

1 **BEFORE THE STATE OF WASHINGTON**  
2 **ENERGY FACILITY SITE EVALUATION COUNCIL**

3 In the matter of  
4 Application No. 2002-01

EXHIBIT 48.0 (JK-T)

5 BP WEST COAST PRODUCTS, LLC

6 BP CHERRY POINT  
7 COGENERATION PROJECT

8 **WHATCOM COUNTY'S PREFILED TESTIMONY**  
9 **WITNESS # 48 : Jane Koenig, Ph.D.**

10 Q: Please introduce yourself to the Council.

11 A: My name is Jane Q. Koenig. I am a professor in the School of Public Health and  
12 Community Medicine, Department of Environmental Health, at the University of  
13 Washington, Seattle, Washington. I have been employed by the University in the  
14 Department of Environmental Health since 1975. I hold a Ph.D. in Physiological  
15 Psychology from the University of Washington and I am a Postdoctoral Fellow in  
16 Behavioral Pharmacology at Stanford University. My interests in both research and  
17 teaching have been focused the health effects of air pollution. In addition to my  
18 teaching duties, I am presently a consultant to the EPA Clean Air Science Advisory  
19 Committee, and I was recently named the director of an EPA funded PM (Particulate  
20 Matter) Health Effects Center sited at UW. Furthermore, I am currently the director of  
21 a study in Spokane investigating the health effects of particulate matter and a  
22 collaborator on two studies of the effects of environmental interventions on asthma in  
23 young children delete this sentence. I have attached a copy of my Curriculum Vitae  
24 and Bibliography hereto for the Council's further review (see, Exhibits 48.1 and 48.2  
25 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.

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

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

19 A: Yes

20 Q: In relevant part, what are they?

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

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

24 A: Although this standard is not yet enforced, one can compare those concentrations with  
25 concentrations of  $\text{PM}_{2.5}$  seen in the studies conducted in Seattle. Associations between  
asthma aggravation and air pollution were found at levels of  $\text{PM}_{2.5}$  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  $25 \mu\text{g}/\text{m}^3$  for  $\text{PM}_{2.5}$  for a 24 hour concentration (as opposed to  $65 \mu\text{g}/\text{m}^3$ ).

1 Q: Have you calculated the potential increases in particulate matter from the project?

2 Q: Yes, I have reviewed those portions of the Application and DEIS materials pertaining  
3 to the facility's projected particulate matter (PM) emissions (Sections 3.2 of the  
4 Application and the DEIS). The materials offer two sets of projections. One set is  
5 based on EPA reference test methodology with the facility operating at maximum level.  
6 The second set is based on a reference test methodology proposed by GE and Sierra  
7 Research which assumes a 60% lower particulate matter production than the EPA  
8 method and utilizes a lower operating scenario for the facility. From these projections  
9 initial conclusions can be drawn as to the expected PM emissions. Utilizing the EPA  
10 methodology the plant is projected to emit about 254 tons of PM<sub>10</sub> per year. (Table 3.2-  
11 7 on page 3.2-16 DEIS) The cumulative impact of the facility, without factoring in the  
12 refinery emission reductions, is projected to be 39 µg/m<sup>3</sup> for the average 24-hour period  
13 for PM<sub>10</sub> and 33 µg/m<sup>3</sup> for the average 24-hour period for PM<sub>2.5</sub>. (Table 3.2-11, page  
14 3.2-19 DEIS) Removing the existing background levels, the facility is projected  
15 contribute about 4.3 µg/m<sup>3</sup> of PM<sub>10</sub> and PM<sub>2.5</sub>, as is shown by Table 3.2-11 of the  
16 DEIS.

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

23 Finally, the applicant offers the GE and Sierra Research alternative to the EPA  
24 reference test method. Using this methodology the applicant claims that actual PM  
25 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<sub>10</sub> would be reduced from 4.3 µg/m<sup>3</sup> to 1.72 µg/m<sup>3</sup> and those for  
PM<sub>2.5</sub> the rate would be reduced from 4.3 µg/m<sup>3</sup> to 1.72 µg/m<sup>3</sup> for the average 24-hour  
period, excluding current background levels. Adding these emissions to the existing  
background levels of 35 and 29 µg/m<sup>3</sup>, the PM<sub>10</sub> level for the average 24-hour period  
would be 36.7 µg/m<sup>3</sup> and the PM<sub>2.5</sub> level would be 30.7 µg/m<sup>3</sup>. The further 4%  
reduction credit for the removal of the utility boilers would result in 24-hour averages  
of 35.2 µg/m<sup>3</sup> and 29.5 µg/m<sup>3</sup> for PM<sub>10</sub> and PM<sub>2.5</sub> respectively. These final figures  
would represent the best case scenario offered by the applicant.

26 Q: Based on your education and research findings, do these projected PM emissions raise  
27 any public health concern in your mind?

1 A: The estimated concentrations in the area around the project are 6 to 8 µg/m<sup>3</sup> higher than  
2 the 25 µg/m<sup>3</sup> recommended by the Puget Sound Clear Air Agency ad hoc committee.  
3 Based on that fact, it is my opinion that the projected PM concentrations must be  
4 judged to have the potential to adversely affect public health especially in the case of  
5 the health of children with asthma.

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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