The environment

DEQ says there is 'no question' power plants produce pollution

BY MONICA KEEN
STAFF WRITER

Are power plants a source of pollutant emissions? The answer, according to a spokesperson for the Oklahoma Department of Environmental Quality (DEQ), is unequivocally yes.

"Most power plants are significant sources of emissions," Kyle Arthur, Oklahoma DEQ spokesperson, said.

But Arthur said there are also standards and regulations in place to keep those emissions under control.

"It's hard to generate power without generating emissions," he said.

The Oklahoma DEQ is the monitoring and enforcement agency for industries in the state, including the electricity industry, making sure industries are abiding by environmental standards set by the U.S. Environmental Protection Agency (EPA) and the state. What DEQ regulates encompasses what leaves a facility, including water, waste, and waste in the form of air emissions.

"The biggest issue with power plants is air quality," Arthur said.

Officials with Nebraska-based Tenaska Inc., which signed a purchase option agreement for 950 acres of land at the Sallisaw landfill for a possible coal-fired power plant, seem confident that their coal-fired power plant will be among the cleanest in the nation.

Tenaska officials have said that they will design the Sallisaw plant using the best available emissions control technologies.

Greg Kunkel, director of Tenaska's environmental affairs, said last month that Tenaska is under stringent regulations to ensure that their plants are safe and meeting state-of-the-art standards, including a mercury emissions control, which is required as of this year for all new power plants being built. Kunkel said all plants in the United States have different controls and monitoring systems, which report all emission data to the EPA.

Kunkel said the coal plants being built today will be 98 percent cleaner than the ones built 25 years ago.

"Coal-fired power plants are major emitters of pollution, no question," Arthur said, pointing out that power plants are also highly visible.

Arthur explained that how big a power plant is determines how much pollution it emits, which in turn determines the types of controls that are needed.

"The bigger you are, the more you have to do," Arthur said.

While Arthur said there is "no question" that the plant will produce emissions, those emissions, he said, are "pretty highly controlled."

Arthur said any new plant that is constructed will have to have go through a fairly rigorous process to get air quality permits — for construction and once the plant is in operation.

But Steve Dobbs, who is leading a county coalition opposed to the power plant, doesn't believe the current guidelines are stringent enough.

Dobbs said when the EPA makes blatant statements about the harms and risks of coal-fired power plants, it tells him they acknowledge there are harms and risks.

"Emissions monitoring is, no doubt, political," he said.

Dobbs points to the recent EPA air quality standards that went against recommendations of an advisory panel made up of scientists.

"They lowered one standard and not the other," Dobbs said. "That tells me there's better controls and more stringent things that can be done...We're not really being protected at the level we could and should be."

Even the DEQ admits that one "exceedance" doesn't mean that a facility is shut down or even fined. Arthur said power plants and other industries are allowed so many exceedances. He said DEQ looks at ongoing compliance with the permit. Arthur said power plants must report their emission levels, and depending on the size of the facility, may do continuous monitoring.

"All coal-fired power plants (in Oklahoma) are operating, for the most part, within the rules," he said. "At any given time there can be a facility that may be out of compliance with their permit."

The goal of the DEQ is to keep the entire state in attainment, meaning the state has attained the environmental standards that have been set.

When asked if the pollution emitted from power plants is harmful, Arthur said EPA studies have determined that the levels set are acceptable levels to protect human health and the environment

"Levels that do come from them (EPA) would be protective of human health and the environment," he said.

When it comes to coal-fired power plants, sulfur dioxide, nitrogen oxide, mercury, and particulate matter are among the concerns, Arthur said. Today's power plants utilize various technologies to help remove the pollution, he said.

The EPA addressed mercury concerns for the first time last year when they issued the Clean Air Mercury Rule to cap and reduce mercury emissions from coal-fired power plants.

Mercury emitted from coal-fired power plants comes from mercury in the coal, which is released when the coal is burned, according to the EPA. Mercury, once it falls to the earth, can transform into methylmercury and can build up in fish tissue. Children exposed to methylmercury before birth may be at increased risk of poor fine motor function, language skills, and verbal memory.

According to the EPA, the mercury rule will significantly reduce emissions from coal-fired power plants, which is the nation's largest remaining source of human-caused mercury emissions. Those same plants contribute only about one percent of total annual mercury emissions worldwide, the EPA indicated.

Under the mercury rule, a cap-and-trade program is available to coal-fired power plants that don't have enough allowances to cover their mercury emissions. Those plants are allowed to purchase those allowances from other power plants.

Medical groups and states have since sued the EPA over the new mercury rule, saying the rule is not stringent enough and the cap-and-trade program has the potential to produce more mercury in some areas of the country, according to coalition members.

Sulfur dioxide and nitrogen oxide emissions that form fine particles in the atmosphere are another concern of power generation, according to the EPA. Particulate matter is the term used for a mixture of solid particles and liquid droplets found in the air. Fine particles are smaller than 2.5 millionths of a meter in diameter and are seemingly invisible.

"Power plants emit particles directly into the air, but their major contribution to particulate matter air pollution is emissions of sulfur dioxide and nitrogen oxide," according to the EPA's Web site.

Fine particles and pollutants are not restricted to just power plants. They are also byproducts of a variety of other industries and sources.

Tenaska officials have been quick to point out that while coal used for electricity has tripled since 1970, emissions of nitrogen oxide, sulfur dioxide and particulate matter have decreased.

Studies have shown that the health effects of fine particles include increased risk of early death in the elderly and those with heart or lung disease, aggravation of respiratory and cardiovascular illness, leading to hospitalizations and emergency room visits, decreased lung function, more incidents of acute bronchitis, and increased work loss days, school absences and emergency room visits.

Nitrogen oxide emissions react in the atmosphere in the presence of sunlight to form ground-level ozone, which contributes to smog. Ozone at ground level has been linked to respiratory problems, including the aggravation of asthma, according to the EPA.

Pollution by the numbers; permitting process explained

BY MONICA KEEN
STAFF WRITER

When deciding how much pollution a particular power plant can emit into the environment, there are no simple answers, according to the Oklahoma Department of Environmental Quality (DEQ).

"They're not all cookie cutter," Kyle Arthur, DEQ spokesperson, said. "It's not that simple."

Arthur said there is a misconception that there is a table that says all power plants must not emit above a particular level.

How much a power plant is allowed to emit is dependant on a variety of factors, including the location of the plant and the other industries nearby, the type of equipment the facility plans to use, the size of the plant, and other environmental factors, Arthur explained.

"It's not cut and dry...it's very location specific," Arthur said.

While Arthur said the same rules apply to every facility, emissions levels for facilities and the environmental permits that plants receive are different. He said winds, geography, and the types of other industries in a particular area are evaluated.

"If those things don't add up, they're not allowed to locate there."

Arthur said each permit is tailored to the facility and its location.

"A significant amount of monitoring is done prior to construction of the facility," he said.

Arthur explained that facilities are constantly modifying permits, like when a facility makes changes with equipment.

One permit is issued originally, and Arthur said there may be modifications done four or five times over as time goes on. A permit is usually valid for five years, but there are always modifications, he said.

Arthur said the DEQ evaluates whether a particular facility proposed will significantly degrade the air quality in an area. Before permits are approved for a facility, the current air quality for the area is evaluated. He said the current air quality in an area is evaluated to see how much more pollution an area can handle and make sure federal pollution standards aren't exceeded.

"In other words, we want to prevent significant air quality deterioration," Arthur said.

Pollution standards for six criteria, or principal, pollutants, called National Ambiant Air Quality (NAAQ) Standards, apply to the state and are set by the U.S. Environmental Protection Agency (EPA). According to the EPA Web site, those criteria pollutants include carbon monoxide, lead, nitrogen dioxide, sulfur oxides, and two types of particulate matter. Ozone, which can occur at ground level, is also considered a criteria pollutant. The DEQ's goal, Arthur said, is

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POLLUTANT EMISSIONS INVENTORY DATA 2005

AES Shady Point

Pollutants	Estimated in tons
Carbon monoxide	1,506.056
Nitrogen oxides	946.591
Sulfur oxides	6,101.707
Particulate matter, coarse	77.819
Particulate matter, fine	191.908
Mercury and mercury compounds	.062
Lead and lead compounds	.059

OG&E Muskogee

Pollutants	Estimated in tons
Carbon monoxide	1,576.31
Nitrogen oxides	17,451.5
Sulfur oxides	25,772
Particulate matter, coarse	1,163.029
Particulate matter, fine	499.817
Mercury and mercury compounds	.157
Lead and lead compounds	.186

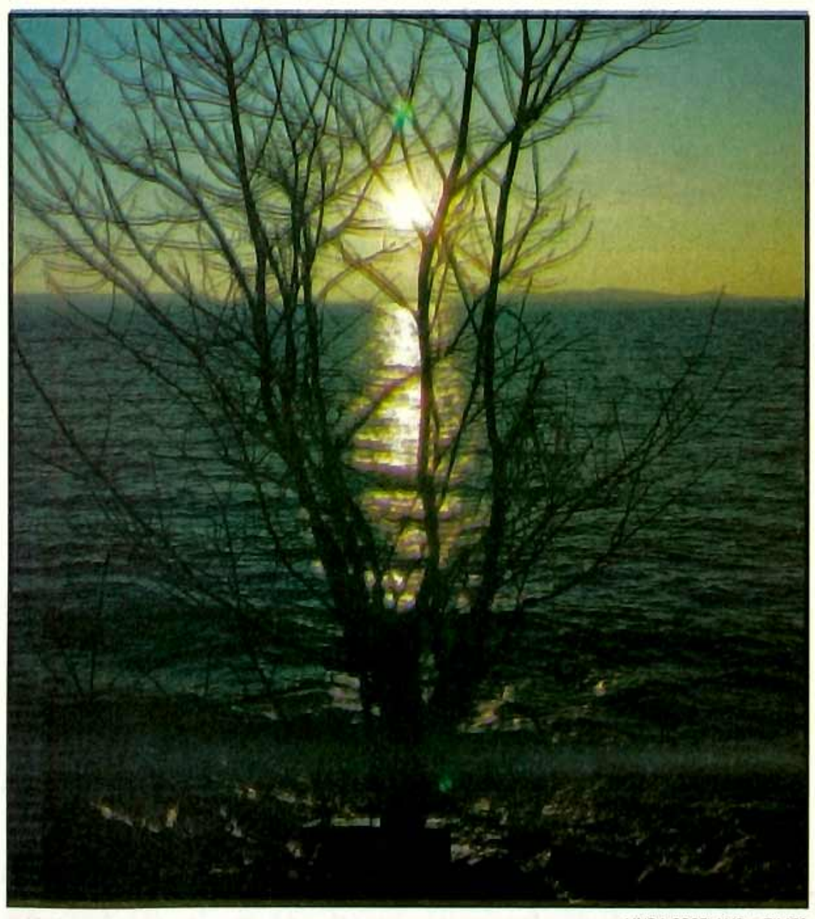
Source: Oklahoma Department of Environmental Quality

Heated water from power plants is a 'legitimate issue,' official says

BY MONICA KEEN
STAFF WRITER

While some power plants build cooling reservoirs to aid in the electricity-making process, the proposed coal-fired plant in Sallisaw will instead use cooling towers. But where does the water go after it is used to make power? And does the water from power plants have the potential to harm aquatic life?

Ron Suttles, natural resources coordinator with the Oklahoma Department of Wildlife Conservation, said that heated water from power plants, such as coal-fired plants, is a legitimate issue when it comes to affecting aquatic life.



LINDA COPELAND • TIMES

Water from the Arkansas River could be the water source for a coal-fired power plant in Sallisaw proposed by Tenaska Inc. of Nebraska. The company has said that it will have to build transmission lines from the water source to the plant.

But he said the idea that power plants take water from a river, use it to generate electricity and immediately dump the water back in the river isn't an accurate depiction.

Suttles said power companies address the heated water problem through building cooling ponds or cooling towers. These cooling reservoirs or towers can minimize the amount of water that power plants take out of rivers or discharge back, he said.

Suttles said water used in power generation must cool down before being discharged back to the water source. Otherwise, wildlife can be jeopardized.

The Sequoyah County Clean Air Coalition, which is opposed to the power plant, has said that thermal pollution is a concern with the proposed plant. The coalition has publicly claimed that since the plant will be using vast quantities of cooling water, which will be discharged into the Arkansas River, there is the potential of causing algae blooms, killing fish or causing fish to migrate out of the local area.

Suttles said there is always the potential for the problems that the coalition listed. He said the state's water quality standards addresses all thermal discharges in the state, but discharges must stay within a certain range. He said if any industry exceeds that range, it would be in violation of its permit.

"Power plants must have control measures they are going to employ and get permits for those measures," Suttles said.

He noted that power plant companies must get pollutant discharge permits through the Oklahoma Department of Environmental Quality (DEQ) and the Oklahoma Water Resources Board, which monitors water quality standards in the state.

The U.S. Environmental Protection Agency (EPA) reports on their Web site that in coal power production, as well as in other types of power production, pollutants can build up in the water used in the power plant boiler and cooling system. If the water used in the power plant is discharged to a lake or river, the pollutants in the water can harm fish and plants, according to the EPA.

According to the EPA, "when coal-fired power plants remove water from a lake or river, fish and other aquatic life can be affected, as well as animals and people who depend on these aquatic resources."

Suttles said if for some reason a cooling tower system was to fail and wasn't cooling properly or if the discharge of heated water back to the river was not in compliance with the limits of their permit, the problems that the coalition pointed out could occur.

"Cooling towers can occasionally cause problems," he said. "Cooling towers have to be maintained."

He said the towers have to be cleaned in order to control algae, keep debris out and combat hardwater deposits, and chemicals must be used to do that.

"If they do what they're supposed to do, it shouldn't be a problem," Suttles said.

Greg Kunkel, Tenaska's director of environmental affairs, explained in an e-mail that while many power facilities have lakes for cooling, such a lake is not planned for the Sallisaw project at this time. Tenaska officials have said that they will most likely take water from the Arkansas River, but that has not been confirmed.

Kunkel said the project will more likely utilize evaporative cooling (cooling towers). In so doing, the amount of water required will be reduced, he said.

"Also, temperature of any discharge of process water is not an issue with the use of cooling towers for two reasons," Kunkel said. "First, the temperature of the water returned to the river will approach the temperature of the air. Secondly, the volume of the water returned to the river will be very small, about 2 percent of the volume discharged by conventional (once-through) power plant cooling systems."

When asked how much water is typically needed on a daily basis to operate a power plant, Mike Lebens, executive vice president of Tenaska's engineering, construction and operations, said the range could be between eight and 12 million gallons of water per day. He explained that the amount of water released will be less because of evaporation, but could be in the range of a million gallons a day. Lebens pointed out that Tenaska will be governed by state and federal regulations for water discharges, as well as air quality.

Suttles said making sure the facility is properly designed to have the least impact on the environment is important.

"There's a lot of technology out there," Suttles said. "Facilities today can be built to have a minimal impact on the environment."

He explained that a power plant has several water needs, from using water to wash coal and for the internal steam process to drive generators that make electricity, to the cooling water needed to keep the whole process under control, such as keeping turbines cool.

Suttles pointed out that cooling reservoirs, also known as warm water fisheries, are popular and productive fisheries. He said in Konawa the heated water from a gas-fired power plant provides year-round fishing because the water never really cools down, even in the winter.

He said cooling towers are a common feature, not only for the power industry, but on large buildings for their heating and cooling systems.

Suttles said during the plant development, the company will have to do an environmental impact assessment, which is regulated federally.

Suttles recommended that concerned citizens keep track of the permitting process of proposed power plants and make sure their concerns are heard. He suggested concerned groups hire technical advisors and go through the proper channels if they are opposed to a proposed power plant.