

# Comments and Recommendations

For: EWEB

Regarding: Seneca Cogeneration Power Plant

April 15th, 2009



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Oregon Toxics Alliance (OTA) works for all Oregonians to expose root causes of toxic pollution and help communities find solutions that protect human and environmental health.

OTA is not opposed to the Seneca Cogeneration project, but we have concerns about its impact on air quality, human health, and environmental health.

We are submitting this to the EWEB Board, because we believe EWEB has the ability and responsibility to address some of these concerns in their contract with Seneca. Also, as a public utility (and the primary customer of the project), EWEB could and should influence the requirements of the project's Air Contaminant Discharge Permit with LRAPA.

Oregon Toxics Alliances urges EWEB to work with Seneca and LRAPA to ensure the impact on Eugene's air quality and our forests are as minimal as possible. The following are our specific areas of concern and our recommendations.

## **Air Pollution**

This project is being marketed as a source of "green" energy, but it will be a significant source of air pollution in West Eugene.

Attempts to compare the plant's emissions to all sources in the County as a whole (including vehicle or wood stove emissions) is overlooking the fact that this power plant will be one of the single largest sources of air pollutants in Eugene and Lane County.

Air pollution facts:

- As proposed, the power plant would be the 2<sup>nd</sup> largest emitter of NO<sub>x</sub> and CO in Eugene, the 4<sup>th</sup> largest emitter of NO<sub>x</sub> in Lane County, and the 7<sup>th</sup> largest emitter of CO in the County.
- The power plant would be Eugene's single largest emitter of styrene (a carcinogen), acetaldehyde (a carcinogen), hydrogen chloride (causes respiratory illnesses), and naphthalene (a carcinogen). Furthermore, all of the existing sources of those toxics are located in one neighborhood - West Eugene.
- At 1.7 tons, the proposed plant will be Eugene's 3<sup>rd</sup> largest emitter of formaldehyde (a carcinogen). All 9 existing sources are located in West Eugene.
- At 1.4 tons, Seneca will be the 4<sup>th</sup> largest emitter of toluene (a carcinogen). 19 of the 21 existing Eugene's toluene sources are in West Eugene.
- A natural gas power plant of the same capacity would have significantly less emissions (Appendix A).

## **Stronger Pollution Controls (NOx)**

- As proposed, the power plant would be the 2<sup>nd</sup> largest emitter of NO in Eugene and the 4<sup>th</sup> in Lane County.
- The plant would emit and 186 tons of nitrogen oxides (NOx).
- A natural gas power plant of the same capacity would release 115 tons (Appendix A).
- According to the EPA, NOx causes respiratory problems and aggravates heart disease. It can damage lung tissue and cause premature death.
- NOx is a major component of ground-level ozone and global warming.

Seneca intends to reduce NOx emissions by 45% with Selective Non-Catalytic Reduction (SNCR), but they could reduce their emissions by 70% or more by using Regenerative Selective Catalytic Reduction (RSCR). This technology is proven and available. It is currently being applied on three other biomass boilers in other states. These include:

- 15-MW Whitefield Power & Light, New Hampshire: Boiler uses whole tree chips as fuel and has operated since October 2004.
- 16-MW Bridgewater Power, New Hampshire: Boiler uses whole tree chips as fuel and has operated since October 2007.
- 50-MW Boralex Stratton, Maine: Boiler uses whole tree chips, waste wood, and construction and demolition wood as fuel and has operated since December 2004.

Seneca's Air Discharge Permit mentions RSCR, but dismisses it on the basis that it requires the use of natural gas which defeats the purpose of the project – to reduce fossil fuel dependence. Although the goal of reducing fossil fuel dependence is laudable, the decision seems capricious - especially considering the project will be dependent on fossil fuels in other areas of operation (i.e. transportation for the off-site fuel sources) and the resulting emissions that are not reduced are a significant greenhouse gas.

## **Stronger Pollution Controls (CO)**

- The power plant would be the 2<sup>nd</sup> largest emitter of CO in Eugene and the 7<sup>th</sup> in the County.
- The plant would emit 200 tons of CO per year.
- A natural gas plant of the same capacity would emit 127 tons of CO.
- According to the EPA, CO can trigger serious respiratory problems, and even at low levels is a serious threat to people with heart problems.

Seneca proposes to use good combustion practices to minimize CO emissions. The Air Permit considers CO catalyst systems, but because of a conflict with the NOx SNCR system, and the resulting high cost to overcome it, Seneca dismisses further pollution control.

According to the company that manufactures the RSCR technology (Appendix B), in addition to reducing NOx, RSCR can be used to reduce CO emission by 50%. This would eliminate any technology conflicts and likely decrease costs substantially.

### **Stronger Pollution Controls – the Cost**

The RSCR technology will likely cost more than what Seneca already proposes, but the fact that it can be used to reduce both NOx and CO emissions should merit reconsideration. Furthermore, if Seneca does not use more advanced technology, the costs will be absorbed by the public through health issues and further environmental degradation.

Oregon Toxics Alliances urges EWEB to ensure that the health of the public and the environment we depend on are impacted as little as possible by this project – especially considering tax incentives will likely be used for the project.

**Recommendation #1: Oregon Toxics Alliance urges EWEB to work with LRAPA and Seneca to use RSCR technology to control NOx and CO emissions from the cogeneration plant.**

### **An Ambient Air Monitor in West Eugene**

A cursory look through Eugene's Toxic Right to Know Database (Appendix C) resulted in the discovery of the following facts:

- All of Eugene's existing industrial sources of styrene (a carcinogen), acetaldehyde (a carcinogen), hydrogen chloride (causes respiratory illnesses), naphthalene (a carcinogen), and formaldehyde are located in one neighborhood - West Eugene.
- 19 of Eugene's existing 21 toluene sources are in West Eugene.
- Seneca would be a major emitter of each of these pollutants and it will also be located in West Eugene.

A more detailed look at all air pollutants in Eugene was not performed, but such a search will almost certainly reflect the same pattern: the far majority of

Eugene's industrial air pollution is taking place in one neighborhood – West Eugene.

Other large sources of air pollution, such as rail yard operations and heavy auto traffic also impact West Eugene neighborhoods. Residents of West Eugene are being exposed to what is likely Eugene's worst air quality. Yet, there is no means of accurately monitoring the level of pollution there.

EWEB has already expressed interest in partially funding an ambient air monitor along with Seneca (Appendix D). Oregon Toxics Alliance urges EWEB to follow-up on that interest.

**Recommendation #2: Oregon Toxics Alliance urges EWEB to work with LRAPA, Seneca, and any other interested parties to cooperatively fund an ambient air toxics monitor station in West Eugene. The station should be able to monitor HAPs as well as Title V pollutants.**

### **Continuous Air Monitoring**

Continuous (24-hour) monitoring is already being performed for NO<sub>x</sub>, CO, and PM. Predicted lead and VOC emissions are far below the Significant Emission Rate (SER - a legal threshold which would require stronger pollution control and monitoring). However, predicted SO<sub>2</sub> levels (38.63 tons/year) are very close to the SER level (40 tons/year). This is an area of concern, because the predicted SO<sub>2</sub> levels are based on a test performed on one wood fuel sample provided by Seneca to a consultant that they hired (Appendix E). Oregon Toxics Alliance finds this questionable; emissions vary greatly depending on the fuel source – some wood burns cleaner than others. For the same reason, the required sample testing performed at the plant's opening isn't reliable either.

The most accurate method of determining actual emissions is continuous monitoring.

**Recommendation #3: Oregon Toxics Alliance urges EWEB to work with LRAPA and Seneca to ensure continuous monitoring for SO<sub>2</sub>.**

### **Impact on Our Forests**

Oregon Toxics Alliance is also concerned about the incentive this project creates for cutting down our forests. A common argument is that cutting down valuable trees for energy doesn't make economic sense. That may be true at this moment, but will likely change when oil rises again. Extracting oil from the Alberta tar pits wasn't economically feasible, but when oil prices drastically rose in 2008, it became feasible.

Forestry issues are not central to Oregon Toxics Alliance mission, and many other organizations are better equipped to provide related information. So, Oregon Toxics Alliance does not have any specific recommendations, but we do hope EWEB will give due consideration to forestry-related comments.

## Appendix A

A natural gas plant with the same capacity as Seneca's proposed cogeneration plant would produce significantly less emissions.

Pollutant	Natural Gas Emissions			Predicted Seneca Emissions*	
	EPA Factor for Natural Gas Combustion (lb/10x6 scf)	lb/MMBtu	lb/year	ton/year	ton/year
CO	84	0.082352941	254514.0706	127.2570353	200.89
Nox	76	0.074509804	230274.6353	115.1373176	185.61
Lead	0.0005	4.90196E-07	1.514964706	0.000757482	0.005
SO2	0.6	0.000588235	1817.957647	0.908978824	38.64
PM	7.6	0.00745098	23027.46353	11.51373176	13.24
VOC	5.5	0.005392157	16664.61176	8.332305882	7.73
Benzene	2.10E-03	2.05882E-06	6.362851765	0.003181426	0.185
Formaldehyde	7.50E-02	7.35294E-05	227.2447059	0.113622353	1.7

\*Source: Seneca's Air Contaminant Discharge Permit Application

## Appendix B

The rest of the following document can be found at: <http://www.babcockpower.com/pdf/t-200.pdf>

### EFFICIENT AND LOW EMISSION STOKER FIRED BIOMASS BOILER TECHNOLOGY IN TODAY'S MARKETPLACE

*by:*

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#### ABSTRACT

*There is a need for today's power plants to meet the growing demand for electricity while achieving efficient combustion, low emissions, and no net CO<sub>2</sub> releases to the environment. Biomass boilers equipped with new combustion techniques to enhance efficiency resulting in lower heat rates, as well as new, proven emissions control devices to significantly reduce NO<sub>x</sub> and CO emissions, have been developed to meet this need. This paper will discuss new combustion and emissions control technology advancements and present quantitative comparisons of the new units to the existing operating biomass boilers. On the combustion side, new Over-fire air and Stoker technology are used to increase combustion efficiency. Emissions are controlled using a system called the "RSCR™", which is a selective catalytic device applied to the "cold" gas (after the boiler and particulate removal equipment) prior to its discharge to the stack, with NO<sub>x</sub> reductions of >70% and CO reductions >50% achieved. The paper will describe the overall performance of a typical biomass boiler plant using these new technologies. The paper will also provide actual operating data on the RSCR, which was retrofitted to an existing biomass fired unit.*




## Appendix C

### Air Emission of Various HAPs in Eugene

The following is a list of various Hazardous Air Pollutants (HAPs) that are currently emitted in Eugene and that will be emitted by the proposed Seneca Cogeneration Plant. These pollutants were chosen, because Seneca will emit a large amount of them and they are especially damaging to our health. Many of them are known carcinogens. All of them cause heart and lung damage.

To see the impact of air pollution on West Eugene residents, note the number of yellow rows. To see how the proposed Seneca plant compares to other polluters, note the hierarchical placement of the red row in each section.

#### Key:

	= West Eugene Source
	= Non W. Eugene Source
	= Seneca Cogen Plant

Acetaldehyde/ethanal	Tons/year
Proposed Seneca Cogen Plant	1.28
States Industries	0.417
Forbo Adhesives	0.001

#### Formaldehyde

Flakeboard	32.3
Emerald Forest Products	8.2715
Proposed Seneca Cogen Plant	1.7
Veneer Tech	1.26
States Industries	0.405
Western Structures	0.054
Lanz Cabinet	0.008
Whittier Wood	0.0025
Forbo Adhesives	0.002
Forrest Paint	0.0005

#### Hydrogen Chloride

Proposed Seneca Cogen Plant	1.04
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## Naphthalene

Proposed Seneca Cogen Plant	0.15
Newood Display Fixtures	0.03
Forrest Paint	0.002
Lanz Cabinets	0.001

## Styrene

Proposed Seneca Cogen Plant	2.94
Forrest Paint	0.004

## Toluene

Forrest Paint	4.034
Gheen Irrigation Works	3.465
Bulk Handling Systems	2.708
Proposed Seneca Cogen Plant	1.42
King Retail Solutions	1.266
Lanz Cabinets	0.868
Atlas Cylinder	0.2815
Henry Manufacturing	0.2815
Western Pneumatics	0.232
Whittier Wood	0.1845
Griffith Rubber Mills	0.171
Willamette Valley Company #2	0.1105
Lake Irrigation	0.1085
A&K Development Co.	0.095
Veneer Tech	0.0565
Knights Fabrication and Welding	0.0255
Industrial Publishing	0.0115
Purakal Cylinders	0.007
Newood Display Fixtures	0.0035
Molecular Probes	0.0025
Scientific Developments	0.002
Cascade Plating & Machine	0

Source: The data was obtained from the City of Eugene's Toxic Right to Know Database 2007

## Appendix D



### Eugene Water & Electric Board

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Eugene, Oregon 97440-2148  
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[www.eweb.org](http://www.eweb.org)

March 6, 2009

Commissioner Rob Handy  
Lane County Board of Commissioners  
Eugene, Ore.

I am writing in response to your questions sent to EWEB Commissioner Rich Cunningham. If you need any clarification, please feel free to contact me at the phone number provided below. We also have an interest in scheduling a meeting so you can get an overview of a broad range of EWEB issues of interest to Lane County.

The first question you asked was about an ambient air monitoring station in west Eugene. I am assuming that this question is in response to the proposed location of a biomass cogeneration facility proposed by Seneca and located on its property in west Eugene. EWEB is reviewing the proposal in terms of its overall sustainability profile and will be presenting a complete report to our Board of Commissioners in the next few weeks.

We have reviewed the air discharge permit for the facility that was filed with the Lane Regional Air Protection Agency as part of our process. The air emissions are controlled with state-of-the-art pollution control equipment, and LRAPA will be the regulatory authority for the permitting and regulation of the air emissions from the cogeneration facility. There are other sources of air emissions in the west Eugene industrial area and there may be reason to have an ambient air monitoring station in the neighborhood. It is not clear that an ambient air monitoring station located in west Eugene should be part of the Seneca biomass project and it is apparent the discussion of the need for this station predates the Seneca project. For perspective, it is important to point out that the largest source of air emissions in Lane County is vehicle exhaust. If you have a specific proposal to work with the other sources of air emissions in the west Eugene area to establish an ambient air monitoring station and fund it cooperatively, EWEB and Seneca would be interested in hearing the proposal.

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Sincerely,

Steve Newcomb, Environmental Manager  
Eugene Water & Electric Board

541-341-8525

## Appendix E

The following document is part of Appendix D of the Air Contaminant Discharge Permit for the cogeneration power plant.

October 15, 2008

Mr. Rick Holbrook  
L. D. Jellison, Inc.  
P.O. Box 820687  
Vancouver, WA 98682

Subject: Senica Sawmill Co.  
BTU, Moisture Content, Ash Content, Chlorides, Sodium, and Presence of Metals  
PSI Report No. 702-80132-3  
PSI Laboratory No. 08-566

Dear Mr. Holbrook,

As requested, Professional Service Industries, Inc. (PSI), has performed the tests mentioned above on one sample of wood. The sample was obtained by a client representative and delivered to our Portland Laboratory on September 26, 2008. The testing was performed in general accordance with the standards indicated. The following tables summarize our laboratory test results.

We trust this information is sufficient for your present needs. Please don't hesitate to contact the undersigned if you have any questions or comments.

Submitted by,

*PROFESSIONAL SERVICE INDUSTRIES, INC.*

Andrew Weiher  
Construction Services

Mike Ober  
Construction Services