La Cygne Generating Station

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evergy

Safety

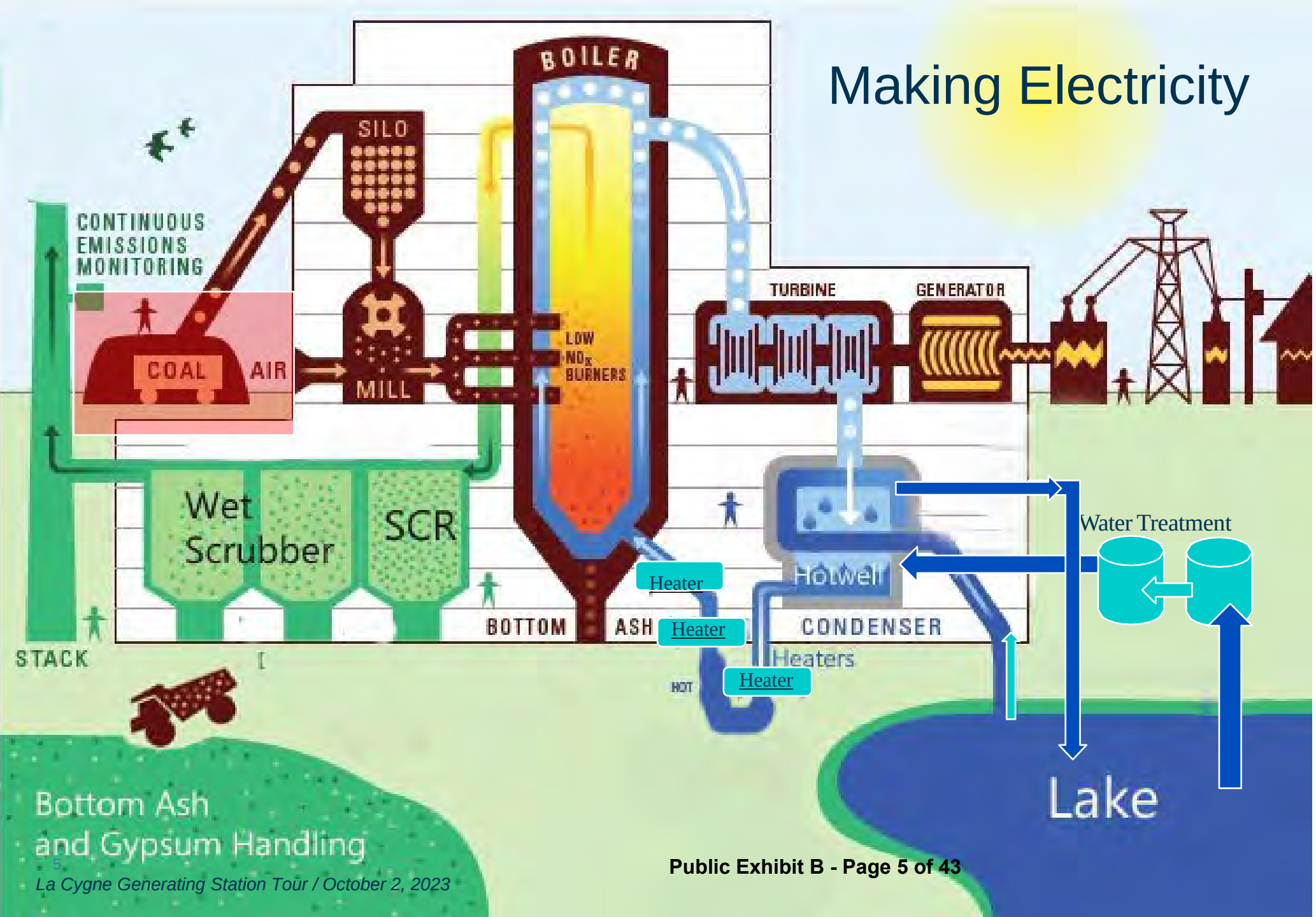
- Wear Personnel Protective Equipment (PPE): glasses, hard hat, and hearing protection
- Do not separate from group
- Stay clear of areas with red flashing lights, safety tape, and warning signs
- Equipment can start without warning
- Evacuation procedures
- Ammonia is on site

Safety is our Top Priority

La Cygne Background Information

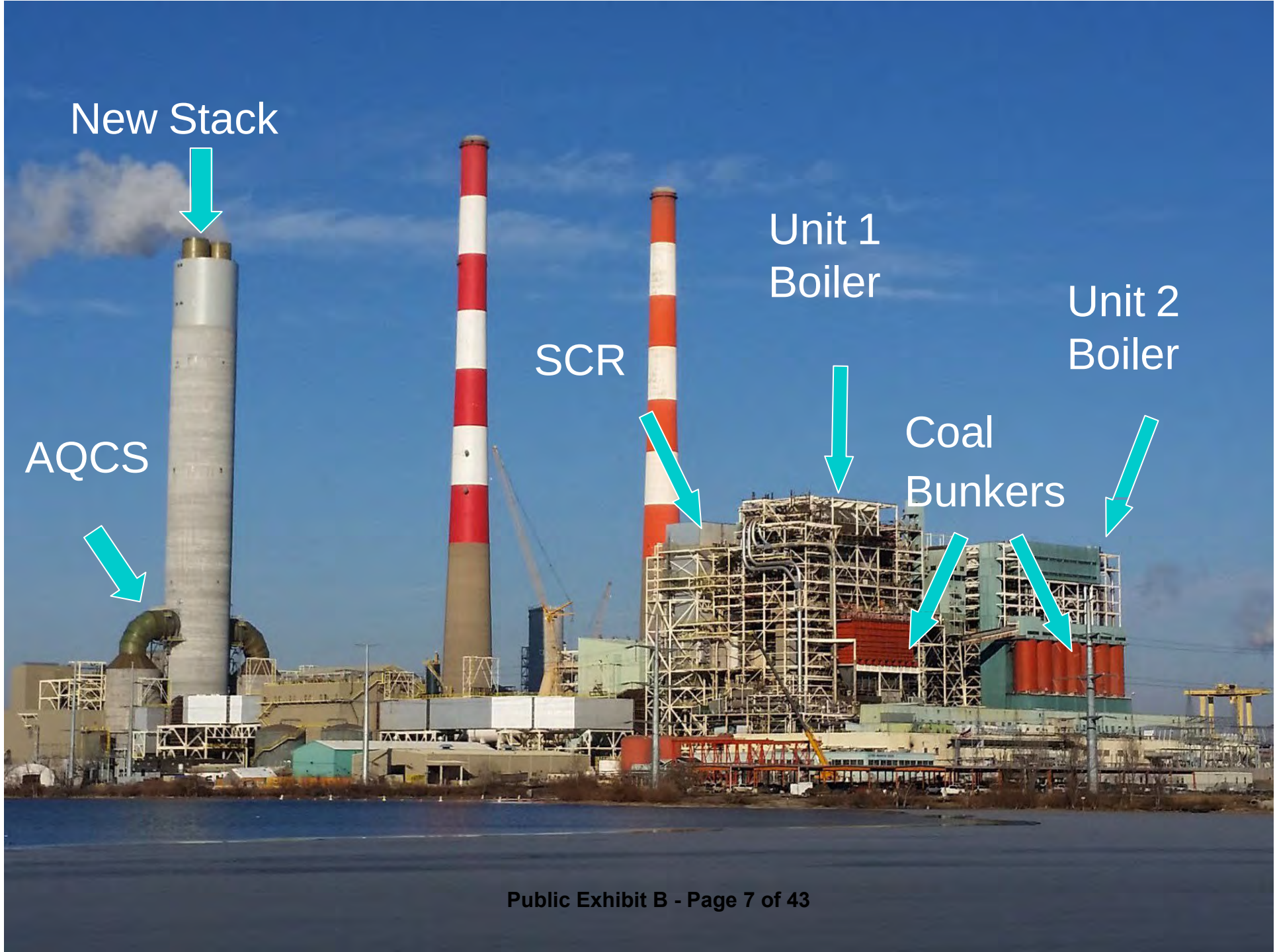
La Cygne Generating Station

Making Electricity



Station Facts

- Capacity – 1,525 MW
- Important Station Dates
  - Commercial Operation – Unit #1 – June 1973
  - Commercial Operation Unit #2 – May 1977
  - SCR added to Unit #1 in 2006
  - Environmental Retrofit competed end of 2015
- Fuel Source
  - Unit #1 burns low-sulfur Powder River Basin coal with a small blend of local coal
  - Unit #2 burns 100% low-sulfur Powder River Basin coal


New Stack
AQCS
SCR
Unit 1
Boiler
Unit 2
Boiler
Coal
Bunkers

Everything is large scale

Demolition Time

La Cygne Lake

- 42.5 miles of shoreline
- Average depth is 11 feet

Intake

- Five pumps 825,000 GPM
- At this rate, if we did NOT continually cycle water back to the lake it wouldn't be long until the lake was empty!

Overflow at the Dam controls the Lake Level

Condensers

- This is where we turn the used steam back into water.
- This water is very clean and will be reused in the boiler systems

Inside Turbine

Turbine Generator

- This is where the electricity comes from.

Breakers & Power Panels

- Power Panels 120 Volt and 220 Volt (like home breaker panels)
- 480 Volt Breakers
- 7000 Volt Breakers
- 13800 Volt Breakers

- Fuel Yard Facts
  - If both Units are at full load, we burn a little over one train of coal per day.

Fuel Yard


Coal Storage
Silos
Conveyor


Car Dumper
Secondary
Transfer House

Conveyors

- La Cygne has more conveyors than any of our other power plants
- In total we have over 5 miles of conveyors

Coal Pile

- Base of Fly Ash
- Coal is packed to prevent spontaneous combustion

Car Dumper Controls

- Six hours average unloading time on the trains with 130 cars

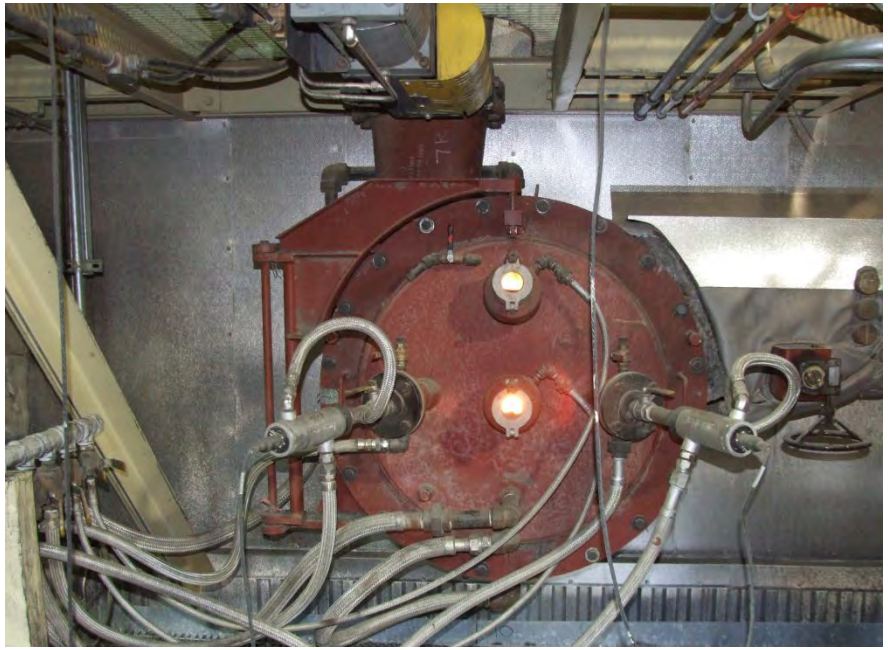
Dumping a Train Car

Cyclone – Unit 1

- Eighteen Cyclones

Burners Fronts

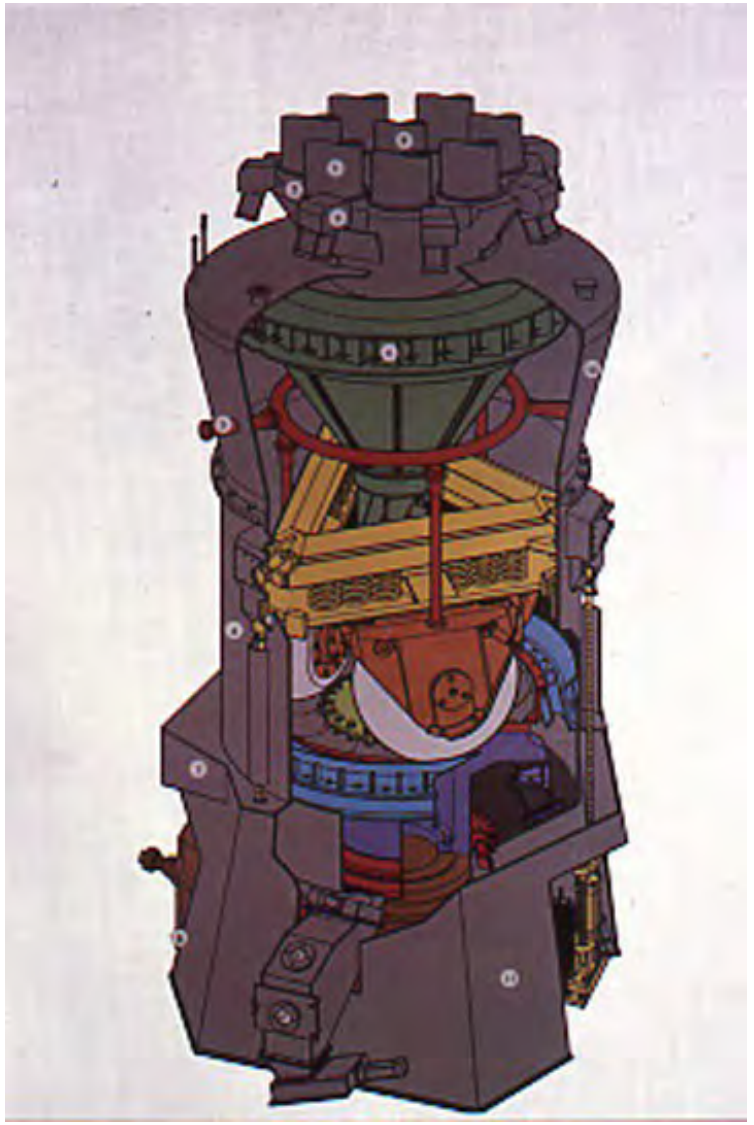
- Unit 1 Eighteen Cyclones



- Unit 2 Fifty- Six Burners

Pulverizers – Unit 2

- Grind the coal to a fine dust
- DANGER - Highly Combustible!



Boiler Tubes

- Unit 1 holds over 40,000 gallons of water.

Boiler

- Burnt coal runs out the slag taps of each of the cyclones
- Slag that accumulates on the boiler floor runs to two, 3-foot diameter slag taps (holes) that discharge to ash water tanks.
- On Unit 2 there is no boiler floor -the slag falls directly into the submerged flight conveyor.

Burnt Coal leaves the Boiler

Molten, like lava from a volcano – we call it “slag”

Bottom Ash Removal

- The slag exiting the bottom of the boiler flows into water-filled open top takes where it fractures into small pieces
- This “bottom ash” is removed by a series of conveyors
- Bottom ash – can be used on roof shingles and other surfaces

SCR – Selective Catalytic Reduction

- To comply with environmental regulations to remove nitrogen oxides from our emissions Ammonia is one of the components of the system along with the catalyst and hundreds of filters.

- Ammonia Farm Consisting of four 60,000 gallon tanks

Air Quality Control

- Limestone and Activated Carbon Silos, and Fabric Filter

Fabric Filters Removes Fly Ash

Light ash – like powder

Ball Mills

- We use limestone to make limestone slurry
- Steel balls grind the limestone in the ball mills and mix with water to create lime slurry

Absorber Tower

- Wet Scrubber

Absorber Tower

- Slurry is sprayed into the absorber to clean the boiler's exhaust gas
- Removes the sulfur dioxide and strips the ash from the exhaust gas

Rotary Drum Vacuum Filters

- Where we remove the gypsum from the slurry

- Trucks moving the gypsum

Fans

Chimney

- One “stack” with two liners serves both Unit 1 and Unit 2

- What is that white stuff coming out of the stack?
- Not smoke – it’s steam

Environmental Update

Environmental Update

- Proposed Greenhouse Gas Regulation
- Proposed Updates to the Mercury and Air Toxics Standards (MATS) Regulation
- Regional Haze Regulations – 2nd Planning Period
- Effluent Limitation Guidelines
- River Intake Requirements (Clean Water Act 316(a))
- Thermal Discharge Requirements (Clean Water Act 316(b))
- Coal Combustion Residuals Regulation – Legacy Units

EPA is continuing to modify existing regulations and propose additional regulations for electric generating facilities

Proposed EPA GHG Standard Overview

- On May 23, 2023, EPA published proposed greenhouse gas standards and guidelines for fossil fuel-fired power plants
  - Proposal would set CO_2 limitations for new gas-fired combustion turbines, existing coal, oil and gas-fired steam generating units, and certain existing gas-fired combustion turbines
  - Represents latest in a series of similar proposals made over the years which included the Clean Power Plan (CPP) and Affordable Clean Energy (ACE) rule
  - The proposed CO_2 limitations assume technologies such as carbon capture and sequestration/storage (CCS), hydrogen co-firing, and natural gas co-firing will be utilized
    - Existing coal-fired generation ***will*** be impacted
      - Emission limitations are effective beginning on January 1, 2030
    - Existing combined cycle generation ***could*** be impacted
    - Future simple and combined cycle generation ***may*** be impacted
    - Comments were submitted on August 8, 2023 – anticipate final rule April 2024

Proposed regulation is extremely aggressive for both CO_2 reductions and implementation timeline

Coal Combustion Residual (CCR) Overview

- Regulations first established in 2015 to regulate handling, disposal, and remediation associated with CCR or coal ash
- Since 2015, Evergy has ceased operations of all coal ash ponds and either recycles CCR or disposes of it in landfills
- In May 2023, EPA proposed the Legacy CCR Unit regulation to expand rule applicability to units closed prior to 2015
  - This regulation, if finalized, will require Evergy to reevaluate CCR disposal units closed under state regulation prior to 2015
  - Some units may require re-opening and reconstruction of cap
  - Regulation expected to be finalized in mid 2024

Proposed regulation would require Evergy to reevaluate CCR units previously closed under state regulation

Tour Route

- Please be safe
- Please stay close to the group
- Open grating

Stay with your Tour Guide