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\(^1\)
  – 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\(^1\)

\(^1\) 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
  – NOx and SO$_2$ BART

• Current controls
  – NOx – No controls
  – SO$_2$ – Scrubber with an overall efficiency of 63.9%

• Proposed BART determination
  – NOx – No additional controls
    • BART Limit - 0.7 lb/MMBtu
  – SO$_2$ – Upgraded SO2 scrubber
    • BART Limit - 0.8 lb/MMBtu
AEPCO Apache Generating Station

- Steam Unit 1 – primarily natural gas (very limited oil-fired)
  - NOx, PM\textsubscript{10} and SO\textsubscript{2} BART
- Current controls
  - NOx: No control
  - PM\textsubscript{10}: No control
  - SO\textsubscript{2}: No control
- Proposed BART determination
  - NOx: LNB with Flue Gas Recirculation (FGR)
    - BART Limit - 0.056 lb/MMBtu
  - PM\textsubscript{10}: 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\textsubscript{2}: 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
  - NOx, PM$_{10}$ and SO$_2$ BART
- Current controls
  - NOx: OFA and under-fire air
  - PM$_{10}$: Hot-side Electrostatic Precipitator (ESP)
  - SO$_2$: Wet limestone scrubbers
- Proposed BART determination
  - NOx: LNB with new OFA
    - BART Limit – 0.31 lb/MMBtu
  - PM$_{10}$: ESP Upgrade
    - BART Limit – 0.03 lb/MMBtu
  - SO$_2$: No additional control
    - BART Limit - 0.15 lb/MMBtu
APS Cholla Power Plant

- Units 2, 3 and 4 – coal-fired
  - NOx, PM$_{10}$ and SO$_2$ BART
- Current controls
  - NOx: LNB and Close-coupled OFA
  - PM$_{10}$: Mechanical dust collector/scrubber & fabric filters (baghouse)
  - SO$_2$: Unit 2 – scrubber/adsorber, Unit 3 – no control, Unit 4 - scrubber
- Proposed BART determination
  - NOx: LNB with new SOFA
    - BART Limit – 0.22 lb/MMBtu
  - PM$_{10}$: Fabric filter
    - BART Limit – 0.015 lb/MMBtu
  - SO$_2$: 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
  - \( \text{SO}_2 \) BART
- Current controls
  - Double contact acid plant
- Proposed BART determination
  - \( \text{SO}_2 \): No further control
    - BART Limit – 650 ppm
Freeport McMoRan Smelter

- Electric furnace, four converters, remelt/mold furnace
  - $\text{PM}_{10}$ and $\text{SO}_2$ BART
- Current controls
  - $\text{PM}_{10}$: Wet scrubber, wet ESP and steam injection
  - $\text{SO}_2$: Acid plant tail gas system and vent fume scrubber
- Proposed BART determination
  - $\text{PM}_{10}$: no further control
    - BART Limit - NESHAP for Primary Copper Smelters
  - $\text{SO}_2$: no further control
    - BART Limit – 650 ppm
SRP Coronado Generating Station

- Units 1 and 2 – coal-fired
  - NOx, PM$_{10}$ and SO$_2$ BART
- Current controls
  - NOx: Good combustion practices and OFA
  - PM$_{10}$: Hot-side ESP
  - SO$_2$: Low sulfur coal and partial wet desulfurization
- Proposed BART determination
  - NOx: LNB with OFA
    - BART Limit – 0.32 lb/MMBtu
  - PM$_{10}$: No further control.
    - BART Limit – 0.03 lb/MMBtu
  - SO$_2$: Wet flue gas desulfurization
    - BART Limit – 0.08 lb/MMBtu