO<sub>x</sub>: LNB with OFA
    - BART Limit – 0.32 lb/MMBtu
  - PM<sub>10</sub>: No further control.
    - BART Limit – 0.03 lb/MMBtu
  - SO<sub>2</sub>: Wet flue gas desulfurization
    - BART Limit – 0.08 lb/MMBtu