BEFORE THE STATE OF WASHINGTON
ENERGY FACILITY SITE EVALUATION COUNCIL

In the matter of
Application No. 2002-01
BP WEST COAST PRODUCTS, LLC
BP CHERRY POINT 
COGENERATION PROJECT

EXHIBIT 48.0 (JK-T)

WHATCOM COUNTY’S PREFILED TESTIMONY
WITNESS # 48 : Jane Koenig, Ph.D.

Q: Please introduce yourself to the Council.

A: My name is Jane Q. Koenig. I am a professor in the School of Public Health and Community Medicine, Department of Environmental Health, at the University of Washington, Seattle, Washington. I have been employed by the University in the Department of Environmental Health since 1975. I hold a Ph.D. in Physiological Psychology from the University of Washington and I am a Postdoctoral Fellow in Behavioral Pharmacology at Stanford University. My interests in both research and teaching have been focused the health effects of air pollution. In addition to my teaching duties, I am presently a consultant to the EPA Clean Air Science Advisory Committee, and I was recently named the director of an EPA funded PM (Particulate Matter) Health Effects Center sited at UW. Furthermore, I am currently the director of a study in Spokane investigating the health effects of particulate matter and a collaborator on two studies of the effects of environmental interventions on asthma in young children delete this sentence. I have attached a copy of my Curriculum Vitae and Bibliography hereto for the Council’s further review (see, Exhibits 48.1 and 48.2 respectively).

Q: What are the subjects of your testimony?

A: I will summarize some of my research findings addressing the public health impacts of certain air pollutants that are anticipated to be generated by the BP Cogeneration power plant. I will then discuss several proposed regulatory standards for such pollutants and conclude with a statement of my public health concerns about the project as presently proposed.

Q: Please summarize how your research raises concerns in your mind about the potential adverse health impact of the proposed facility.

Jane Koenig
Prefiled Testimony

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A: I have personally been involved in research studies that have investigated the potential impact which such pollutants might have on certain public health concerns, namely asthma. I directed one study myself and collaborated on three others. I have attached copies of the results of each as exhibits hereto. In the study I directed, see Exhibit 48.3 attached hereto, I concluded that an association exists between lung function in elementary school children with asthma and fine particle air pollution levels for the previous day. In my collaborative work, see Exhibits: 48.4, 48.5 and 48.6 attached hereto, we found associations with aggravation of asthma and air pollution levels in Seattle. In our most recent study, we reported that children with asthma had increased signs of airway inflammation (measured by exhaled breath nitric oxide) associated with fine particle exposures in Seattle. See 48.7 attached hereto. This asthma aggravation was seen at concentrations of $10.1 \pm 5.7 \mu g/m^3$ outside the childrens' homes. The interquartile range during the winter of the study was $9.8 \mu g/m^3$. In sum, my research has lead me to conclude that the fine particle air pollution which is projected to be emitted by the SE2 plant poses a health hazard to the public, particularly to those suffering from asthma.

Q: Are you familiar with the U.S. EPA recommendations pertaining to such fine particle air pollutants?

A: Yes

Q: In relevant part, what are they?

A: The US EPA has recommended a 24 hour average concentration of PM$_{2.5}$ of $65 \mu g/m^3$ and an annual standard of $15 \mu g/m^3$.

Q: How does the recommendation relate to your research findings?

A: Although this standard is not yet enforced, one can compare those concentrations with concentrations of PM$_{2.5}$ seen in the studies conducted in Seattle. Associations between asthma aggravation and air pollution were found at levels of PM$_{2.5}$ below the concentrations selected by EPA.

Q: Have alternative standards been suggested?

A: Yes, The Puget Sound Air Pollution Control Agency (now Puget Sound Clean Air Agency) formed an ad hoc committee several years ago to study the air pollution/health effects literature. That committee, of which I was a member, concluded its task prior to the announcement by EPA of their standards. The ad hoc committee choose more protective levels as guidelines for public health. The guidelines recommended a level of $25 \mu g/m^3$ for PM$_{2.5}$ for a 24 hour concentration (as opposed to $65 \mu g/m^3$).
Q: Have you calculated the potential increases in particulate matter from the project?

Q: Yes, I have reviewed those portions of the Application and DEIS materials pertaining to the facility’s projected particulate matter (PM) emissions (Sections 3.2 of the Application and the DEIS). The materials offer two sets of projections. One set is based on EPA reference test methodology with the facility operating at maximum level. The second set is based on a reference test methodology proposed by GE and Sierra Research which assumes a 60% lower particulate matter production than the EPA method and utilizes a lower operating scenario for the facility. From these projections initial conclusions can be drawn as to the expected PM emissions. Utilizing the EPA methodology the plant is projected to emit about 254 tons of PM\(_{10}\) per year. (Table 3.2-7 on page 3.2-16 DEIS) The cumulative impact of the facility, without factoring in the refinery emission reductions, is projected to be 39 \(\mu\)g/m\(^3\) for the average 24-hour period for PM\(_{10}\) and 33 \(\mu\)g/m\(^3\) for the average 24-hour period for PM\(_{2.5}\). (Table 3.2-11, page 3.2-19 DEIS) Removing the existing background levels, the facility is projected contribute about 4.3 \(\mu\)g/m\(^3\) of PM\(_{10}\) and PM\(_{2.5}\), as is shown by Table 3.2-11 of the DEIS.

According to Table 3.2-21 on page 3.2-28 of the DEIS, the applicant is projecting a 10 ton per year (tpy) decrease in the emission rate of PM\(_{10}\) for the removal of the refinery boilers. This 10 tpy decrease represents a 4\% reduction in the originally forecasted 254 tpy for PM\(_{10}\) output. Thus, one can conclude that even with the anticipated reduction which may be achieved by the utility boiler removal, the maximum PM\(_{10}\) and PM\(_{2.5}\) rates for 24-hour periods may be reduced to 37.44 \(\mu\)g/m\(^3\) and 31.68 \(\mu\)g/m\(^3\) respectively.

Finally, the applicant offers the GE and Sierra Research alternative to the EPA reference test method. Using this methodology the applicant claims that actual PM emissions will be 60\% less than those projected under the EPA standards presented above. At the end of the day, utilizing this more favorable projection method, the emissions for PM\(_{10}\) would be reduced from 4.3 \(\mu\)g/m\(^3\) to 1.72 \(\mu\)g/m\(^3\) and those for PM\(_{2.5}\) the rate would be reduced from 4.3 \(\mu\)g/m\(^3\) to 1.72 \(\mu\)g/m\(^3\) for the average 24-hour period, excluding current background levels. Adding these emissions to the existing background levels of 35 and 29 \(\mu\)g/m\(^3\), the PM10 level for the average 24-hour period would be 36.7 \(\mu\)g/m\(^3\) and the PM\(_{2.5}\) level would be 30.7 \(\mu\)g/m\(^3\). The further 4\% reduction credit for the removal of the utility boilers would result in 24-hour averages of 35.2 \(\mu\)g/m\(^3\) and 29.5 \(\mu\)g/m\(^3\) for PM10 and PM\(_{2.5}\) respectively. These final figures would represent the best case scenario offered by the applicant.

Q: Based on your education and research findings, do these projected PM emissions raise any public health concern in your mind?
A: The estimated concentrations in the area around the project are 6 to 8 µg/m³ higher than the 25 µg/m³ recommended by the Puget Sound Clear Air Agency ad hoc committee. Based on that fact, it is my opinion that the projected PM concentrations must be judged to have the potential to adversely affect public health especially in the case of the health of children with asthma.

END OF TESTIMONY

I declare under penalty of perjury that the above testimony is true and correct to the best of my knowledge.

Executed at Seattle, Washington, on this _______ day of November, 2003.

By: ______________________

Jane Q. Koenig, Ph.D