

Coal Fired Power Plant Virtual Field Trip

(Your tour through operation and environmental impact of power generation)

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Coal Fired Power Plant Virtual Field Trip Lecture

Notes

****Lecture notes do not necessarily always go in order of the slides****

ⓐ Two types of used to extract coal from a surface mine are _____ and _____.

ⓐ What happens to mined coal since it is not processed?

ⓐ What is coal? _____

ⓐ Why is coal not considered a renewable resource?

ⓐ For what purpose is coal washed? _____

ⓐ Why is washing done at the mine? _____

ⓐ Name three kinds of underground coal mining:

1. _____ 2. _____ 3. _____

ⓐ Coal is made up of _____, _____, _____, and _____.

ⓐ Why is anthracite considered the highest ranking type of coal?

ⓐ Compare the components of bituminous coal an anthracite coal.

ⓐ List the steps involved in the generation of power from coal.

1. _____
2. _____
3. _____
4. _____
5. _____

ⓐ How is coal processed at the power at the power facility?

ⓐ What is the principle function of the boiler? _____

ⓐ What form of coal is put in the boiler? _____

ⓐ Explain what scale is? _____

ⓐ How are the turbine and generator related?

ⓐ Describe the function of the condensers.

ⓐ Name and discribe four undesirable products produced from the burning of coal.

1. _____
2. _____
3. _____
4. _____

ⓐ Study the diagram of a re-burning NO_x system. Briefly describe how it removes NO_x.

ⓐ Which of the waste gas products contribute the greatest to global warming?

ⓐ What is fly ash?

ⓐ How does an electrostatic precipitator work?

ⓐ Why must water be cooled before leaving a power plant?

a. decreased fish fertility b. increased fish heart rate c. thermal pollution concern d. all of the above

ⓐ Name and describe at least 2 methods for cooling water.

1. _____

2. _____

ⓐ What percentage of water do power facilities use? _____

ⓐ Where did most of the freshwater withdrawals come from in 1990? Surface or Ground

ⓐ What 2 uses do coal-fired power plants have for this water?

1. _____
2. _____

ⓐ What year was the *first* Clean Air Act passed? _____

ⓐ Emission rates for sulfur dioxide (SO₂) have decreased 65%. True or False

ⓐ What is the use of electrostatic precipitators?

ⓐ The solid waste, ash, is composed of:

a. metal oxides and alkali b. portland cement concrete c. sulfur dioxide

ⓐ What is the average content of ash in coal? _____

ⓐ Some solid wastes of coal combustion are now being recycled into useful products. True or False

ⓐ Complete this flow chart of electricity distribution using these words: substation, transformer, transmission lines, distribution lines and customers. Show if the voltage is increased (+) or decreased (-).

