BEFORE THE ENVIRONMENTAL QUALITY COUNCIL

OF THE STATE OF WYOMING

IN THE MATTER OF THE ISSUANCE OF PERMIT NO. CT-544 TO EXXON COMPANY, U.S.A. BY WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY, AIR QUALITY DIVISION	)))))	Docket No. 1424-84

PUBLIC HEARING APPEARANCES

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FINDINGS OF FACT, CONCLUSIONS OF LAW AND ORDER

This matter came on for hearing before the Environmental Quality Council on November 13, 14, and 15, 1984 in the offices of School District No. 1, Rock Springs, Wyoming. Having heard the testimony, reviewed the evidence and being fuly advised of the premises, the Environmental Qualilty Council ("Council") hereby finds, and enters its order as follows:

Findings of Fact

1. The Council has jurisdiction over this matter pursuant to W.S. 35-11-112.

2. All notices were properly given to the public and the parties as required by W.S. 35-11-802, and 16-3-107, and the Rules of Practice & Procedure of the Department of Environmental Quality ("DEQ").

3. Exxon Company, U.S.A., (Exxon) applied for a permit to construct a gas processing plant in Lincoln County, Wyoming on or about November 9, 1983. On March 29, 1984, the Air Quality Division (AQD) published notice of its intent to issue the permit, and a public hearing was held on May 1, 1984 before the AQD Administrator and the Director of DEQ.

4. Air Quality Permit to Construct No. CT-544 was issued by the DEQ to Exxon on or about May 21, 1984 authorizing construction of the gas processing plant.

5. On July 20, 1984, the Wyoming Outdoor Council ("WOC"), the Defenders of Wildlife, and the Wyoming Chapter of the Sierra Club, hereinafter referred to as "Protestants," filed a Petition Objecting to Issuance of Permit and Requesting Hearing.

6. On September 12, 1984, the Council gave notice of the hearing to be held on November 13, 1984 to all parties.

7. Protestants contended that the plant would not comply with rules and regulations of the Wyoming DEQ and would cause significant deterioration of the existing air quality in the region. Specifically, the Protestants contended that the permit application had failed to demonstrate compliance with the Prevention of Significant Deterioration (PSD) increment for Class II and ambient air standards for sulphur dioxide in violation of Sections 21 and 24 of the Wyoming Air Quality Standards and Regulations. Protestants also contended that the SO_2 emission from the plant would cause adverse effects on the air quality related values ("AQRV's") in the nearest PSD Class I Area, the Bridger and Fitzpatrick Wilderness Areas located approximately 110 kilometers north of the plant. Protestants argued that these violations also resulted in violations of W.S.-35-11-102 and 801.

8. The application proposes pollution control technology which constitutes Best Available Control Technology.

9. Upon filing of the application, the AQD conducted an extensive review of the permit application, the baseline monitoring data relied upon by the Applicant, the air pollution control technology proposed, and the conclusions contained in the application that no standards would be exceeded and that no adverse impacts on the AQRV's in a Class I Area would be caused by this facility. Tr. 329. In addition, the AQD conducted its own separate modeling study which confirmed those conclusions. Tr. 355-359.

10. The application and the AQD analysis both conclude that emissions from the plant, together with all other pertinent sources, will not exceed the ambient air quality standards nor the PSD Class I or II increments for sulfur dioxide. The AQD analysis predicts maximum SO_2 concentrations of 1090 ug/m^3 for 3 hours, 210 ug/m^3 for 24 hours and 23 ug/m^3 annual average. The ambient standards which cannot be exceeded are 1300 ug/m^3 for 3 hours, 260 mg/m^3 for 24 hours and 60 ug/m^3 for an annual arithmetic mean. The AQD analysis also projects the SO_2 emissions from the plant, together with SO_2 emissions from all other PSD facilities impacting, would result in PDS Class II area concentrations of 351 ug/m^3 for 3 hours, 88 ug/m^3 for 24 hours and 7.0 ug/m^3 for an annual arithmetic mean. The PSD Class II increment is 512 ug/m^3 for 3 hours, 91 ug/m^3 for 24 hours, and 20 ug/m^3 for an annual arithmetic mean. The maximum SO_2 concentrations projected by the AQD analysis for PSD Class I areas are 10.1 ug/m^3 for 3 hours, 1.9 for 24 hours, and 0.2 ug/m^3 for an annual arithmetic mean. The PSD Class I increments are 25, 5, and 2 ug/m^3 respectively.

11. Following the hearing before the Administrator, the AQD issued a written decision on May 21, 1984 which contained a detailed response to the issues discussed at the public hearing and explained the basis for the AQD conclusion that the permit should be issued. AQD Ex. 1.

12. The applicant employed the Complex I and ISCST, Computer models to evaluate the impact of emissions from the plant for PSD Class I and II increments and the ambient standard. These models are approved generally by the U.S. Environmental Protection Agency as "guideline models" for use in PSD applications and were approved specifically for use in this application, including the AQRV analysis, by the AQD. Tr. 336.

13. To determine which other sources of SO_2 emissions should be considered in conducting both the PSD Class I and II increment analysis and the ambient standard analysis, the Applicant used standard screening techniques and consulted with the AQD. The Applicant included those sources which were projected to have a significant impact within the area of impact of the proposed plant. Tr. 108. In making this judgment, the Applicant relied upon the modeling of the plant's emissions, the available meteorological data, permit applications for other facilities in the area and the AQD's experience with other facilities in Southwest Wyoming. Tr. 109, 348.

14. The meteorological and baseline air quality data were collected over a one-year period at the Northwest Pipeline's plant site, the proposed Craven Creek site, and accurately reflected existing conditions. This data, together with upper air data from the Lander area were used by the applicant.

15. The applicant estimated that the maximum quantity of SO_2 emissions that can be expected from the plant under normal operating condition was 2231 tons per year.

16. The Applicant considered the maximum allowable emissions from the other facilities in the PSD Class II increment and the ambient standard analyses. Tr. 359.

17. The Applicant expects there will be some emissions from the plant in excess of the estimated maximum under emergency and normal start-up and shut-down situations. The frequency and quantity of these excess emissions was estimated,

but the increased quantity was not included in the modeling analysis because the exact timing and volume cannot be accurately estimated. Such excess emissions are both short-term and and safety-related and cannot be correlated with the worst-case meteorological conditions. Tr. 103. For permitting purposes, the practice of considering only maximum allowable emissions when projecting compliance with standards is consistent with EPA Guidelines, AQD practice, the pratice of other state air quality administrators, and all other permits issued in Wyoming. Tr. 103, 357.

18. If excess emissions occur above allowable emission limits, the operator will either be required to comply with § 19 of the Air Quality Standards and Regulations or be subject to enforcement action. Tr. 357-360.

19. The AQD had established the practice of notifying the U.S. Forest Service, as the federal land manager, of any permit applications for air pollution sources which would be located within 100 kilometers of a PSD Class I area managed by the Forest Service to allow the Forest Service to participate in the determination of whether adverse impacts would result to AQRV's in the Class I Area as a result of the particular facility. This plant will be located 110 kilometers from the nearest boundary of the Class I Area, the Bridger and Fitzpatrick Wilderness Areas.

20. Pursuant to Forest Service direction, the Applicant conducted an analysis of the impact of the plant, together with all other sources in southwest Wyoming, on AQRV's in the Class I Area by evaluating impacts on acid deposition and lake water chemistry, vegetation, soils, and visibility. Tr. 132-135. Forest Service methodology was used to project impacts, including changes in acid deposition. Tr. 136.

21. The applicant's analysis of impact on the Class I Area relied upon the Complex I model to project the SO_2

concentrations in the Class I Area of the applicant's plant and the cumulative impact of all significant SO_2 sources in southwest Wyoming. Tr. 140. Complex I is not typically used beyond distances of 50 kilometers. Tr. 142. This model, and its simple algorithms, assumes the meteorological conditions are constant over the entire distance from the source to the point of projected impact. Tr. 136-138, 188. It is recognized that from the plant site to the Class I Area, in reality, the meteorological conditions will vary significantly, and such variation will result in reducing the actual SO_2 concentrations from those projected. Consequently, Complex I will tend to project very conservative results at distances beyond 50 kilometers. Tr. 342. The other models which were suggested by the Protestants as being more appropriate are not identified by EPA as "guideline models" for use in PSD applications and the data necessary to use these models does not exist. Tr. 340.

22. The Applicant modeled SO_2 emissions to project SO_2 concentrations in the Class I area for 1983 and for the first year of operation of the plant, 1987. The 1983 analysis was done to allow a comparison with actual measured acid deposition at a monitoring site near Pinedale, Wyoming. For 1983, actual emission rates, including excess emissions, from all existing facilities were used. For 1987, allowable rates, as determined by the respective permits and compliance schedules, were used since it was known that the AQD required certain sources to reduce emissions by that date.

23. Comparison of the modeled acid deposition rates to the monitored rate at the Pinedale site demonstrates the model was conservative because the modeled rates were close to the monitored rate even though contributions from natural sources and non-Wyoming sources were included in the measured value.

24. The modeling results project the Exxon plant would contribute 5% to the concentrations of SO_2 in the Class I Area

expected from all southwest Wyoming sources. About 53% of the Class I increment will be consumed by all of the southwest Wyoming sources, many of which are not PSD sources. Consequently, the Class I increment will not be exceeded.

25. Using the Forest Service methodology to convert SO_2 concentrations to acid deposition and to changes in water chemistry, the Applicant made various conservative assumptions which are known not to be representative of natural conditions, such as assuming all SO_2 is converted to acid and available to deposit and no natural buffering of the precipitation runoff would occur prior to entering the lakes. Tr. 136-138. These assumptions ensure conservative results.

26. The analyses projected the plant's emissions would not increase deposition rates significantly and would not cause any measurable change in water chemistry in the Class I Area. The analyses projected a worst case increase of 0.05 kilograms per hectare per year of acid deposited and a pH change of 0.002 pH units in the sensitive lakes resulting from emissions from the Exxon plant. The state-of-the-art pH instrumentation is only accurate to 0.1 ph unit. The cumulative impact of all facilities in 1987 also predicted minimal impacts of 1.7 kilograms per hectare per year and 0.06 pH units.

27. No standards exist for acid deposition or water chemistry changes. Tr. 170, 256. However, the Forest Service has suggested it will consider any measurable change in pH of the water to be adverse. Measureable change is defined by the Forest Service as equal to 0.1 pH units. The analyses projected that no such measurable change would occur even with emissions from all other sources. Various threshold levels of acid deposition have been suggested to protect sensitive areas. The lakes in the Class I Areas are considered sensitive. Tr. 202. There is no scientifically accepted threshold for acid deposition for the Wyoming lakes. Tr. 256. The lowest

suggested threshold, applied to Wyoming without a scientific basis, was 5 Kilograms of sulfur per hectare per year. Tr. 257. The analysis in the application projects that this lowest suggested threshold will not be exceeded by emissions from this plant nor the cumulative emissions from all sources. Although protestants' evidence suggested such exceedance may be possible, insufficient data exists to support such a conclusion.

28. Techniques for projecting impacts from acid deposition are not well developed. The potential effects of variables such as orographic effects, cloud water and rime ice, lake stratification, acid shock from snow melt, cannot be projected accurately. The record does not support the conlcusion that if these variables could have been quantified, the conclusion of no adverse impact would have been different. Therefore, the analysis is adquately conservative. Tr. 263. In addition, natural buffering, deposition before the plume reaches the Class I Area, and meteorological conditions resulting in much greater diffusion, all of which were assumed not to exist, will tend to reduce impacts. Tr. 263. The Forest Service and the AQD agreed that the analysis was conservative.

29. By letter dated March 20, 1984, the Forest Service recommended the permit be issued and agreed that the analysis of impacts on AQRV's in the Bridger and Fitzpatrick Wilderness Areas was reasonable, while recognizing uncertainties are inherent in such an analysis. Tr. 520.

30. Because of its concern about regulation and control of adverse impacts on AQRV's that may occur in the future, the Forest Service also initially recommended in their March 20, 1984 letter that a condition be imposed on the permit which would require the Applicant to reduce its future emissions in proportion to its contribution to an adverse impact if that adverse impact could be attributed to its facility. Tr. 517.

It would be difficult, if not impossible, to attribute a particular proportion of a change in pH to a particular facility because of natural variations in pH, the difficulty of measuring pH changes, and the contribution from natural and long range sources. After the explanation by the AQD that if and when it is demonstrated that Wyoming sources are causing adverse impacts on AQRV's in Class I Areas, rulemaking can be undertaken to address all sources contributing to that impact, the Forest Service agreed that this approach would be acceptable to them because it would provide adequate protection of the Class I Areas and withdrew the request for the conditions. Tr. 522. Consequently, the proposed condition would be unworkable and unnecessary. Tr. 523.

31. The uncertainties inherent in the analysis of acid deposition effects require monitoring of actual impacts to assure the Class I Areas will be adequately protected.

32. The permit requires monitoring of acid deposition in the wilderness areas. In 1985, there will be three National Acid Deposition Program ("NADP") and equivalent sites and four bulk precipitation sites in operation in the Class I area. The applicant will fund one NADP site and two bulk precipitation sites as a condition of the permit.

33. Monitoring data will provide essential information concerning actual conditions in the Class I Area.

34. Existing scientific data does not indicate an immediate threat to the Class I Areas from existing emissions from Wyoming and elsewhere. Tr. 253. The potential for damage to the Class I Areas warrants further study.

35. Emissions from the Applicant's plant will constitute a 2.3 percent of actual emissions from all southwest Wyoming sources. Elimination of these emissions would not avoid an adverse impact if it were to occur.

Ultimate Findings of Fact

1. The application and the AQD analysis and decision contains a complete analysis of the impact of the emissions from the Exxon plant and demonstrates compliance with the PSD Class I and II SO_2 increments and the state ambient air quality standard.

2. The application and the AQD analysis and decision demonstrates, using accepted practices pursuant to § 24b(1)(a)(1) of Air Quality Standards and Regulations, that the total deterioration of air quality caused by the Exxon plant will not exceed allowable limits.

3. There was no demonstration by any party that the emissions from this facility will cause an adverse impact on the AQRV's in the Class I Area.

4. The cumulative analysis of applicant and the AQD of the emissions from this facility, together with the emissions from all facilities in Southwest Wyoming, including non-PSD facilities, demonstrates that no adverse impact is projected to occur from all southwest Wyoming facilities.

5. The lakes in the Class I Areas are sensitive to acid deposition. Reasonable steps should be taken to monitor acid deposition and to evaluate adverse impacts on AQRV's in Class I areas.

Conclusions of Law

1. The facility proposed by the Applicant is subject to § 24 of the Air Quality Standards and Regulations and is not projected to cause significant deterioration of air quality.

2. The Application complies with all requirements of the Air Quality Standards and Regulations and the Environmental Quality Act, W.S. 35-11-101, et seq. Section 24 does not require modeling of excess emissions.

3. The Applicant is required to, and has evaluated, the impact of the emissions from its facility on the AQRV's of Class I Areas which may be affected.

4. A condition which would require future emission reductions without any accepted standard or threshold damage limit being established is unwarranted.

5. Rulemaking pursuant to W.S. 35-11-201 is available to address emissions from all sources if future adverse impacts are identified.

IT IS THEREFORE HEREBY ORDERED THAT:

The AQD decision to issue Permit No. CT-544 is hereby affirmed. All conditions proposed by the AQD shall be imposed on the permit.

SO ORDERED this 22 day of January, 1985.

Edgar L. Lyman
Environmental Quality Council

APPROVED AS TO FORM:

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