Letter 2

United States Department of Agriculture | Forest Service | Pacific Northwest Region | . .O. Box 3623 Portland, OR 97208-3623 333 First Avenue Portland, OR 97204

File Code: 2580

Date: December 22, 2003

Philip Sanchez
Superintendent Umatilla Agency
Bureau of Indian Affairs
P.O. Box 520
46807 B Street
Pendleton, OR 97801

Dear Mr. Sanchez:

The Air Resources portion of the WANAPA Draft EIS has been reviewed – the following comments are submitted for your review and consideration. As a result of potentially adverse effects on Class I areas and the Columbia River Gorge National Scenic Area (CRGNSA) of steadily increasing pollutant loadings in the Columbia Basin this office has a well established interest and concern over new basin emission sources such as WANAPA. We did not receive a copy of the draft document and we're not aware of its existence until late in the comment period. Holiday schedules are also a factor leading to these comments being somewhat general and cursory and perhaps do not do justice to issues described below.

2-1 Within a 50km radius of the proposed WANAPA facility there has been substantial industrial point source emission growth. The most significant is the Boardman Coal Fired Power Plant built in 1979 – since that time a large number of smaller sources have been built and a number of gas fired power plants have recent permits but are not yet constructed. While the WANAPA facility would be a significant addition to this mix of sources its impact alone is relatively small in comparison to the total air pollution loading in this area. Under NEPA a cumulative effect analysis, particularly of the power plant sources is required. The WANAPA draft document does not adequately recognize this pre-existing problem – to put these issues in perspective a full cumulative analysis is needed. We do not discount the risk to human health from this cumulative effect, however as a land management agency, our concerns are focused on the effect from WANAPA and the surrounding array of existing and permitted sources on cultural resources, visibility, and acid (sulfur & nitrogen) deposition in the Columbia River Gorge National Scenic Area and on the surrounding Class I wilderness and parks. This cumulative effect should be analyzed and disclosed.

The analysis provided in the draft document borrowed heavily from the WANAPA PSD permit application analysis. The analysis required under NEPA compared to that normally provided for PSD is quite different. In PSD the analysis focuses primarily on the individual source effects with a minimal amount of analysis on the contribution to effects in Class I areas from the background sources or background conditions. By being single source focused PSD analyses tend to discount and minimize effects since the intent is to secure a permit for a client. The intent under NEPA is full disclosure of environmental effects. This NEPA analysis reads like a PSD application and as such is inadequate – particularly on the cumulative effect perspective discussed in the previous paragraph.

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2-1 Cumulative Impacts in Class I Areas. Class I areas are areas such as National Parks and Wilderness Areas that are designated for special protection under the Clean Air Act. Impacts of NO_2, PM_{10}, visibility, nitrate, and sulfate deposition in Class I areas resulting from Wanapa have been evaluated using the CALPUFF dispersion modeling system and its associated pre- and post-processing algorithms. The information included below also is available in the PSD application, on file with the USEPA. Impacts were assessed at the following Class I areas:

- Eagle Cap Wilderness Area
- Goat Rocks Wilderness Area
- Mount Adams Wilderness Area
- Strawberry Mountain Wilderness Area
- Mount Hood Wilderness Area
- Columbia River Gorge (not technically a Class I area, but evaluated in the Class I impact analysis)

Air quality impacts of NO_2 and PM_{10} in the Class I areas are provided in the Final EIS in Section 3.5.2.2.

Dry and wet deposition results from Wanapa are summarized in **Tables** _____ and _____, and are compared to appropriate deposition significance thresholds established in Federal Land Manager guidance. Acid deposition in the Columbia River Gorge is of particular interest in the analysis, as acid deposition affects not only natural resources, but also cultural resources such as rock art in and near the Columbia River Gorge. The results of the modeling analysis demonstrate that potential impacts from Wanapa would be far below the deposition significance thresholds, including an impact of less than 5 percent of the significance threshold in the Columbia River Gorge.

2-1 Cont'd

TABLE _____
NITROGEN DEPOSITION ANALYSIS RESULTS

Class I Area	Maximum Nitrogen Deposition Flux (kg/ha/yr)	Location of Maximum Impact	
		X (km)	Y (km)
Eagle Cap	0.000228	408.965	201.127
Goat Rocks	0.000102	113.990	286.053
River Gorge	0.000247	144.100	197.499
Mount Adams	0.000173	106.239	255.923
Mount Hood	0.000167	106.373	167.993
Strawberry Mountain	0.000124	321.326	68.133

TABLE _____
SULFUR DEPOSITION ANALYSIS RESULTS

Class I Area	Maximum Sulfur Deposition Flux (kg/ha/yr)	Location of Maximum Impact	
		X (km)	Y (km)
Eagle Cap	0.000048	408.965	201.127
Goat Rocks	0.000021	113.990	286.053
River Gorge	0.000048	144.100	197.499
Mount Adams	0.000036	106.239	255.923
Mount Hood	0.000038	106.373	167.993
Strawberry Mountain	0.000026	321.326	68.133

Visibility impacts from Wanapa are summarized in **Table** _____, and compared to the 5 percent extinction criterion established in Federal Land Manager1 guidance. This threshold represents a perceptible change in visibility.

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TABLE _____
VISIBILITY ANALYSIS RESULTS

Class I Area	?b_{ext} Maximum Impact (%)[1]	Location of Maximum Impact		Date of Maximum Impact	# of Days >5%
		X (km)	Y (km)		
Eagle Cap	0.77%	450.411	149.251	4/14/1998	0
Goat Rocks	1.16%	120.832	286.134	10/1/1998	0
River Gorge	1.97%	143.958	201.494	10/26/1998	0
Mount Adams	2.37%	110.874	255.953	1/4/1999	0
Mount Hood	0.94%	103.322	179.574	1/3/1999	0
Strawberry Mountain	1.16%	328.837	68.519	1/24/1999	0

[1]Values listed under "maximum impact" are the maximum predicted percent change in light extinction coefficient.

The modeled changes in the extinction rate from Wanapa are less than the 5 percent threshold at each Class I area on all days of the year.

Though the extinction rate from Wanapa's impacts is below the appropriate threshold, we conducted additional review to assess the cumulative effect on visibility in the Class I areas from this project and other past, present, and reasonably foreseeable projects in the Northwest. The results of this analysis are presented below.

[1] The Federal Land Managers include the land management agencies under the U.S. Department of the Interior (U.S. Forest Service, BLM, and National Park Service).

Several air quality modeling analyses have been conducted by the Bonneville Power Administration (BPA) to assess the cumulative impacts of power generation projects in the Northwest and their impacts on Class I areas. The BPA's Phase I study examined the air quality impacts of 45 proposed combustion turbines in BPA's service area in the Northwest. Two scenarios were modeled in this study: a worst-case scenario that included the impacts from all 45 facilities (totaling 24,000 MW of generation), and a second scenario that included impacts from 28 facilities (totaling 11,000 MW of generation). Both analyses account for much more future power generation development than is currently expected in the Northwest. The results of the BPA study showed no violations of any National Ambient Air Quality Standard for criteria pollutants such as SO_2, NO_x, and PM_{10}. The study did, however, indicate that visibility degradation was a potential area of concern.[1]

[1]Bonneville Power Authority, "Phase I Results – Regional Air Quality Modeling Study," August 1, 2001.

2-1 Cont'd

Several air quality modeling analyses have been conducted by the Bonneville Power Administration (BPA) to assess the cumulative impacts of power generation projects in the Northwest and their impacts on Class I areas. The BPA's Phase I study examined the air quality impacts of 45 proposed combustion turbines in BPA's service area in the Northwest. Two scenarios were modeled in this study: a worst-case scenario that included the impacts from all 45 facilities (totaling 24,000 MW of generation), and a second scenario that included impacts from 28 facilities (totaling 11,000 MW of generation). Both analyses account for much more future power generation development than is currently expected in the Northwest. The results of the BPA study showed no violations of any National Ambient Air Quality Standard for criteria pollutants such as SO_2, NO_x, and PM_{10}. The study did, however, indicate that visibility degradation was a potential area of concern.[1]

Since the Phase I study, additional studies of regional visibility have been performed that removed power development projects that have since been canceled from the list of sources considered in the modeling studies. A recent study for the Plymouth Generating Facility evaluated impacts from the following baseline source group on nearby Class I areas.[2]

- Fredonia Facility
- Rathdrum Power
- Frederickson Power
- Coyote Springs 2
- Goldendale Energy Project
- Hermiston Power Project
- Chehalis Generating Facility
- Goldendale (The Cliffs)
- Big Hanford Project
- Mint Farm Generation
- Wallula Power Project
- Satsop CT Project – Phase I
- Satsop CT Project – Phase II
- Wanapa Energy Center
- Plymouth Generation

[1]Bonneville Power Authority, "Phase I Results – Regional Air Quality Modeling Study," August 1, 2001.

[2]Plymouth Generating Facility, "Contribution to Regional Haze."

The Plymouth Generating Facility study was evaluated using the same MM5 meteorological data set as the Class I area impact analysis for Wanapa. Additionally, the range of dates for the meteorological data from the two analyses (March 19, 1998 to March 16, 1999) is identical. For these reasons, the results from these two analyses may be compared on a day-by-day basis. For every date that the Plymouth Generating Facility analysis resulted in a visibility impact greater than 5 percent at any Class I area, the impacts from Wanapa's analysis for that same date are provided for comparison in **Tables** _____ and _____. Dates with impacts from Wanapa greater than 0.4 percent are bolded in the tables.

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Table _____
Wanapa Energy Center and Cumulative Visibility Impacts Comparison

Class I Area	Season	Date	Cumulative Δb_{ext} (%)	Wanapa Δb_{ext} (%)
Columbia Gorge National Scenic Area	Fall	10/6/1998	7.99	0.00
Columbia Gorge National Scenic Area	Fall	10/21/1998	5.05	0.00
Columbia Gorge National Scenic Area	Fall	10/30/1998	7.10	**1.30**
Columbia Gorge National Scenic Area	Fall	11/3/1998	8.52	0.00
Columbia Gorge National Scenic Area	Fall	11/7/1998	5.84	0.00
Columbia Gorge National Scenic Area	Winter	12/23/1998	12.51	0.00
Columbia Gorge National Scenic Area	Winter	1/3/1999	8.60	**1.11**
Eagle Cap Wilderness Area	Fall	9/29/1998	5.13	0.26
Mt. Adams Wilderness Area	Winter	12/23/1998	6.94	**1.71**
Mt. Adams Wilderness Area	Winter	1/4/1999	5.01	**2.37**
Mt. Hood Wilderness Area	Fall	10/19/1998	5.29	**0.57**
Mt. Hood Wilderness Area	Fall	11/3/1998	7.58	0.00
Mt. Hood Wilderness Area	Winter	12/22/1998	6.82	0.00
Mt. Hood Wilderness Area	Winter	12/23/1998	8.03	0.00
Mt. Hood Wilderness Area	Winter	1/2/1999	5.00	**0.93**
Mt. Hood Wilderness Area	Winter	1/3/1999	16.70	**0.94**

[1]The "Oil-Fired Winter" result includes emissions from the Fredonia and Chehalis power plants operating in an oil-fired mode.

Table _____
Wanapa Energy Center and Cumulative Visibility Impacts Comparison on Winter Days with Oil-Firing at Fredonia and Chehalis Facilities

Class I Area	Season	Date	Cumulative Δb_{ext} (%)	Wanapa Δb_{ext} (%)
Columbia Gorge National Scenic Area	Oil-Fired Winter	12/17/1998	5.57	0.00
Columbia Gorge National Scenic Area	Oil-Fired Winter	12/23/1998	12.51	0.00
Columbia Gorge National Scenic Area	Oil-Fired Winter	1/3/1999	8.60	**1.11**
Columbia Gorge National Scenic Area	Oil-Fired Winter	1/26/1999	5.13	0.03
Goat Rocks Wilderness Area	Oil-Fired Winter	1/7/1999	6.15	0.01
Goat Rocks Wilderness Area	Oil-Fired Winter	1/23/1999	7.20	0.00
Mt. Adams Wilderness Area	Oil-Fired Winter	12/23/1998	6.95	**1.71**
Mt. Adams Wilderness Area	Oil-Fired Winter	1/1/1999	6.04	0.00
Mt. Adams Wilderness Area	Oil-Fired Winter	1/4/1999	5.02	**2.37**
Mt. Hood Wilderness Area	Oil-Fired Winter	12/22/1998	6.82	0.00
Mt. Hood Wilderness Area	Oil-Fired Winter	12/23/1998	8.03	0.00
Mt. Hood Wilderness Area	Oil-Fired Winter	1/2/1999	5.76	**0.93**
Mt. Hood Wilderness Area	Oil-Fired Winter	1/3/1999	16.72	**0.94**

The total number of days with extinction rate changes from Wanapa greater than 0.4 percent and with cumulative impacts greater than 5 or 10 percent are summarized in **Table** _____.

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2-1 Cont'd

The total number of days with extinction rate changes from Wanapa greater than 0.4 percent and with cumulative impacts greater than 5 or 10 percent are summarized in **Table _____.**

Table _____
Total Days with Wanapa Energy Center Impacts >0.4 percent and Cumulative Impacts >5 percent or 10 percent
Days with Wanapa Energy Center Contribution

Class I Area	Days with Cumulative Change in Extinction >5%	Days with Cumulative Change in Extinction >10%
Eagle Cap Wilderness Area	0	0
Goat Rocks Wilderness Area	0	0
Columbia Gorge National Scenic Area	2	0
Mt. Adams Wilderness Area	2	0
Mt. Hood Wilderness Area	3	1
Strawberry Mountain Wilderness Area	0	0

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2-2 From a suite of long term monitoring in the Columbia River Gorge there is ample evidence of existing adverse effects on visibility (from IMPROVE monitoring), on ecosystem disturbance from lichen monitoring, and on cultural resources. Additionally there is ample evidence of risk from high ozone concentrations. Existing deposition rates in the Gorge are approximately 10-12 kg/ha/yr for both sulfur and nitrogen. Comparing these rates to a critical load estimate of 1-2 kg/ha/yr it is evident that deposition rates are well in excess of that needed to maintain healthy undisturbed ecosystem conditions. Very real concern exists about harm to other cultural resources (such as rock art) from the acidic component of this deposition – as the federal agency with responsibility for the Columbia River Gorge National Scenic area the Treaty Rights Tribes have requested our assistance in protecting these cultural resources from the damaging effects of air pollution. In winter the Gorge is the primary outlet of polluted stagnant air draining out of the Columbia Basin. With the close proximity of the river channel, which acts as a natural drainage channel in winter, a substantial contribution to this problem comes from the industrialized region around Umatilla. There is a significant body of information as well as previous documentation in prior NEPA documents detailing these concerns. These issues are not recognized or addressed in the Air Resources portion of the WANAPA Draft EIS document.

Conversely, in summer there is evidence of high ozone levels in the Eastern Gorge – under westerly summertime flow this ozone background is transported into the basin and is potentially made worse by basin emission sources. At times the prevailing flows reverse in summer and higher ozone concentrations are re-circulated back into the gorge and up the east slopes of the adjacent Cascades Class I areas. While WANAPA is a small incremental contributor to this potential problem it does contribute and as such an analysis and disclosure of the issue should be provided.

We take the protection of cultural resources in the CRGNSA very seriously. This is an issue the Umatilla Tribe, BIA, and the USDA FS share common ground. We hope you will agree it is an issue that deserves a fair review. We appreciate this opportunity of share our concerns with you. Please include this office in further distributions of information pertaining to this NEPA review.

Sincerely,

Robert G. Bachman

ROBERT G. BACHMAN
Air Resource Specialist

Cc: BPA (Bob Beraud, Tom McKinney) email only

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2-2 An analysis of increases in ozone concentrations resulting from Wanapa emissions was conducted and is available from the USEPA in the Wanapa PSD application. Though ozone is not directly emitted from Wanapa, increases in ozone concentrations may result from photochemical reactions involving VOC and NO_x from the proposed facility.

Windroses of the appropriate meteorological data (Umatilla Army Depot and Walla Walla Regional Airport) for 1995 through 1999 were analyzed for the 6 months that are typically designated as "ozone season" (April-September). The windroses show that winds measured at these stations during the ozone season months from 1995 through 1999 blew from the southwest approximately 30 percent of the time (up to 36 percent for some years), which is more than any other direction. Winds blew from the northeast less than approximately 9 percent of the time. Given the relatively flat terrain of northeastern Oregon and southeastern Washington, it is not expected that the distribution of wind directions would change appreciably from the meteorological stations and the proposed site (approximately 2 miles from the Umatilla Army Depot and approximately 57 miles southwest of the Walla Walla NWS site). Since the proposed facility is located to the northeast of the Columbia River Gorge and Mount Hood Class I areas, emissions from the proposed Wanapa Energy Center can be expected to blow towards these areas approximately 9 percent of the time during the ozone season.

Ozone (O_3) impacts from the proposed Wanapa Energy Center are estimated using the Scheffe Method.1 Based upon the estimated NO_2 and VOC emissions from the proposed Wanapa Energy Center, the 1-hour ozone increment may be estimated. The 8-hour ozone increment for the proposed facility is estimated from the 1-hour increment using a scaling factor of 0.7.2 The results of the analysis showed that Wanapa would have maximum ozone impacts of 0.0119 ppm (8-hour average) and 0.0171 ppm (1-hour average). National Ambient Air Quality Standards for the 8-hour average is 0.080 ppm and 0.120 ppm for the 1-hour average.

[1] The Scheffe Method is a screening procedure, based upon a series of applications of the Reactive Plume Model-II (RPM-II), which calculates the 1-hour O_3 increment due to VOC and NO_X point sources.
Scheffe, Richard D., *VOC/NO_x Point*. USEPA, Office of Air Quality Planning and Standards. Research Triangle Park, North Carolina. EPA-450/2-78-027R. September 1998.

[2] USEPA, Support Center for Regulatory Air Models. *Screening Procedures for Estimating the Air Quality Impact of Stationary Sources - Revised.* Research Triangle Park, North Carolina. USEPA-454/R-92-019. October 1992.

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TABLE _____
TOTAL OZONE IMPACT INCREMENTS

Averaging Period	Facility Ozone Increment (ppm)	Background Ozone Increment (ppm)	Total Ozone Increment (ppm)	NAAQS Standard (ppm)
8-hour	0.0119	0.0646	0.0765	0.0800
1-hour	0.0170	0.0790	0.0960	0.1200

[1]The Scheffe Method is a screening procedure, based upon a series of applications of the Reactive Plume Model-II (RPM-II), which calculates the 1-hour O_3 increment due to VOC and NO_X point sources.
Scheffe, Richard D.. *VOC/NO_X Point*. USEPA, Office of Air Quality Planning and Standards. Research Triangle Park, North Carolina. EPA-450/2-78-027R. September 1998.
[1]USEPA, Support Center for Regulatory Air Models. *Screening Procedures for Estimating the Air Quality Impact of Stationary Sources - Revised*. Research Triangle Park, North Carolina. USEPA-454/R-92-019. October 1992.
[1]USEPA, Office of Air and Radiation. *EPA's Revised Ozone Standard Fact Sheet*. Research Triangle Park, North Carolina. July 17, 1997.