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CALIFORNIA ENERGY COMMISSION

MASTER

PRELIMINARY REPORT

ON THE
NORTHERN CALIFORNIA POWER AGENCY'S
NOTICE OF INTENTION
TO SEEK CERTIFICATION FOR

NCPA GEOTHERMAL PROJECT No. 2

78-NOI-5



DEC 1978

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TABLE OF CONTENTS

I. Introduction	
A. The Preliminary Report	1
1. Contents	1
2. Evidentiary Basis	2
3. Opportunity for Response	3
B. Description of the Proposed NCPA Geothermal Project No. 2.	4
1. The Facility	4
2. The Site	5
3. The Steam Field	6
4. Authorization Required	6
C. Summary of the Proceedings to Date	8
1. Submittal of Notice of Intention	8
2. Petitions to Intervene	8
3. Procedural Conference	8
4. Issue Workshops	9
5. Informational Hearings	10
6. Prehearing Conference	10
D. Conformity with Applicable Standards, Ordinances, and Laws	11
II. Conformity to Demand Forecasts	
A. Need for Additional Generating Capacity	13
1. Introduction	13
2. Geothermal as a Preferred Technology	13
3. Proposed Findings and Conclusions	14
4. Committee Findings and Conclusions	16
III. Site Related Issues	
A. Introduction	17
B. Air Quality	17
1. Introduction	17
2. Discussion	18
3. Air Quality Standards Tentatively Applying to NCPA Geothermal Project No. 2.	20
4. Proposed Findings and Conclusions	22
5. Committee Findings and Conclusions on Air Quality.	28
6. Committee Findings and Conclusions on Air Quality New Source Review	33

C. Other Site Related Issues	34
1. Introduction	34
2. Proposed Findings and Conclusions	34
Committee Findings and Conclusions on:	
Biological Resources	37
Water Quality	43
Soils	45
Socio/Economics	51
3. Committee Findings and Conclusions	52

IV. Public Health, Safety and Reliability

A. Introduction	53
B. Public Health	54
1. Introduction	54
2. Proposed Findings and Conclusions	55
3. Committee Findings and Conclusions	64
C. Safety and Reliability	66
1. Introduction	66
2. Proposed Findings and Conclusions	66
3. Committee Findings and Conclusions on Structural Design	69
4. Committee Findings and Conclusions on Transmission Line	72

V. Issues Requiring Further Review

A. Introduction	73
B. Information Yet to be Submitted and Additional Tasks to be Performed	74
C. Issues and Information Requirements	77
1. Air Quality	77
Air Quality New Source Review	80
2. Biological Resources	80
3. Water Quality	81
4. Soils	82
5. Cultural Resources	82
6. Public Health	83
7. Structural Design	83
8. Transmission Line	85

APPENDIX A - Timeline of Events
APPENDIX B - Memorandum of Understanding
APPENDIX C - 1) Proof of Service List, 2) Public Agency List
APPENDIX D - Public Agency Comments
APPENDIX E - Staff Response to Lake County Air Pollution Control Officer
APPENDIX F - Tentatively Applicable Laws and Standards
APPENDIX G - Glossary

ENERGY RESOURCES CONSERVATION
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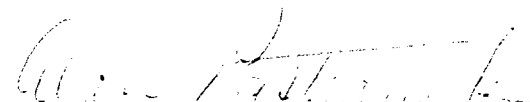


(916) 920-6811

December 6, 1978

The California Energy Resources Conservation and Development Commission, through the Commission Committee assigned to the Northern California Power Agency's Notice of Intention to file an Application for Certification of the NCPA Geothermal Project No. 2 (78-NOI-5), hereby submits its Preliminary Report pursuant to Public Resources Code sections 25510 and 25512.


C. SUZANNE REED, Commissioner
and Presiding Member of the
Committee


ALAN PASTERNAK, Commissioner
and Member of the Committee

I. INTRODUCTION

A. The Preliminary Report

On August 11, 1978, the Northern California Power Agency (NCPA; Applicant) filed with the Energy Resources Conservation and Development Commission (the Commission) a Notice of Intention (Notice; NOI) to file an Application for Certification (Application; AFC) for the NCPA Geothermal Project No. 2 power plant and associated electrical generation facilities and transmission line proposed to be constructed in Sonoma County. Some of the steam wells required to supply the proposed project may be located in Lake County.

1. Contents

This Preliminary Report on the NCPA geothermal power plant proposal has been prepared pursuant to California Public Resources Code Sections 25510, 25512, and 25540. It presents the preliminary Findings of fact and Conclusions adopted by the Commission Committee, consisting of Commissioner C. Suzanne Reed, Presiding, and Commissioner Alan Pasternak, assigned to conduct proceedings on the Notice. In addition, the Report contains a description of the proposed project (Section I.B.), a summary of the proceedings to date (Section I.C.), and local, state, and federal government agency comments on the proposal (Appendix D). Finally, the Report presents the Committee's view of those issues that require further consideration in future proceedings on the Notice (Section V).

Pursuant to Public Resources Code Sections 25512 and 25540, the Report presents preliminary Findings and Conclusions on:

- 1) conformity to the forecast of statewide and service area electric power demands;
- 2) the degree to which the proposed site and facility conform with applicable local, regional, state and federal standards, ordinances, and laws; and
- 3) the safety and reliability of the facility.

2. Evidentiary Basis

This Report is based on evidence presented during hearings and conferences on the Notice, comments submitted to the Commission by local, regional, state, and federal agencies and the public, and upon independent studies conducted by the Commission Staff. Evidence presented in these proceedings includes position papers prepared by the Commission Staff on various issues, supporting affidavits submitted by the Applicant, and a Joint Statement of Findings and Conclusions (Joint Statement) proposed to the Committee by the Applicant and the Staff for adoption and incorporation into this Preliminary Report. The Committee gave all those interested in the proceeding an opportunity to question or object to any Finding or Conclusion proposed for adoption in the Joint Statement. Furthermore, during the Prehearing Conference at which the Joint Statement was presented, the Committee asked each party whether it wished to cross-examine witnesses for the other party or present evidence of its own.

In the absence of a request by anyone to cross-examine witnesses or to sponsor their own witnesses, the Committee found that no purpose would be served by holding Evidentiary Hearings prior to issuing this Preliminary Report.

Therefore, the Joint Statement of Findings and Conclusions, as proposed during the Committee's Prehearing Conference, is set forth in this Preliminary Report and, with few exceptions, has been adopted by the Committee as preliminary Findings and Conclusions pursuant to Public Resources Code Sections 25512 and 25540.

3. Opportunity for Response

Written responses to the Preliminary Report must be filed within 30 days of publication, and the Committee may hold public hearings on the Report commencing no earlier than 14 days after publication. In those hearings, a party may express its intention to present evidence contrary to the Findings and Conclusions set forth in this Report or to cross-examine witnesses for another party. Each party should take advantage of this opportunity to comment on, or express its intent to contest, any Finding or Conclusion contained in this Report. In addition, any interested person will be given an opportunity to comment on the Report, during the course of these hearings.

Hearings conducted following the issuance of this Report will lead to the issuance of a Final Report and, within a short period thereafter, to approval or disapproval of the Notice by the Commission. If the Notice is approved, NCPA will then file an Application for Certification of the NCPA Geothermal Project No. 2. Following further proceedings on the Application, the Commission will act to grant or deny certification. Such action could occur as early as the summer of 1979.

Any person who, after reading this Report, feels he or she may have an interest that would be served by participating as a party to these proceedings may petition the Committee for leave to intervene. Assistance for gaining

intervenor status may be obtained by calling Dan Parker of the Commission's Public Adviser's Office at (916) 920-6906 or toll free (800) 852-7515.

B. Description of the Proposed NCPA Geothermal Project No. 2

1. The Facility

The NCPA Geothermal Project No. 2 which NCPA has proposed to construct on federally owned and leased lands in the Geysers area of Sonoma County is a dry steam geothermal power plant with a gross operating capacity of 110 Mw. It would consist of two 55Mw turbine/generator units and their auxillary equipment. In addition to the turbine/generator building, the proposed power plant would include a condensing system, cooling tower, and substation. The two units could be operated independently, as well as in parallel with one another. The first unit would be scheduled for operation in November 1981 with the second unit coming on-line six months later.

It is anticipated that the proposed site would occupy approximately seven acres of level pad area. The major structures which would be built on the pad are the cooling tower, the hydrogen sulfide (H_2S) abatement facility, and the power house building. The power house would enclose the steam turbines, electric generators, and all supporting electrical and mechanical control systems required for the generation of electrical power. A mechanical draft cooling tower would be used to dissipate heat from the power cycle. NCPA plans to abate hydrogen sulfide (H_2S) emissions through the use of the Stretford process, which scrubs the H_2S from the vent gas stream from the condenser and catalytically oxidizes the gas to elemental sulfur. The exhaust gas stream would be ducted to the cooling tower.

The switchyard would step up the voltage of the electrical power from the generator level of 13.8 kv to the 230kv level required for economical power transmission. NCPA proposes to construct a tapline that would intertie with PG&E's existing 230 kv transmission system 2.1 miles west of the proposed NCPA site (see Map 1). The tapline would consist of nine double circuit latticed steel towers, with only one circuit strung initially. NCPA is currently negotiating with PG&E regarding "wheeling" the power from the proposed plant to NCPA's members via PG&E's transmission routes. These existing transmission routes apparently have the capacity to accommodate the additional power generated by the NCPA project, although PG&E has contended that additional capacity will be required by 1982 (see NCPA NOI, Vol. 2, p. 15-2)*. NCPA is also considering alternative means of transmitting power from the Geysers area (see "Transmission Line" Proposed Finding Number 3 and Conclusion 1, Section 1V.C.2, following).

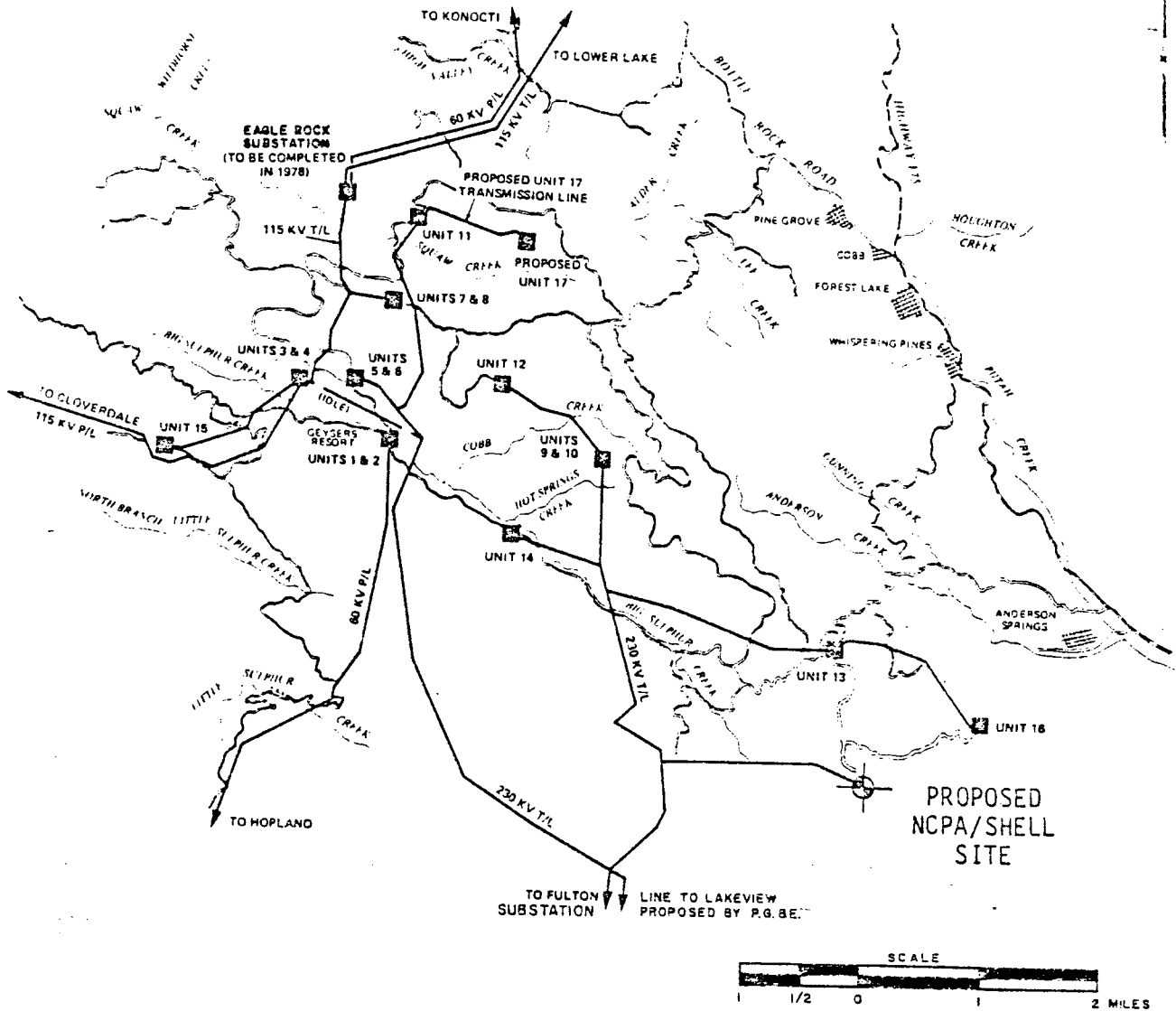
2. The Site

The site is situated at approximately 3,200 feet elevation on a spur ridge of the Mayacmas Mountains, near the main ridge crest of these mountains. The junction of the ridges is near the headwaters of Big Sulphur Creek in Sonoma County and the headwaters of Bear and Dry Creeks in Lake County. The proposed site is approximately 700 feet southwest of the Lake-Sonoma County line, 5 1/2 miles east of Middletown, 13 miles northeast of Healdsburg, 14 miles north by northwest of Calistoga, and 22 miles southeast of Lakeport (see Map 2).

It would occupy approximately seven acres of level pad area, provided by altering the terrain in balanced cuts and fills (see Figure 1). Vehicle access to the site would be provided by existing roads; similar roads could be

*The Committee is confused as to whether the Transmission capacity out of the Geysers area will or will not be via currently existing routes.

MAP 1

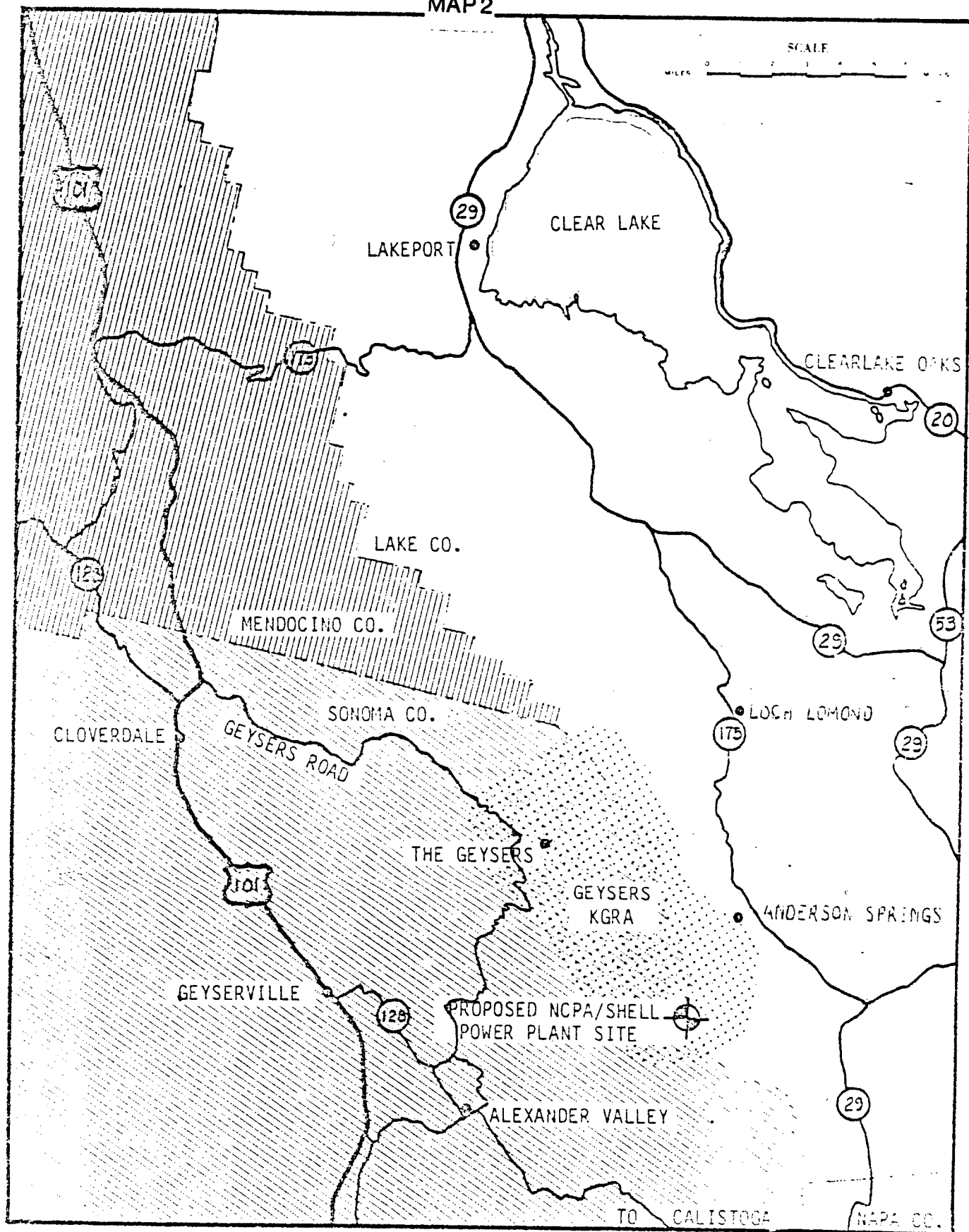


■ EXISTING OR PROPOSED PG&E UNITS
 SOURCE: PG&E ENVIRONMENTAL DATA STATEMENT
 GEYSERS UNIT 17 July, 1977

GEYSERS AREA TRANSMISSION LINES

Excerpted from: NCPA NOI, vol. I, p. V-14

MAP 2



GEYSERS AREA REGIONAL MAP

Original source: NCPA NOI, vol. I, p. I-2

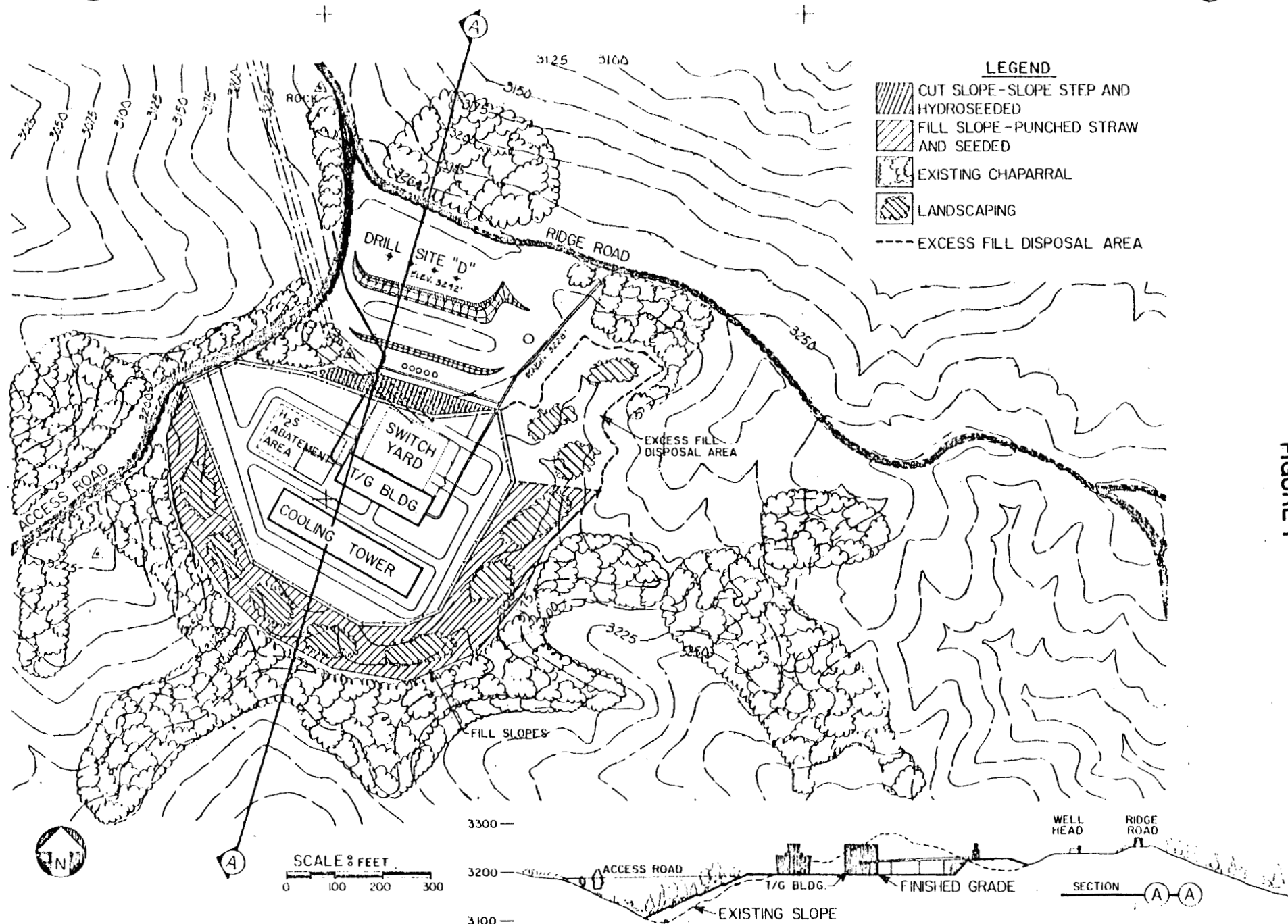


FIGURE 1

PLOT AND CONCEPTUAL LANDSCAPE PLAN

used for construction of approximately one-half of the transmission line with additional spur roads probably necessary for construction of the remainder.

3. The Steam Field

A large reservoir of geothermal steam exists in the Geysers Known Geothermal Resources Area (KGRA; see Figure 2). This natural resource is presently being used by PG&E to generate 502 Mw of electric power. Four units representing another 400 Mw of generating capacity are under construction. In addition to the NCPA Geothermal Project No. 2, several other units are being planned by various power suppliers.

The steam supply field is located on Federal lands at the southeast extension of the Geysers area. Part of this steam field is in Lake County and part in Sonoma County. Five production wells have already been drilled and completed for the NCPA project, and the additional wells required would be drilled prior to completion of the proposed project (see Map 3). Based upon prevalent practices NCPA and Shell Oil, the steam developer, anticipate the need for a total of 20 wells using a 40-acre spacing per well to supply the initial demands of the 110 Mw plant. It is estimated that an additional 10 wells could be needed over the next 30 years to compensate for declining steamflow in the original wells.

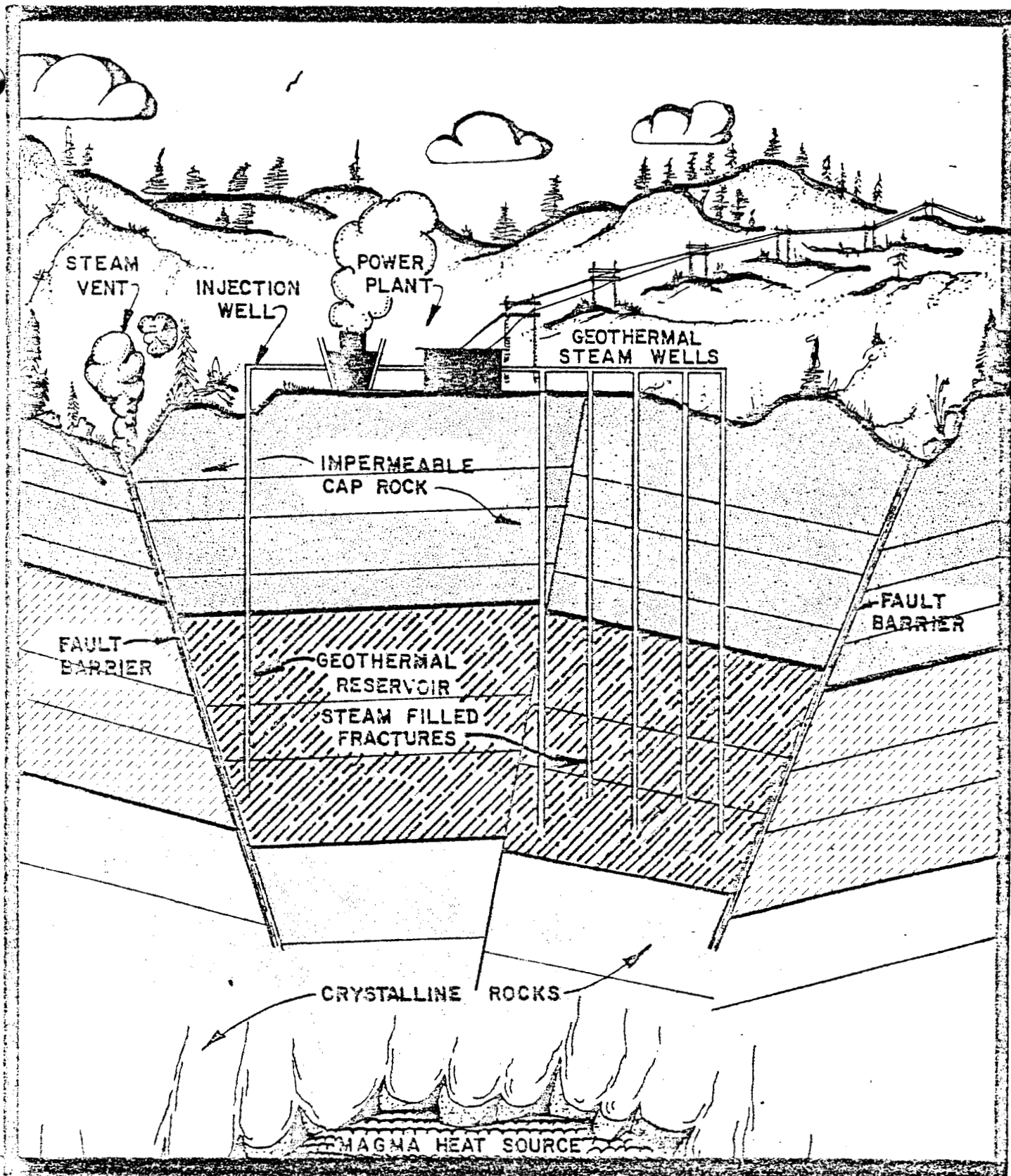
4. Authorization Required

In order to proceed with construction of the proposed project, NCPA and/or the steam supplier (Shell Oil) must receive the following major regulatory authorizations:

<u>Permit Authority</u>	<u>Permit</u>	<u>Project Component</u>
1. Energy Resources Conservation and Development	Certification to Construct and Operate	Power Plant and Transmission Line
2. United States Department of Energy (DOE)	Financing Guarantee	Percentage of Project Costs
3. United States Geological Survey (USGS)	License for Use of Lands	Power Plant and Steam Field
4. Bureau of Land Management (BLM)	Plan of Utilization for Surface	Power Plant Site
5. Northern Sonoma Air Pollution Control District	Authority to Construct and Permit to Operate	Power Plant and Portion of Steam Field in Sonoma County
6. Lake County Air Pollution Control District	Authority to Construct and Permit to Operate	Portion of Steam Field in Lake County
7. California Public Utilities Commission	Certificate of Public Convenience and Necessity	Power Plant and Transmission Line
8. Lake County Board of Supervisors	Conditional Use Permit	Portion of Steam Field in Lake County
9. Sonoma County Board of Supervisors	Conditional Use Permit	Portion of Steam Field in Sonoma County
10. U.S. Environmental Protection Agency (EPA)	Prevention of Significant* Deterioration (PSD)	Power Plant and Steam Field

*It is not yet certain whether PSD rules apply to the proposed project.
The Committee is seeking confirmation from EPA on this point.

FIGURE 2



SIMPLIFIED GEOTHERMAL FIELD

Original source: NCPA NOI, vol. I, p. III-2



C. Summary of the Proceedings to Date

1. Submittal of Notice of Intention

On August 11, 1978, the Northern California Power Agency (NCPA) filed with the Commission a Notice of Intention (Notice) to file an Application for Certification (Application) for its Geothermal Project No. 2 proposed to be located on Federal lands in Sonoma County. On August 22, 1978, the Executive Director of the Commission accepted the Notice as containing adequate technical data and information required by Commission regulations to enable the Staff to begin analysis of the proposal. Subsequently, the Chairman of the Commission appointed a Committee, composed of Commissioner C. Suzanne Reed, Presiding, and Commissioner Alan Pasternak, to conduct proceedings on the Notice. A chronological account of events in these proceedings is contained in Appendix A.

2. Petitions to Intervene

To date, no members of the public, public agencies, or other persons or groups have sought to intervene in the proceedings before this Committee involving the NCPA Geothermal Project No. 2.

3. Procedural Conference

Since the proposed NCPA project would be located on Federally owned and leased lands, coordination with the affected federal agencies, i.e. the United States Geological Survey (USGS), the Bureau of Land Management (BLM), and the Department of Energy (DOE), is necessary. The Committee held a Procedural Conference with these Federal agencies on September 26, 1978, in Santa Rosa to discuss and clarify the manner in which the joint regulatory review process would be conducted. Interested persons and public agencies were encouraged to attend this Conference.

Pivotal to this joint regulatory review process, and a central item of discussion at the Procedural Conference, is the Memorandum of Understanding (MOU) among the Commission and the three affected Federal agencies. This document provides for mutual cooperation and review regarding the respective agencies' licensing requirements for the proposed project. Furthermore, the Memorandum of Understanding provides for the preparation of a Joint Environmental Study on the proposed project sufficient to fulfill the Environmental Impact Report requirements of the Commission and the environmental review responsibilities of the involved Federal agencies. The Commission is designated as the lead agency in the preparation of such Study. The final version of the Memorandum of Understanding is contained in Appendix B.

4. Issue Workshops

On September 21, 22, and 26, and on October 17, 1978, in Sacramento and Santa Rosa, the Commission staff held informal workshops to discuss issues and concerns related to the project with NCPA and other interested persons. As a result of those workshops, Staff prepared a series of position papers on the various issues and areas of concern including: need for the proposed project; biological resources; noise; water quality; soils; hydrology and water resources; cultural resources; system engineering and design; transmission line; socio/economics; public health; and air quality. These subjects were addressed at a Joint Prehearing Conference Statement Workshop on October 16 in Sacramento. The purpose of this workshop was for Commission staff and NCPA to attempt to prepare joint Findings of fact and Conclusions on those issues that would need no adjudication or investigation in evidentiary hearings before the Committee and to identify those areas of possible dispute where further information would

be required before an issue could be resolved. The workshop also provided members of the public and other interested agencies an opportunity to propose Findings and Conclusions. Copies of the resulting Joint Prehearing Conference Statement of Findings and Conclusions (Joint Statement) were made available to the public on October 20, 1978.

5. Informational Hearings

Pursuant to Public Resources Code Section 25509, the Committee conducted public Informational Hearings on October 10, 1978 in Santa Rosa and in Kelseyville for the purpose of enabling Commission staff and NCPA to make presentations to all interested agencies and members of the public concerning the proposed project and potential issues to be addressed during the proceedings. During these hearings, the Committee afforded the public the opportunity to pose questions to the Staff and NCPA and invited general comments and expressions of concern about the proposed project.

6. Prehearing Conference

On October 31, 1978, the Committee held a Prehearing Conference in Santa Rosa to consider the Staff's and NCPA's Joint Statement of Findings and Conclusions on all issues, and to identify areas of concern to those interested in the proceeding. The areas covered in the proposed, agreed-upon Findings and Conclusions were discussed and the Committee gave those present an opportunity to state any intention to cross-examine any witnesses for NCPA or the Staff concerning any matter contained in the Proposed Joint Findings and Conclusions. In addition, the Committee provided an opportunity to state any intention to present a witness on any issue in subsequent evidentiary hearings. No one expressed an intention either to present or to cross-examine witnesses during

any proceedings prior to issuance of the Preliminary Report, nor did anyone raise any specific or material objection to any of the Findings or Conclusions proposed by Staff and NCPA for adoption by the Committee. A representative of the U.S. Geological Survey indicated that that agency did not receive certain materials pertaining to the "Soils" portion of the Proposed Findings and Conclusions. The Committee directed the Staff to assure that the requested information was sent. The USGS representative indicated that comments would be forthcoming from his agency. It was not anticipated, however, that these comments would challenge the acceptability of the "Soils" section of the Joint Prehearing Conference Statement and, in any event, such comments have not been received in time for inclusion into this Report.

On November 16, 1978, the Committee issued a Prehearing Conference Order which acknowledged and accepted the verified Position Papers submitted by the Staff and the verified statements submitted by NCPA in support of the Findings and Conclusions contained in the Joint Prehearing Conference Statement; notified the parties, concerned public agencies, and the public at large that no reason was apparent to hold the Evidentiary Hearings originally scheduled for November 16 to 24, 1978; and specified remaining actions to be taken and information to be submitted by the Staff and Applicant prior to issuance of the Preliminary Report.

D. Conformity with Applicable Standards, Ordinances, and Laws

The Committee is required by Public Resources Code Section 25512(a)(2) to include Findings and Conclusions in this Report on the degree of conformity of the Applicant's proposed site and related facilities with "applicable local,

regional, state, and federal standards, ordinances, and laws". Moreover, Public Resources Code Section 25514(a)(2) requires the Committee to include similar Findings and Conclusions in the Final Report.

The Joint Statement submitted by NCPA and the Commission staff enumerated standards, ordinances, and laws applicable to the proposed site and related facilities. In addition, the Committee's Prehearing Conference Order directed the parties to make the listing of those applicable standards, ordinances, and laws upon which the Committee is required to make Findings and Conclusions more explicit insofar as biological resources are concerned. A tentative list of applicable standards, ordinances, and laws (including those governing biological resources) to which the proposed project must conform has been compiled and is set forth in Appendix F.

Because of the lack of justiciable issues for purposes of the Preliminary Report and because of forthcoming information and study results as described in Section V, it is not possible for the Committee to make Findings and Conclusions regarding conformity with ALL applicable standards, ordinances, and laws at this time. Where appropriate, however, Findings and Conclusions on conformity with applicable standards, ordinances, and laws are included on an issue by issue basis in succeeding sections.

The Final Report will contain, to the fullest extent possible, Findings and Conclusions on the conformity of the proposed project with each of the appropriate standards, ordinances, and laws.

II. CONFORMITY TO DEMAND FORECASTS

A. Need for Additional Generating Capacity

1. Introduction

Public Resources Code Section 25512 requires the Committee to determine "[t]he degree to which each alternative site and related facility proposal designated in the [N]otice or presented at a hearing and considered by the [C]ommission is in conformity with...the forecast of statewide and service area electric power demands pursuant to Section 25309...". The Commission's most recent forecast of statewide and service area electric power demands was adopted in March, 1977. This matter is also known as "determining the need for the project". With respect to the issue of need, the Commission staff and NCPA proposed the Findings and Conclusions set forth in subsection 3 of this section for adoption by the Committee.

2. Geothermal as a Preferred Technology

On March 22, 1978, the Commission adopted a policy to encourage and expedite the environmentally acceptable utilization of geothermal resource development.

The Commission's Geothermal Policy Report recognizes geothermal energy as a preferred technology for meeting electric power needs because: 1) it is indigenous to California; 2) its development offers a stimulus to the state's economy; 3) for dry steam resources, the environmental impacts and power plant technology are well understood; 4) geothermal power plants are relatively small (50-110 MW) and thus enable greater system reliability and flexibility; and 5) geothermal power plants may be planned and constructed in a shorter time frame than power plants using other fuels.

3. Proposed Findings and Conclusions

NCPA and Commission staff proposed Joint Findings and Conclusions on the conformity of the proposed project with the Commission's most recent demand forecast as set forth on the following pages:

PROPOSED FINDINGS AND CONCLUSIONS
DEMAND FORECAST COMPLIANCE

Findings

1. It is the policy of the California Energy Commission to encourage the accelerated development of geothermal energy.

2. The Northern California Power Agency (NCPA) is an independent municipal agency formed to purchase, generate, distribute, sell and pool electrical energy between and for the benefit of the participating member cities who comprise the joint powers agency.

3. NCPA presently has no generating facilities of its own and has purchased all of its power from other suppliers including PG&E.

4. If constructed according to present schedules, NCPA Geothermal Project No. 2 will begin full commercial operation in May, 1982. This schedule represents approximately 44 months for the licensing-construction phase and assumes a twelve month NOI-AFC process.

5. The NCPA Geothermal Project No. 2 will generate baseload electricity and have a net generating capacity of 105.6 Mw.

6. The area served by the NCPA is within PG&E's service area.

7. The "most likely" demand forecast adopted by the Energy Commission, with adjustments, indicates a need in 1982 for additional generating capacity in excess of 105.6 Mw for the PG&E service area.

8. The NCPA Geothermal Project No. 2 is not included in PG&E's service area resource plan as submitted to the Energy Commission. This project would supply part of the capacity requirements of the PG&E service area beginning in 1982.

9. The U.S Department of Energy and CEC Staff are jointly evaluating the proposed financing arrangements and relative costs for the NCPA plant in

order to determine the relative merits of purchase power vs. self generated power. The results of the evaluation are to be filed with the Committee as soon as they become available.

Conclusions

1. The NCPA Geothermal Project No. 2 capacity addition is consistent with the current forecast of PG&E service area electric power demands adopted by the Commission pursuant to Public Resources Code, Section 25309.

2. If constructed and operated in compliance with applicable standards, ordinances, and laws, a geothermal power plant would be an acceptable means of supplying 105.6 Mw of the total capacity need for the PG&E service area in 1982.

3. Staff and Applicant agree that no adjudication of the issue is necessary in the NOI.

4. Committee Findings and Conclusions

The Committee adopts the Findings and Conclusions set forth above. The financing evaluation referred to in Finding Number 9 above is to be submitted "relatively soon". The Committee understands this to mean prior to or at the filing of the AFC. Of special note is the matter referred to in Conclusion Number 2 above. While a geothermal power plant, in general, would be acceptable to provide future capacity needs, acceptability of the proposed NCPA project in particular depends upon compliance with all applicable local, regional, state, and federal standards, ordinances, and laws.

III. SITE RELATED ISSUES

A. Introduction

In addition to determining the degree of conformity with applicable standards, ordinances, and laws, Public Resources Code Section 25512 requires that a Preliminary Report contain Findings and Conclusions with regard to the merit of each site and related facility designated in the Notice or presented at a public hearing and considered by the Committee.

Public Resources Code Section 25540 eliminates the requirement for geothermal power plant Notices to contain alternate sites. No alternative sites were proposed during public hearings on the proposed project and, therefore, the Findings and Conclusions set forth in the following subsections speak to the merit of the single site proposed for the NCPA Geothermal Project No. 2 power plant.

B. Air Quality

1. Introduction

In determining the conformity of the proposed power plant to applicable air quality standards, ordinances, and laws, the Committee must consider: 1) the ambient (background) air quality within the air basin; and 2) the amounts and impacts of the various emissions from the power plant at the time of operation.

To examine the ambient air quality, the Committee must review monitored data and projections of air quality at the time the plant commences operation and measure the results against national and state ambient air quality standards. Non-attainment of the air quality standards in the air basin in

question, meaning that the air is more polluted than allowed by law, imposes additional requirements for the granting of a permit. Generally, these requirements are: 1) that there be emission reductions (tradeoffs, offsets) elsewhere in the air basin, so that even with the proposed new source there will be an overall improvement (net benefit) in air quality in the basin, and there will continue to be reasonable progress toward meeting the air quality standards; and 2) that the project employ the best available control technology.

In addition to the ambient air quality review, which considers the condition of the air within the basin where the power plant is proposed to be built, the Committee must consider a new source review examination of the amounts of emissions from the power plant itself to assure that: 1) they will not violate or prevent attainment of the air quality standards at the time the plant commences operation; and 2) that they are equal to or less than the emissions limitations for a new source.

2. Discussion

At the Prehearing Conference, NCPA informed the Committee that it had not yet applied for an authority to construct from Northern Sonoma County APCD. Pursuant to Northern Sonoma County APCD Rule 230 (New Source Review) and Rule 455 (Emissions Limitations), the Air Pollution Control Officer (APCO) may not approve the NCPA Geothermal Project No. 2 unless he finds that the proposed project will meet the emission limitations of Rule 455 and will not cause a violation or prevent attainment of ambient air quality standards. Obtaining an

authority to construct and complying with Northern Sonoma County APCD rules are thus critical stages in determining the ultimate acceptability of the NCPA project.*

In the context of other geothermal proceedings before the Commission, the Air Resources Board (ARB) has stated that Rule 455, to the extent that it 1) necessitates the use of the best available control technology (BACT) to meet the emission limitations set forth, 2) sets forth new emissions limitations and compliance dates for existing power plants, and 3) requires reduction of H₂S emissions from steam stacking during power plant outages, effectively preempts the BACT and emission offset provisions of Rule 230 (See ARB comments on NOI, 8/1/78, in Appendix C of Preliminary Report on PG&E Geysers Unit No. 17). Thus, projecting the ARB's view to the present case, the interpretation would follow that if the NCPA Geothermal Project No. 2 could be shown to comply with Rule 455, then the Northern Sonoma County APCO could approve the project.

However, in proceedings before this Committee concerning the Preliminary Report on Pacific Gas and Electric Company's (PG&E) proposed geothermal power plant Unit No. 17, the Northern Sonoma County Air Pollution Control Officer suggested that the foregoing interpretation was incorrect. He stated that the emission limits set forth in Rule 455 do not represent BACT, but rather are "values arrived at via 'roll-back' to achieve attainment" (NSCAPCO COMMENTS ON PRELIMINARY REPORT FOR GEYSERS 17, November 16, 1978). Even if the mandates of Rule 455 are complied with, the proper interpretation in the APCO's estimation is that the requirements of Rule 230 continue to be operative. The

* The Commission Staff has, however, undertaken negotiations with representatives of the Air Resources Board in order to establish a comprehensive power plant siting scheme reflecting the legislative mandates of both agencies. (STAFF COMMENTS on the Geysers 17 Preliminary Report, p. 1). Agreement on an overall strategy may simplify the permit process.

APCO could thus grant conditional approval of the proposed project under Rule 230(d) which might include a requirement that emissions from existing plants or steam fields be reduced to below those limitations specified in Rule 455.

Furthermore, the applicability of U.S. Environmental Protection Agency (EPA) Prevention of Significant Deterioration (PSD) regulations is unsettled at this time. PG&E has requested clarification of PSD status (see Preliminary Report on Geysers Unit No. 17, pp. 20-22), and the Staff has also sought clarification (10/31/78 Transcript, pp. 40-42). The Committee is presently seeking Federal response to this matter. In this regard, the Committee's Findings and Conclusions are limited in scope to holding only that emissions of Total Suspended Particulates (TSP) from the steam release valve during periods of steam stacking will be less than that required for PSD review, if in fact such review is required ("Air Quality Emissions Limitations - Steam Stacking" Finding 24: Conclusion 6).

The Committee is gravely concerned with air quality issues insofar as fulfilling its responsibility to identify applicable laws and determine the proposed project's conformity with them. A list of laws tentatively deemed applicable follows. Because sufficient information is not currently available, the Committee intends to determine with more certainty the applicable standards and the degree of conformance with such standards in the course of proceedings on the AFC for this project, should the Commission approve the NOI.

3. Air Quality Standards Tentatively Applying to NCPA Geothermal Project No. 2.

<u>Applicable Laws, Ordinances, Standards</u>	<u>Relevant Findings and Conclusions</u>	<u>Preliminary Conclusion Regarding Compliance</u>
1. NSCAPCD Rule 455(b) (applicable) beginning 1/1/80) 100 grams/gross megawatt hour (gr/GMh) of hydrogen sulfide (H ₂ S).	Findings 3*, 5-15* 21*, 3-7**, and 13** Conclusions 1, 2, 4, and 5	More information required.
2. NSCAPCD Rule 455(b) (applicable) beginning 1/1/85) 50 gr/GMh H ₂ S.	Findings 4*, and 14* Conclusion 2	More information required.
3. NSCAPCD Rule 455(a), 1000 parts per million (ppm) or less of sulfur compounds, calculated as sulfur dioxide.	Findings 16*, 17*, 8**, and 9** Conclusions 2 and 5	Complies.
4. NSCAPCD Rule 420(d), limits emissions of particulate matter to the lesser of: 0.20 grains per cubic foot (gr/cf), or 40 lb/hr from a source with a process rate of 60,000 lb/hr.	Findings 18*, 19*, 10**, and 11** Conclusions 2 and 5	Complies.
5. EPA Prevention of Significant Deterioration (PSD) for H ₂ S.	Findings 20-24*, 12-16** Conclusions 3 and 6	More information required.
6. NSCAPCD Rules 220 and 230, new source review rules.	Findings 1-18*** Conclusions 1-4***	More information required with regard to H ₂ S.
7. NSCAPCD Rules 400(a) (Nuisance) and 540 (Control Breakdown).		More information required.

* These Findings on Air Quality are found under the subsection titled "Emission Limitations--Normal Power Plant Operation", beginning on page 39 of the Joint Prehearing Conference Statement.

** These Findings on Air Quality are found under the subsection titled "Emission Limitations--Steam Stacking", beginning on page 42 of the Joint Prehearing Conference Statement.

*** These Findings on Air Quality are found under the section titled New Source Review, beginning on page 46 of the Joint Prehearing Conference Statement.

<u>Applicable Laws, Ordinances, Standards</u>	<u>Relevant Findings and Conclusions</u>	<u>Preliminary Conclusions Regarding Compliance</u>
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8. NSCAPCD Ambient Air Quality Standards

<u>Pollutant</u>	<u>California Standard</u>	<u>Averaging Time</u>	
H ₂ S	0.03 ppm	1 hour	More information required.
SO ₂	0.05 ppm .5	24 hours 1 hour	Complies.
Sulfates	25 mg/m ³	24 hours	Appears to comply; confirmation date required.
TSP	60 mg/m ³	Annual geometric Mean	Complies.
	100 mg/m ³	24 hours	

4. Proposed Findings and Conclusions

Following are the proposed joint Findings and Conclusions submitted by the Commission staff and NCPA:

PROPOSED FINDINGS AND CONCLUSIONS
AIR QUALITY

Emissions Limitations - Normal Power Plant Operation

1. The Applicant has stated that NCPA Geothermal Project No. 2 (hereafter referred to as "the NCPA power plant") is scheduled to begin operation in 1982.
2. The NCPA power plant will have a guaranteed gross generating capacity of 110 Mw.
3. At the time the NCPA power plant is scheduled to begin operation, the hydrogen sulfide (H_2S) emissions must not exceed 100 grams/gross MWh (24.2 lb/hr.) pursuant to Northern Sonoma County Air Pollution Control District (NSCAPCD) Rule 455 (b).
4. Beginning January 1, 1985, the NCPA power plant will be limited by Rule 455(b) to maximum H_2S emissions of 50 grams/gross MWh (12.1 lb/hr.). This emissions limitation is subject to review by the NSCAPCD before January 1, 1984.
5. The steam supply for the NCPA power plant will be approximately 2,000,000 lb/hr., with an H_2S content of 70 ± 20 ppm. This results in a total unabated H_2S flow rate of 100-180 lb/hr.
6. The Applicant has proposed to comply with the applicable H_2S emissions limitations by employing a surface condenser and Stretford H_2S abatement system.
7. Stretford systems, if correctly sized, have treated 99+% of that H_2S which reaches the system in the gas stream during petroleum refining, and should work equally well in treating H_2S from geothermal steam.
8. The Applicant has specified that the Stretford system will be designed with a sulfur handling capacity of 300 lb/hr., and thus the system is adequately sized for its intended use.
9. The amount of H_2S which reaches the Stretford system is dependent on the amount of H_2S which the surface condenser is able to "partition" out of the steam and into the gas stream.

10. If the surface condenser at the NCPA power plant partitions less than 75-85% of the H_2S into the gas stream (depending on the H_2S concentration in the steam supply) the H_2S remaining in the steam condensate will require treatment if the plant is to comply with the 100 grams/gross MWh emissions limitation.

11. Since no existing geothermal power plant is utilizing a surface condenser, the partitioning efficiency of the surface condenser is not known. The Applicant estimates a partitioning efficiency of 90%.

12. PG&E Unit 15, which is scheduled to begin operation in December, 1978, will be the first Geysers power plant utilizing a surface condenser.

13. It is expected that at the time an AFC is filed for the NCPA power plant, sufficient operating data from PG&E Unit 15 should be available to determine the partitioning efficiency of the surface condenser.

14. The Applicant has stated that it will install a condensate treatment system employing hydrogen peroxide and ferric sulfate either (a) concurrently with the construction of the NCPA power plant in the event that operating data from Unit 15 indicates that the surface condenser partitioning efficiency is less than 75-85%, or (b) prior to January 1, 1985, if required to comply with the more stringent H_2S emissions limitation scheduled to take effect at that time.

15. In order to determine the appropriate time at which to install a condensate treatment system, the applicant should, if the NOI is approved, file an AFC which contains sufficient operation data from PG&E Unit 15 to determine, with reasonable certainty, that the partitioning efficiency of the surface condenser will be adequate to meet the 100 grams/gross MWh H_2S emissions limitation.

16. NSCAPCD Rule 455(a) limits geothermal power plant emissions of sulfur compounds, calculated as sulfur dioxide, to 1000 ppm or less.

17. The NCPA power plant, as proposed in the NOI, will emit substantially less than 1000 ppm of sulfur compounds, calculated as SO_2 .

18. NSCAPCD Rule 420(d) limits geothermal power plant emissions of particulate matter to whichever is lesser of:

- (a) 0.20 grains per cubic foot (cf), or
- (b) For a source with a process weight rate of 60,000 lb/hr or more, 40 lb/hr.

19. Emissions of particulate matter from the NCPA power plant will be approximately 0.27 gr/cf in concentration, with a total emissions rate of approximately 3.03 lb/hr.

20. Federal Prevention of Significant Deterioration (PSD) Requirements may apply to the NCPA power plant. The Environmental Protection Agency (EPA) may require the NCPA power plant to employ Best Available Control Technology (BACT) for H_2S .

21. If the NCPA power plant can be operated in compliance with the H_2S emissions limitations of NSCAPCD Rule 455, the NCPA power plant will satisfy federal BACT requirements.

22. The EPA has prescribed PSD increments for SO_2 and for total suspended particulates (TSP).

23. Emissions of SO_2 from the NCPA power plant during normal power plant operation are not sufficient to require PSD review for SO_2 .

24. Emissions of TSP from the NCPA power plant during normal power plant operations are not sufficient to require PSD review for TSP.

Emissions Limitations - Steam Stacking

1. The steam supplier states that during power plant outages of less than 1 week, the steam supplying the NCPA power plant will be "stacked" (vented) at the steam release valve through a bank of rock mufflers. The amount of steam released at the steam release valve will be controlled through the use of automated flow control valves.

2. The NCPA power plant will employ dual 55 MW turbine/generators.

3. NSCAPCD Rule 455(b) is subject to review on or before January 1, 1982. Rule 455(b) presently limits H_2S emissions during periods of steam stacking as follows:

- (a) for an unscheduled outage of a single unit, H_2S emissions must be limited to 10% or less of the H_2S contained in the steam supply at full unit load within four hours of the outage; or
- (b) for an unscheduled outage of both units of a dual unit system, H_2S emissions must be limited to 50% or less of the H_2S contained in the steam supply for both units at full power plant load within four hours of the outage; or

(c) H_2S emissions at the steam release valve may not exceed 15 kg/hr.

4. The emissions reductions specified above must be achieved within 1 hour of a scheduled outage.

5. The steam supplier proposes to comply with the H_2S stacking emissions limitations of NSCAPCD Rule 455(b) through the use of "automated" flow control valves located in the flow lines of all supply wells and remotely controlled from a central point located at or near the power plant.

6. The ability of the steam supplier to comply with the H_2S stacking emissions limitations of Rule 455(b) through the use of automated flow control valves has not been demonstrated.

7. The Applicant should, at or prior to the time an AFC is filed, obtain and provide detailed information from the steam supplier demonstrating the engineering feasibility of the automated flow control valve to reduce H_2S emissions as required by Rule 455(b).

8. NSCAPCD Rule 455(a) limits emissions of sulfur compounds, calculated as SO_2 , to 1000 ppm during periods of steam stacking.

9. Emissions of sulfur compounds, calculated as SO_2 , will be substantially less than 1000 ppm during periods of steam stacking.

10. NSCAPCD Rule 420(d) limits emissions of particulate matter during periods of steam stacking to whichever is lesser of:

(a) 0.20 grains/cF; or

(b) 40 lb/hr.

11. Emissions of particulate matter during periods of steam stacking will be less than either:

(a) 0.20 gr/cF; or

(b) 40 lb/hr.

12. Pursuant to federal PSD regulations BACT may be required.

13. If the steam supplier complies with the emissions limitations of Rule 455(b), federal BACT requirements will be satisfied.

14. The EPA has prescribed PSD increments for SO_2 and TSP.

15. Emissions of SO_2 from the steam release valve will be less than that required for PSD review.

16. Emissions of TSP from the steam release valve will be less than that required for PSD review.

Conclusions - Emissions Limitations

1. If the Applicant files an AFC for the NCPA power plant, it shall include sufficient operating data from PG&E Unit 15 to determine, with reasonable certainty, that the partitioning efficiency of the surface condenser is adequate to meet the 100 grams/gross MWh H_2S emissions limitation of NSCAPCD Rule 455(b).

2. The NCPA power plant, as proposed in the NOI, will comply with applicable emissions limitations for all pollutants, with the possible exception of H_2S emissions limitations, during normal power plant operation.

3. The NCPA power plant, as proposed in the NOI, will comply with federal PSD requirements during normal power plant operation, assuming such requirements apply.

4. *The Applicant shall, at or prior to the time an AFC is filed, obtain and provide from the steam supplier detailed information demonstrating the ability of the automated flow control valve to reduce H₂S stacking emissions as required by Rule 455(b).*

5. *Emissions from the steam release valve, during periods of steam stacking, will comply with applicable emissions limitations, with the possible exception of H₂S emissions limitations.*

6. *Emissions from the steam release valve during periods of steam stacking will comply with federal PSD requirements, assuming such requirements apply.*

5. Committee Findings and Conclusions

The Committee adopts, as preliminary, the Findings and Conclusions set forth above. As is evident from the tentative language in the Findings and Conclusions, definitive resolution depends, in part, upon final interpretation of the applicability of certain Federal standards. The Committee is seeking further information regarding this area.

Another point of concern at the present time is the availability of partitioning efficiency data from PG&E's Unit 15, referred to in Finding Numbers 12 and 13. It was initially thought that this data would be available around December 1978 or shortly thereafter. NCPA has expressed concern, however, that this data may not be available from PG&E until "sometime" in 1979 (NCPA comments on Geysers 17 Preliminary Report, November 20, 1978).

PROPOSED FINDINGS AND CONCLUSIONS
AIR QUALITY
NEW SOURCE REVIEW

Findings

1. Rule 220(b)(1) of the Northern Sonoma County Air Pollution Control District requires an air quality analysis for any new source which will emit more than 25 lb/hr or 250 lb/day of any pollutant for which there is a state or national ambient air quality standard.
2. The NCPA power plant will emit more than 250 lb/day of H_2S during normal power plant operation.
3. The NCPA power plant steam release valve may emit more than 25 lb/hr of H_2S during periods of steam stacking for up to 4 hours during an unscheduled outage and up to 1 hour during a scheduled outage.
4. The state ambient air quality standard for H_2S is 0.03 ppm averaged over 1 hour. This standard may not be equalled or exceeded. There is no federal ambient air quality standard for H_2S .
5. Ambient H_2S concentrations in the Geysers KGRA and in the vicinity of the NCPA power plant have exceeded 0.03 ppm.
6. NSAPCD Rule 230(c) requires denial of an Authority to Construct for a geothermal power plant if emissions from such power plant will prevent the attainment, interfere with the maintenance, or cause a violation of any state or national ambient air quality standard.
7. Notwithstanding the provisions of NSCAPCD Rule 230(c), conditional approval of an Authority to Construct is permissible pursuant to Rule 230(d) if:
 - (a) the new source employs BACT;
 - (b) emissions reductions from existing sources are obtained which result in a net reduction in total emissions from the new source and such existing sources;

(c) the emissions reductions specified above will provide a net air quality benefit; and

(d) all existing sources owned or controlled by the Applicant are in compliance with all applicable rules, regulations, and approved compliance schedules.

9. The Applicant does not own or control any existing sources in the Geysers.

10. NSCAPCD Rule 455, adopted in June, 1978 is an H_2S compliance schedule requiring specified reductions in H_2S emissions from new and existing sources to achieve a gradual reduction in ambient H_2S concentrations so that the H_2S ambient air quality standard will be attained and maintained as of January 1, 1985.

11. Because of the provisions of NSCAPCD Rule 455, the requirements of Rules 230(c) and (d) do not apply unless the new source will prevent the attainment, interfere with the maintenance, or cause a violation of the H_2S ambient air quality standard after January 1, 1985. Thus, the Applicant must achieve emissions reductions greater than those required pursuant to Rule 455 if the new source would interfere with the H_2S control strategy contemplated by Rule 455.

12. The Air quality analysis provided by the Applicant in the NOI is inadequate to determine if H_2S emissions from NCPA power plant will prevent the attainment, interfere with the maintenance, or cause a violation of the H_2S ambient air quality standard during normal power plant operation and during periods of steam stacking.

13. The Applicant has agreed to perform an additional air quality analysis prior to or at the time of filing the AFC. Such analysis should consider maximum impact at points of sensitive receptors. This analysis should:

(a) assess impacts of normal plant operation and of steam stacking during plant shutdown; and if the impact on ambient H_2S concentrations exceeds 1.0 ppb;

- (b) assume a background H_2S concentration for the initial year of operation that is consistent with all applicable source emissions limitations contained in NSCAPCD and Lake County APCD Rules which are in effect at the time of filing the AFC.

14. If the analysis described in Finding 12 shows a violation of the H_2S standard at sensitive receptors, the Applicant may provide a similar analysis assuming a background H_2S concentration consistent with source emissions from existing sources and those currently under construction which comply with emission reductions required by January 1, 1985, the date at which NSCAPCD rules are intended to achieve the ambient air quality standard for H_2S .

15. The Applicant has agreed to perform the analysis identified in Findings 13 and 14 for the following meteorological conditions:

- (a) nocturnal drainage;
- (b) subsidence inversion with an inversion base of not less than 3500 feet (MSL);
- (c) downwash;
- (d) those conditions present during the highest H_2S concentrations recorded at Anderson Springs, Anderson Ridge, and Whispering Pines; and
- (e) those conditions present during days having the highest number of H_2S exceeds at the Anderson Springs, Anderson Ridge, and Whispering Pines monitoring stations.

16. The Applicant has proposed to conduct an air quality and meteorological study to provide data sufficient to adequately perform the analyses as specified in Findings 13, 14, and 15 as follows:

- (a) for the meteorological conditions stated in Finding 15 as "nocturnal drainage" and "downwash", a correlation study to determine the

applicability of Unit 16 tracer release data, Unit 17 tracer release data, Unit 13 tracer release data, data contained in The Geysers Geothermal Area Emissions and Aerometric Data Set (1976-1977), ERT Document No. P-5324, prepared for The Geysers Geothermal Environmental Committee, August, 1978 (hereafter "the GGEC tape"), and any other data deemed relevant by the Applicant to the NCPA power plant site;

- (b) for the meteorological condition stated in Finding 15 as "subsidence inversion with an inversion base of not less than 3500 feet (MSL)" (hereafter "limited vertical mixing"), tracer study performed during a period of limited vertical mixing, or although not preferred, a correlation of physical and meteorological characteristics at the Unit 17 site to the NCPA site and application of a model validated for use at the Unit 17 site; and
- (c) for those meteorological conditions stated in Finding 15 as "conditions (d) and (e)", a review of the GGEC tape and other data deemed relevant by the Applicant to verify Staff's belief that such conditions have occurred during periods of limited vertical mixing.

17. Information from the proposed study will not be available to perform the analyses specified in Findings 13, 14, and 15 during proceedings on the NOI for the NCPA power plant.

18. With the possible exception of the H_2S standard, the NCPA power plant as proposed in the NOI, will not prevent the attainment, interfere with the maintenance, or cause a violation of any applicable ambient air quality standard.

Conclusions - New Source Review

1. With the possible exception of emissions of H_2S , the NCPA power plant will, during normal power plant operation, comply with applicable ambient air quality standards.

2. With the possible exception of emissions of H_2S , emissions from the steam release valve will, during periods of steam stacking, comply with applicable ambient air quality standards.

3. The Applicant shall perform the air quality analyses described in Findings 13, 14, and 15 (New Source Review), and shall provide the results of such analyses at or prior to the filing of the AFC for the NCPA power plant.

4. The Applicant shall conduct the air quality and meteorological study described in Finding 16 (New Source Review), and shall provide the results prior to December 31, 1978, or at such earlier time as is reasonably feasible.

6. Committee Findings and Conclusions - Air Quality New Source Review

The Committee adopts the Findings and Conclusions set forth above on a preliminary basis. As mentioned in subsection III. B.2, however, there is a difference of interpretation regarding NSCAPCD Rules 230 and 455. This interpretation would affect Findings 6-11 above. More definitive Findings and Conclusions must also await the air quality analyses referred to in Finding Numbers 13-16 and Conclusion Numbers 3-4 above.

The Lake County APCO has expressed concerns regarding the study methods to be utilized in Finding Number 16 (see Appendix C). The Staff has submitted its response concerning the proposed methods (Appendix E).

C. Other Site-Related Issues

1. Introduction

In addition to air quality considerations, the acceptability of a proposed site depends upon the possible impacts that constructing and operating the proposed facility may have on human and ecological values in the area. Thus, the Committee must consider factors such as impacts on soils and hydrology, socio/economic concerns, viability of mitigation measures, and the nature and scope of the overall effects on the proposed project area. The following Findings and Conclusions treat these factors on a subject by subject basis.

2. Proposed Findings and Conclusions

Following are the Joint Findings and Conclusions on Biological Resources, Noise, Water Quality, Soils, Hydrology and Water Resources, Cultural Resources, and Socio-Economics proposed by the Commission staff and NCPA for adoption by the Committee:

PROPOSED FINDINGS AND CONCLUSIONS
BIOLOGICAL RESOURCES

Findings

1. The following laws and standards govern the preservation and protection of biological resources:
 - °Endangered Species Act of 1973 and implementing regulations
 - °Ecological Reserve Act of 1968 and implementing regulations
 - °Endangered Species Act of 1970 and implementing regulations, Fish and Game Code sections 2050-2055
 - °California Fish and Game Code section 3511, 4700, 5000, 5050, 5515, and implementing regulations
 - °California Species Preservation Act of 1970, Fish and Game Code Sections 900-903.
2. The American Peregrine Falcon is an endangered species by designation of California and Federal Law.
3. The American Peregrine Falcon has been observed in The Geysers-Calistoga Known Geothermal Resource Area.
4. No active breeding sites for the American Peregrine Falcon are known to exist at the NCPA site.
5. The NCPA site is not included within the federally proposed "Critical Habitat Zone" for the American Peregrine Falcon.
6. There are no other rare, threatened, or endangered wildlife species known to exist at the NCPA site.
7. The Golden Eagle and the Ringtail Cat are fully protected species by designation of California law.
8. The Golden Eagle and the Ringtail Cat have been observed in the Geysers-Calistoga Known Geothermal Resource Area.
9. The NCPA site is not known to be a significant breeding or feeding area for either the Golden Eagle or the Ringtail Cat.

10. There is a water seep located at the south-east portion of the plant site which is believed to be an area of critical concern. In preparing and filing the detailed mitigation plan as specified by Finding 12, the Applicant shall evaluate the nature and significance of the seep and identify any mitigation measures it purposes [sic] to utilize for the protection of the seep.

11. Species of recreational value are known to exist on or near the NCPA site.

12. The applicant has indicated in the NOI numerous mitigation measures which could be implemented to reduce on-site impact to biological resources, but did not specify how they would be implemented. The applicant has agreed to submit a detailed mitigation plan, which will specify the mitigation measures it proposes to utilize, including the schedule for implementation and relative location, size and configuration. The plan is scheduled to be completed by November 30, 1978. The staff shall report to the Committee after it has reviewed the applicant's submittal and shall make its recommendation as to the need for additional or differing mitigation measures.

13. Vegetation stress has occurred from cooling tower drift at The Geysers. The staff inquired of the applicant regarding the effects of cooling tower drift on vegetation. The applicant responded that the data on the effect of cooling tower drift would be provided about November 30, 1978. The staff shall report to the Committee after it has reviewed the applicant's report and shall make such recommendations as may be necessary.

Conclusions

1. The applicant shall provide the data requested, in Findings 10, 12, and 13, in accordance with the schedules outlined in the Findings.

2. *Subject to the receipt of additional data, the NCPA power plant and related facilities can be constructed and operated in compliance with the applicable standards for the protection and preservation of biological resources.*

3. *Staff and Applicant agree that no adjudication of this issue is necessary in the NOI.*

Committee Findings and Conclusions

The Committee concurs with all Findings and Conclusions set forth above. At the Prehearing Conference, the Committee directed the Staff to submit a more detailed listing of the applicable sections of biological resources laws and standards, and to indicate their position as to the relationship between the information to be submitted by NCPA, as noted in Findings 10, 12, and 13 and Conclusion 2, and ultimate findings regarding compliance or non-compliance (10/31/78 Transcript, pp. 12-13). Their response was also submitted to the Applicant for inspection and comment. The Staff's response, in part, is as follows:

At present, the studies and/or information do not bear on the question of compliance with the identified standards. The information which has already been submitted by the Applicant is adequate for the purposes of determining compliance with the applicable standards. The efforts to be undertaken in Findings 10, 12 and 13 are primarily directed toward identification and evaluation of the various mitigation measures which can and/or will be utilized to minimize the environmental impact to the proposed project. This information is expected by December and the Staff will review and respond to the information as is necessary. (From November 15, 1978 "RESPONSE OF THE STAFF TO COMMITTEE REQUEST")

The California Department of Fish and Game is also assisting the Staff in addressing biological resources concerns (10/31/78 Transcript, pp. 10-12).

PROPOSED FINDINGS AND CONCLUSIONS
NOISE

Findings

1. Lake and Sonoma Counties have adopted noise elements to their general plans. The intent of the Lake County noise element is to limit noise to 55 dBA Ldn. Certain construction activities, such as the movement of heavy equipment during daylight hours, are exempt from Lake County noise standards. The Sonoma County element does not have specified dBA limits. The noise limits are set in the Sonoma County use permits.

2. The state noise limits are established by CAL-OSHA, 8 Cal. Admin. Code sections 5095-5099 and Cal. Vehicle Code section 23130.

3. The federal standards are set by the Occupational Health and Safety Act of 1970 and by the USGS Geothermal Resources Operational Order #4.

4. The ambient noise levels of the site and sensitive receptors are contained in the NOI in Volume 2, Appendix C, Table 8-3.

5. The closest identified sensitive residential receptor to the NCPA plant site is 1.23 miles north of the site. Based upon the estimated projected project operational noise level to this receptor, the sounds of operation should be inaudible at this receptor. The projected operating noise level would also be inaudible to the other identified sensitive receptors which are farther distant than 1.23 miles.

6. The third octave band noise frequency data for the cooling tower, steam jet ejector and turbine generator are provided in figures 8.3, 8.4 and 8.5 of the NOI. Certain tonalities from the steam jet ejector and turbine generator are expected to be discernible at the plant, but due to molecular absorption, terrain and vegetation barrier effects, it is not expected that these tonalities will be observed at the receptors. No discernible tonalities are expected from the cooling tower.

7. The highest plant construction noises will be caused by large earth moving equipment. The noise associated with this equipment will be discernible to some of the closest receptors. However, it is proposed that the activity will be temporary in nature and performed during daylight hours.

8. NCPA will require its employees to comply with the requirements of CAL-OSHA for hearing conservation through administrative controls and/or the use of hearing protectors, wherever necessary.

9. A representative list of typical noise sources and levels associated with steam supply activities are [sic] set forth in the Environmental Impact Report for Union Oil, Unit 17 (December 1977) and Union Oil simplified noise model, Unit 17 Geothermal Development Area (March 1978).

10. The projected noise levels for production well testing with portable test mufflers, steam transmission lines start-up via unmuffled well head venting and well head master valve changes will be significant noise sources and will be discernible to sensitive receptors. However these three events occur infrequently. The noise other than the above three associated with the steam field development and production would not be discernable [sic] to sensitive receptors.

11. The effects from the steam field development generally exceed plant construction and operation noise levels. The cumulative impacts of these two noise sources will not increase the impact on the receptors over the noise levels associated with the well development operation noise levels.

Conclusions

1. The power plant noises during normal operations should be inaudible to the closest receptor to the power plant site.

2. Power plant noises during normal operations will be in compliance with Lake and Sonoma County noise standards and with the requirements of CAL-OSHA and with federal standards.

3. Noises during periods of steam stacking will be inaudible to the closest receptors to the power plant site with the use of rock mufflers.

4. Noises during periods of steam stacking will be in compliance with Lake and Sonoma County noise standards and with the requirements of CAL-OSHA and with federal standards.

5. Noises caused by steam field operations other than steam stacking will be generally discernible to the local receptors, but such noises are infrequent and within the tolerable range.

6. Noises caused by construction of the power plant and related facilities could be discernible to some of the receptors closest to the power plant site but will be in compliance with Lake and Sonoma County noise standards and CAL-OSHA requirements and federal standards.

7. The Applicant shall limit the use of heavy earth moving equipment to daylight hours whenever possible. If the Applicant limits the use of earth moving equipment to daylight hours, the noises caused by plant construction will be tolerable to local receptors.

8. No adjudication of issues related to the impacts of noises caused by power plant construction and operation is anticipated at the NOI for the NCPA project.

PROPOSED FINDINGS AND CONCLUSIONS
WATER QUALITY

Findings

1. The Stretford effluent and steam condensate are likely to contain substances which are classified as toxic and hazardous.

2. The Stretford effluent will be divided into elemental sulphur and Stretford purge stream. The latter will be disposed of at an approved disposal site. The former will be temporarily stored at the site in an enclosed container, and either sold for use or disposed of at an approved disposal site.

3. The steam condensate will be utilized for cooling water and the excess will be reinjected.

4. The cooling tower emissions are likely to contain certain toxic chemicals. It is unlikely that these emissions would be deposited or otherwise reach surface waters in such quantities as to cause a violation of water quality standards.

5. The water quality standards which will be met include:

- a. U.S. Environmental Protection Agency, "Water Quality Criteria" (1972)
- b. U.S. Geological Survey, "Geothermal Resources Operational Order No. 4."
- c. California Water Quality Control Plan:
 - Sacramento River Basin (5A)
 - North Coastal Basin (1B)
- d. Porter-Cologne Water Quality Control Act
- e. California Administrative Code, Title 23, Chapter 3
- f. California Regional Water Quality Control Board, North Coast Region, Order No. 74-151.

6. The applicant has proposed to construct a retention barrier to surround the entire plant to contain any spills. The barrier will be impermeable and have a volume larger than any known spill and greater than the quantity of water above the plant site ground level. A catch basin with pump facilities and alarm devices will be constructed to pump any condensate spills back to the cooling tower. The area within the retention barrier shall be lined with a material of permeability of 1×10^{-6} cm/sec or less. Prior to or at the time of filing of the AFC, the applicant shall submit the detailed design criteria for the retention barrier and liner.

7. The applicant has suggested several methods for the disposal of the various liquid wastes (sewerable and nonsewerable) to be generated by the plant. The final selection of methods to be utilized depends upon the completion of several ongoing studies. These studies are expected to be completed by November 1978, and the selection of disposal methods to be completed thereafter. Prior to or at the time of the filing of the AFC, the applicant has agreed to provide the specific details of its proposal for disposal of all liquid wastes, including location and delineation of proposed facilities and their operational capabilities.

8. The applicant has not demonstrated compliance with North Coast Regional Water Control Board Order 74-151 (Spill Prevention Contingency and Containment Plan). Prior to or at the time of the filing of the AFC, the applicant shall provide such information as will show compliance with the above order.

Conclusions

1. There will be no intentional discharge of any toxic or hazardous material into surface waters in quantities sufficient to affect water quality.

2. It is unlikely that plume drift deposition will violate water quality standards.

3. *Prior to or at the time of the filing of the AFC, the applicant shall submit the information requested in Findings 6,7, and 8 above.*

4. *Staff and applicant agree that no adjudication of this issue is necessary in the NOI.*

Committee Findings and Conclusions

The Committee accepts the Findings and Conclusions set forth above. Finding Number 2 states that the "Stretford purge stream...will be disposed of at an approved disposal site." This portion of the effluent can be reinjected, but NCPA has stated that the purge stream will instead be disposed of at an approved site ("Staff Position Paper on Water Quality", p. 2).

PROPOSED FINDINGS AND CONCLUSIONS
SOILS

Findings

1. The soils series surrounding the plant site, when disturbed by earth moving activities, are highly erosive.
2. The standards applicable to the project regarding soils are:
 - a) The requirements contained in the Waste Discharge Requirements for Non-Sewerable Waste Disposal to Land-Disposal Site Design and Operation Information (January 1978) by the California State Water Resources Control Board.
 - b) Sonoma County Water Agency and Flood Control District Ordinances.
 - c) U.S. Geological Survey, "Geothermal Resources Operational Order No. 4", paragraph 5.
3. The mitigation measures to be utilized for the project to control soil loss and erosion are as follows:
 - a) The temporary and permanent measures outlined in the NOI at pages IX-1 through IX-3, 6-1.
 - b) The proposals by the engineering consultants in "Specifications for the Preparation for Drill Sites and Access Roads" in the Castle Rock Springs EIR.
 - c) The requirements contained in the Waste Discharge Requirements for Non-Sewerable Waste Disposal to Land-Disposal Site Design and Operation Information (January 1978) by the California State Water Resources Control Board.
 - d) The removal, stockpiling and replacing of topsoil during grading operations.

4. While the mitigation measures proposed by the Applicant appear to be acceptable, no specific schedule or design for implementation has been designated. The Applicant shall provide prior to or at the time of the filing of the AFC the specific designs and schedules for the implementation of the measures outlined in Finding 3 above.

Conclusions

1. The Applicant shall implement the mitigation measures outlined in Finding Number 3.

2. If the mitigation measures in proposed Finding Number 3 are implemented, it appears that this project will comply with the applicable standards.

3. The applicant shall provide prior to or at the time of the filing of the AFC, the information requested in Finding 4.

4. The Staff and Applicant agree that no adjudication of this issue is required in the NOI.

Committee Findings and Conclusions

The Committee concurs with all Findings and Conclusions set forth above. At the Prehearing Conference, a representative of the U.S. Geological Survey indicated that that agency had not received the documents referred to in Finding Number 2(a) and (b) and Finding Number 3(b) and that U.S.G.S. would submit comments on the "Soils" area. Staff agreed to send the requested materials to U.S.G.S. (10/31/78 Transcript, pp. 14-16). The response from U.S.G.S. has not been received in time for inclusion into this Report.

PROPOSED FINDINGS AND CONCLUSIONS
HYDROLOGY AND WATER RESOURCES

Findings

1. The applicant proposes to utilize condensed geothermal steam for the plant cooling water supply.
2. The total plant operating needs for fresh inland waters will be minimal and should total approximately one acre foot of water per year.
3. The source for the necessary fresh water will be from either trucking water from existing water sources, utilization of the turbine building roof for collection of rain water or drilling of a water well nearby. In any event, the impacts on water resources would be minimal.
4. The plant site is located on a ridge line and at the headwaters of Big Sulphur Creek. As such, there is little surrounding water shed upon which to generate overland flows and there would be no possibility of flood from Big Sulphur Creek.

Conclusions

1. The construction and operation of the proposed plant would not adversely affect fresh water resources.
2. The chances of the plant site being flooded by overland flow or from the nearest surface water (Big Sulphur Creek) is virtually non-existent.
3. Staff and applicant agree that no adjudication of this issue in the NOI or AFC is necessary.

PROPOSED FINDINGS AND CONCLUSIONS
CULTURAL RESOURCES

Findings

1. Cultural resources include paleontological, archeological, historical, ethnographical resources and resources of educational, scientific, religious and other significance.

2. The applicable standards are:

- a) National Historic Preservation Act of 1966, 16 U.S.C 470 et seq., and implementing regulations, 36 CFR 800 et seq.
- b) Native American Historical, Cultural and Sacred Sites. Public Resources Code section 5097.9 et seq.
- c) U.S. Geological Survey, Geothermal Resource Operational Order #4.
- d) BLM Cultural Resources Management Manual, March 6, 1978 (43 CFR Part 3 and Departmental Manual Part 310.7.6).
- e) Mineral Leasing Act of 1920 (P.L. 66-146; 41 Stat. 437).

3. The plant site and steam field have been evaluated for archeological sites and artifacts and none were present in either area.

4. The remaining cultural resource considerations have not been fully evaluated. A cultural resource survey which will address and evaluate paleontological, historical, ethnographical resources and resources of educational, scientific, religious and other significance will be prepared and submitted by the applicant prior to or at the time of the filing of the AFC.

Conclusions

1. The proposed plant and related steam field will not impact upon archeological resources as none are present in the site area.

2. The existence and significance of paleontological, historical, and ethnographic resources, as well as resources of educational, scientific, or religious significance cannot be determined until the cultural resource survey identified in Finding 4 above is submitted and reviewed. Such survey shall be filed prior to or at the time of the filing of the AFC.

3. Subject to compliance with the requirements of Finding 4, applicant and Staff agree that no adjudication of these issues are [sic] required during the NOI process.

PROPOSED FINDINGS AND CONCLUSIONS
SOCIO/ECONOMIC

Findings

1. The proposed project will employ approximately 85 workers during the power plant's peak construction time, and have an average employment level of 50 workers during its 33 month construction period.
2. The previous operations in The Geysers area have established a resident labor force in the Sonoma-Lake County Area.
3. Both Lake and Sonoma Counties will have economic impacts from the construction and operation of the NCPA power plant, irrespective of the origin of the workers. These impacts reflect the additional economic activity generated in the two Counties as a result of the payrolls of the personnel involved in the NCPA project. Sonoma County will most likely receive the greater amount of these payroll effects.
4. Sonoma County will receive tax revenues from the assessed value of the proposed power plant and a portion of the steam field.
5. Lake County will derive revenues from the development of that part of the NCPA's steam field which lies within the County's boundaries.
6. The passage of Proposition 13 has altered the assessment picture for both the valuation of utility properties and local property tax rates.
7. Direct and indirect costs to be borne by Sonoma and Lake County [sic], as well as by the communities near the project as a result of NCPA's construction and operation will be minimal.
8. The proposed power plant is located in an area whose principal land use is the exploration, development, and utilization of geothermal energy and which has numerous geothermal power plants in operation.

9. Sonoma County has adopted a policy of providing for the planned development and restoration of an acceptable environment in such geothermal resource areas by means of: promoting the compatibility of the resource with the long range environmental, scenic and open space potential of the development area; encouraging compatible, comprehensive multiple use of leaseholds, and the application of high standards governing all phases of geothermal exploration and development.

10. The Commission Committee has requested Lake and Sonoma Counties to provide comments and recommendations regarding the compatibility of the proposed project with local land use plans, goals and policies. No response has been received to date.

Conclusions

1. Due to the present resident labor force in the Sonoma-Lake County area, the proposed project will not cause a significant increase in the number of construction workers who may migrate to these areas in order to work at the NCPA power plant.

2. Payroll and income effects generated by the construction of the proposed power plant will occur in Sonoma and Lake Counties. Sonoma County, because of the large proportion of geothermal-related workers residing there, will likely receive the larger share of these income effects.

3. Direct and indirect costs for Sonoma and Lake Counties as well as the local communities near to the project, as a result of NCPA's construction and operation of the power plant appear at this time to be less than the anticipated tax revenues associated with the project. Project tax revenues, as well as effects from construction payrolls appear to be of a sufficient magnitude to cause a positive balance in a cost-benefit comparison.

4. *The proposed location of the facility is in an area that has numerous geothermal electrical generation facilities in operation. The proposal appears, therefore, to be compatible with the land use plans of Sonoma County.*

5. *Staff and applicant agree that no adjudication of this issue will be necessary in either the NOI or AFC.*

Committee Findings and Conclusions

The Committee concurs with all Findings and Conclusions set forth above. As discussed in Finding Number 10, Lake and Sonoma Counties have not responded to Committee requests to provide comments and recommendations concerning the compatibility of the proposed project with local land use plans, goals, and policies.

It is the Staff's position that the "land use" plans referred to in Conclusion Number 4 do not include air quality considerations. This conclusion, as adopted, indicates compliance with the land use plans of Sonoma County. In the Staff's view, statements of record also indicate probable compliance with the land use plans of Lake County (10/31/78 Transcript, pp. 21-23). The Committee will issue another request to Lake and Sonoma Counties to ascertain their views on the compatibility of the proposed project with local land use plans, goals, and policies.

3. Committee Findings and Conclusions

The Committee adopts all of the Findings and Conclusions on biological resources, noise, water quality, soils, hydrology and water resources, cultural resources, and socioeconomics, as contained in the preceeding pages, proposed by the Commission staff and NCPA.

To summarize, the following reports and/or studies relating to the above areas are yet to be submitted for consideration during the NOI process:

- o A detailed biological resources mitigation plan, scheduled to be completed by November 30, 1978 (Finding Number 12, "Biological Resources");
- o Cooling tower drift data, to be provided by approximately November 30, 1978 (Finding Number 13, Id.).

The following reports and/or studies relating to the above enumerated areas are to be submitted at or prior to the filing of the AFC:

- o Detailed design criteria for a retention barrier and liner (Finding Number 6, "Water Quality");
- o Specific details of a liquid waste disposal proposal (Finding Number 7, Id.);
- o A showing of compliance with the North Coast Regional Water Control Board Order 74-151, Spill Prevention Contingency and Containment Plan (Finding Number 8, Id.);
- o Specific designs and schedules for dealing with soil loss and erosion mitigation measures (Findings Number 3 and 4, "Soils");
- o A cultural resources survey dealing with the paleontological, historical, and ethnographical resources, and resources of educational, scientific, religious, and other significance (Finding Number 4, "Cultural Resources").

IV. PUBLIC HEALTH, SAFETY AND RELIABILITY

A. Introduction

Public Resources Code Sections 25511 and 25512 require the Commission to consider "the adequacy of measures proposed by the applicant to protect public health and safety". Central to this consideration is determining the conformity of the proposed power plant with applicable public health and safety laws and standards.

Public Resources Code Section 25216.3 authorizes the Commission to "compile relevant, local, regional, state, and federal land use, public safety, environmental, and other standards to be met in designing, siting, and operating facilities in the state", and to "...adopt standards, except for air and water quality, to be met in designing or operating facilities to safeguard public health and safety, which may be different from or more stringent than those adopted by local, regional, or other state agencies...".

The Commission has not adopted standards different from or more stringent than any local, regional, state, or federal standards effective at the present time. Thus, the Commission is currently using existing standards as the benchmark to evaluate the adequacy of public health and safety protection measures.

Many of the site-related issues discussed in previous sections of this Report are relevant to making the public health, safety, and reliability determinations required by Public Resources Code Section 25511. For example, Findings 1-11 and Conclusions 1-8 on Noise, Findings 1 and 4-8 and Conclusions 1-2 on Water Quality, Findings 2-24 and Conclusions 3 and 8-10 and Conclusions 5-6

on Air Quality and emissions limitations, among others, speak to the adequacy of public health and safety protection measures. Section IV.B also presents Public Health Findings and Conclusions. In addition, there are two issues logically relevant to making safety and reliability determinations for geothermal power plants. These are the structural design and transmission line issues discussed in Section IV.C.

B. Public Health

1. Introduction

Geothermal steam found at the Geysers is composed of various chemical elements and compounds. In a geothermal power plant, this steam source is used to provide heat (and energy) to drive electric power-producing turbines and generators. The steam is not, however, totally "consumed" during the generation process. Rather, a portion is condensed and reinjected into the underlying steam field and a portion is ducted into the cooling tower for release into the atmosphere. This cooling tower exhaust and other ventings into the atmosphere (such as during periods of steam stacking) expose the surrounding area to the chemical components of the geothermal steam.

Hydrogen sulfide (H_2S) is the principal chemical component of the exhaust gas, although constituents such as ammonia, arsenic, mercury, sulfur dioxide, suspended particulates, and radionuclides are also present. It became apparent during the proceedings on PG&E's Geysers Unit 17 that additional detailed information was needed to meaningfully assess the public health affects of exposure to the components of geothermal steam. Air quality considerations also interact with this area but, as stated in the Air Quality section (section III.B), factors such as dilution, dispersion, and ambient concentrations cannot

be evaluated until the completion of the pending air quality analysis. The lack of relevant data thus renders the Findings and Conclusions regarding H_2S , ammonia, arsenic, mercury, and radionuclides, at this point, somewhat less definitive than desired (though adequate for the purposes of this Report). The data appears sufficient, however, to reach more definitive Findings and Conclusions regarding the public health effects of exhaust emissions of sulfates, sulfur dioxide (SO_2), and total suspended particulates (TSP).

2. Proposed Findings and Conclusions

The Commission staff and NCPA have jointly proposed the following Findings and Conclusions on Public Health for adoption by the Committee. References to applicable and suggested air quality standards are included where appropriate.

PROPOSED FINDINGS AND CONCLUSIONS
PUBLIC HEALTH

Findings - Hydrogen Sulfide

1. The NCPA power plant will emit hydrogen sulfide (H_2S) in the cooling tower exhaust during normal plant operation and in the steam supply during periods of steam stacking.
2. Chronic long term exposure to H_2S concentrations of 0.08 ppm and above has been reported to cause adverse health effects in the human population.
3. The health effects of exposure to H_2S in concentrations less than 0.08 ppm are not well documented.
4. Due to the lack of data, and the uncertainty over the validity of studies of low level exposures, experts disagree on actual effects of such exposures.
5. Hydrogen sulfide has an odor which can be detected at concentrations less than 0.08 ppm.
6. The state ambient air quality standard for H_2S is 0.030 ppm (1 hour average).
7. The state ambient air quality standard for H_2S is based on a nuisance odor threshold.
8. The Illinois ambient air quality standard for H_2S , which is intended to protect public health, is 0.01 ppm (8 hour average).
9. Ambient H_2S concentrations in Anderson Springs and at Anderson Ridge have exceeded the state standard of 0.03 ppm.
10. The impact of H_2S emissions from the NCPA power plant during normal power plant operation on ambient H_2S concentrations at receptors in The Geysers has not yet been adequately determined.
11. The impact of H_2S emissions from the steam release valve during periods of steam stacking on ambient H_2S concentrations at receptors in The Geysers has not yet been adequately determined.

12. Applicant has proposed to conduct a study which will develop sufficient data for an analysis of the impacts of H_2S emissions from the NCPA power plant during normal power plant operation and from the steam release valve during periods of steam stacking on ambient H_2S concentrations in the vicinity of The Geysers.

13. The Applicant should monitor ambient H_2S concentrations in the vicinity of the NCPA power plant during the operating life of the power plant.

Conclusions

1. The health effects of continuous exposure to H_2S in concentrations less than 0.08 ppm are not known.

2. Due to insufficient data regarding adverse health effects from chronic exposure to H_2S at levels below 0.08 ppm, it cannot be concluded whether or not there will be adverse impacts to public health as a result of operation of this plant.

3. The Applicant shall ensure that ambient H_2S concentrations continue to be monitored in the vicinity of the NCPA power plant to determine the level of H_2S exposure experienced by the local population. The Applicant shall include in an AFC submittal a proposal specifying the manner in which continued monitoring is to be effected.

Findings - Ammonia

1. NCPA Geothermal Project No. 2 will emit ammonia in the cooling tower exhaust drift during normal operation and in the steam supply during periods of steam stacking.

2. Inhalation of ammonia in sufficient quantities can cause adverse health effects.

3. There is no applicable ambient air quality standard for ammonia. The California Occupational Safety and Health Standard is 25 ppm (8 hour average). The Environmental Protection Agency has, however, suggested 0.06 ppm as a safe

level for ammonia concentrations in ambient air. (Multimedia Environmental Goals for Environmental Assessment, EPA Document 600/7-77-136 a, November, 1977).

4. Ammonia concentrations in steam from 61 producing wells at The Geysers has averaged 0.0194 percent by weight.

5. The NCPA cooling tower as proposed in the NOI will emit ammonia in concentrations less than 25 ppm.

6. Ammonia released to the atmosphere in the cooling tower exhaust and in the steam supply during steam stacking will be substantially diluted before reaching the nearest receptor.

7. Although dilution of ammonia emissions will occur during transport, the resultant ambient concentrations at points of sensitive receptors cannot be determined until the air quality analysis specified in the Air Quality portion of this statement is provided. At that time Staff will assess ambient ammonia concentrations either by (a) applying a model which has been validated for H_2S transport, or (b) calculating ammonia dispersion patterns by extrapolating the results of tracer release studies.

8. Atmospheric reactions of ammonia emissions could potentially form toxic ammonium compounds, such as ammonium bisulfide.

9. Sulfates can form through atmospheric oxidation of H_2S .

10. Sulfates can be toxic to humans when inhaled in sufficient quantities.

11. The California ambient air quality standard for suspended sulfates is 25 ug/m^3 (24 hour average).

12. The ambient air quality standard for sulfates is not expected to be exceeded as a result of normal power plant operation or the stacking of the steam supply for NCPA Geothermal Project No. 2.

13. Ambient temperatures and concentrations of precursors at The Geysers do permit the formation of ammonium bisulfide in quantities that could cause health effects.

Conclusions

1. Although emissions of ammonia from the cooling tower and from the steam supply during periods of steam stacking are not expected to result in ambient concentrations which could cause adverse public health impacts, a final conclusion must await the air quality analysis to be provided by Applicant.

2. Ammonium bisulfide formed by atmospheric reaction of ammonia emissions will not be present in sufficient quantities to cause adverse health effects.

3. Since the state ambient air quality standard for sulfates is not expected to be exceeded, adverse health impacts should not occur from sulfate formations resulting from operation of the NCPA project.

Findings - Arsenic

1. NCPA Geothermal Project No. 2 will emit some form of arsenic from the cooling tower, and from the steam release valve during steam stacking into the ambient air. Arsenic detected in geothermal steam may be present as suspended particulates, arsenic trioxide vapor or possibly arsine.

2. All forms of arsenic are known to be toxic at some concentration, and some forms are potentially carcinogenic.

3. The World Health Organization has proposed a safe ambient air quality level for arsenic of 5.9 ug/m^3 averaged over a 24 hour period. NIOSH suggests a standard of 2.0 ug/m^3 per 15 minute sampling for arsenic trioxide to protect against carcinogenic effects.

4. The U. S. Environmental Protection Agency has suggested 0.005 ug/m^3 as a safe level for arsenic concentrations in ambient air. (EPA-600/7-77-136 a).

5. The maximum expected arsenic emissions from the cooling tower will be 1 ug/m^3 at point of exit. This arsenic concentration represents the maximum amount of arsenic in the incoming steam, and thus emissions during stacking would not exceed the amount emitted from the cooling tower.

6. Arsenic released to the atmosphere during normal power plant operation and during periods of steam stacking will be substantially diluted before reaching the nearest receptor.

7. Although dilution of arsenic emissions will occur during transport, the resultant ambient concentrations at points of sensitive receptors cannot be determined until the air quality analysis specified in the Air Quality portion of this statement is provided. At that time Staff will assess ambient arsenic concentrations either by (a) applying a model which has been validated for H_2S transport, or (b) calculating arsenic dispersion patterns by extrapolating the results of tracer release studies.

Conclusion

1. Although emissions of arsenic from the cooling tower and from the steam supply during periods of steam stacking are not expected to result in ambient concentrations which could cause adverse public health impacts, a final conclusion must await the air quality analysis to be provided by Applicant.

Findings - Mercury

1. Elemental mercury vapor and other mercury forms will be emitted from the cooling tower during normal power plant operation and at the steam release valve during periods of steam stacking.

2. Mercury is toxic to humans when inhaled or ingested in sufficient quantities.

3. There is no adopted ambient air quality standard for mercury, although the World Health Organization has suggested a standard of 0.8 ug/m^3 for all forms of mercury. In addition, the Environmental Protection Agency has suggested a maximum ambient level of 0.1 ug/m^3 to protect against toxicity and to 0.01 ug/m^3 to protect against potential carcinogenic effects. (EPA-600/7-77-136 a).

4. The mercury content in the steam supply for the NCPA power plant may be as high as 0.02 ppm.

5. Maximum emission concentrations of mercury at the cooling tower point of exit will be approximately 1.0 ug/m^3 . This mercury concentration represents the maximum amount of mercury in the incoming steam, and thus emissions during stacking would not exceed the quantity emitted from the cooling tower.

6. Mercury is diluted in the atmosphere during transport to nearby populated areas.

7. Ambient mercury concentrations in The Geysers monitored by Battelle Northwest Laboratories ranged from 0.001 to 0.018 ug/m^3 . The ambient concentrations were monitored while 11 geothermal power plants were operating. At least one additional power plant will be operating in the vicinity of the proposed site at the time the NCPA power plant is scheduled to commence operation.

8. Although dilution of mercury emissions will occur during transport, the resultant ambient concentrations at points of sensitive receptors cannot be determined until the air quality analysis specified in the Air Quality portion of this statement is provided. At that time Staff will assess ambient mercury concentrations either by (a) applying a model which has been validated for H_2S transport, or (b) calculating mercury dispersion patterns by extrapolating the results of tracer release studies.

9. Mercury can enter the food chain from contaminated air, soil, and water.

10. Mercury in the food chain can adversely impact public health if present in sufficient quantities.

11. The addition of mercury from NCPA's emissions to the food chain as a result of normal power plant operation and steam release valve during periods of steam stacking are [sic] not expected to be significant.

Conclusions

1. Although emissions of mercury from the cooling tower and from the steam supply during periods of steam stacking are not expected to result in ambient concentrations which could cause adverse public health impacts, a final conclusion must await the air quality analysis to be provided by Applicant.

2. The public health will not be adversely affected as a result of the addition of mercury from the NCPA power plant to the food chain.

Findings - Radionuclides

1. The noncondensable gas fraction of geothermal steam originating from natural fumerols and developed wells contains the noble radioactive gas, radon-222 (^{222}Rn).

2. Radium-226 is a parent radionuclide of ^{222}Rn and occurs naturally in the soil in varying concentrations at The Geysers.

3. Inhalation of short-lived daughters, products of ^{222}Rn , can cause adverse health effects.

4. The maximum rate of release of ^{222}Rn in emissions from the 11 operating power plants at The Geysers is approximately 1.43 Ci/day.

5. The results of The Geysers Radiological Measurement Program conducted by LFE Environmental Laboratory indicate that the highest recorded ^{222}Rn concentrations in the air, with the operation of 11 power plants, were 0.5 pCi/l at Units 1-2 and 1.4 pCi/l at SRI station 7 (Sawmill Flat) in an area of elevated ^{226}Ra in the soil.

6. It is not anticipated that the ^{222}Rn content in the steam supply for the NCPA power plant will be substantially different than the average ^{222}Rn content in the steam supply for PG&E Units 1-11.

7. The California standards for ^{222}Rn are 100 pCi/l in air for a controlled area and 3pCi/l in air, above natural background, in uncontrolled area.

8. NCPA should initiate a monitoring program to verify that concentrations of Radon 222 from plant operation remain below applicable standards.

9. The radionuclide ^{210}Pb will be contained in the cooling tower sludge from the NCPA power plant.

10. The ^{210}Pb will result from air scrubbing.

11. Cooling towers at power plant types other than geothermal power plants have shown the same tendency to scrub ^{210}Pb from ambient air.

12. If the cooling tower sludge is disposed of in a Class II-1 disposal site, the public will not be adversely affected by radionuclides in the sludge.

Conclusions

1. If ^{222}Rn content in the steam supply for the NCPA power plant is similar to that for PG&E Units 1-11, the resultant ambient concentrations from the NCPA power plant will not exceed ^{222}Rn standards for both controlled and uncontrolled areas and should not cause an adverse public health impact.

2. The Applicant shall provide detailed information on its proposed ^{222}Rn monitoring program at or prior to the filing of an AFC.

3. The Applicant shall dispose of the cooling tower sludge at a Class II-1 disposal site.

Findings - Sulfur Dioxide

1. Atmospheric oxidation of H_2S may form small amounts of sulfur dioxide (SO_2).

2. The California Air Resources Board has established a 24 hour ambient air quality standard 0.05 ppm in the presence of oxidant or particulate standard exceedance.

3. The California ambient air quality standard for SO_2 will not be exceeded as a result of operation of NCPA Geothermal Project No. 2 during normal power plant operation or during periods of steam stacking.

Conclusion

1. SO_2 resulting from operation of NCPA Geothermal Project No. 2 will not adversely affect public health.

Findings - TSP

1. Total suspended particulates can, depending on their particle size and chemical composition, produce adverse health effects.

2. The California Air Resources Board has adopted an annual standard for TSP of 60 ug/m^3 and a 24 hour standard of 100 ug/m^3 .

3. Emissions from NCPA Geothermal Project No. 2 will not prevent the attainment, interfere with the maintenance, or cause a violation of the ambient air quality standard for total suspended particulates (TSP) during normal operation.

4. Emissions from the steam release valve will not prevent the attainment, interfere with the maintenance, or cause a violation of the ambient air quality standard for TSP during periods of steam stacking.

5. The ambient air quality standard for TSP is intended to protect the public from adverse health impacts.

Conclusion

1. Emissions of TSP during normal power plant operation and during periods of steam stacking will not result in adverse public health impacts.

3. Committee Findings and Conclusions

The Committee adopts the Findings and Conclusions set forth above for purposes of the Preliminary Report.

The following components of geothermal steam would not appear to subject the public to a health hazard in the concentrations which would be released during operations of the proposed project: sulfates, mercury entering the food chain, radionuclides, sulfur dioxide (SO_2), and total suspended particulates (TSP). Assessment of the public health impacts of hydrogen sulfide (H_2S), ammonia, arsenic, and mercury in ambient concentrations must await the monitoring and other studies to be submitted by the Applicant. This data will be supplied from NCPA's air quality studies referred to in Sections III B.2 and 4, and from a study being conducted in conjunction with PG&E's Unit 17 (10/31/78 Transcript, pp. 24-26).

As a point of clarification, it is informative to note that the use of a Class II-1 disposal site for cooling tower sludge ("Radionuclides," Finding Number 12, Conclusion Number 3) is apparently not mandated by the ^{222}Rn content of the sludge, but rather by other constituents.

C. Safety and Reliability

1. Introduction

To further carry out the provisions of Public Resources Code Section 25511 which require the Commission to "determine the adequacy of measures proposed by the applicant to protect public health and safety", Section 25512 requires the Committee to include Findings and Conclusions in the Preliminary Report regarding factors related to the "safety and reliability" of the facilities at the site. Among these factors are "special design features to account for seismic and other potential hazards". "Reliability" is also logically related to the proposed transmission system for transporting power from the project to NCPA's members. These concerns are addressed under the subject headings of structural design and transmission line in the following proposed Findings and Conclusions.

2. Proposed Findings and Conclusions

The Commission Staff and NCPA proposed the following Findings and Conclusions regarding the structural design and transmission line areas:

PROPOSED FINDINGS AND CONCLUSIONS
STRUCTURAL DESIGN

Findings

1. The Applicant proposes to utilize the applicable provisions of the Uniform Building Code, 1976 edition (UBC), as well as the American Institute of Steel Construction (AISC) and American Concrete Institute (ACI) specifications, for its structural design, other than for seismic considerations. For the purposes of the NOI, the Applicant's agreement to use these structural codes is sufficient. However, the application of these various codes to specific structural elements will be reviewed during the AFC.

2. The Applicant proposes to utilize the "Static STRUDL" program for the structural analysis of its major structures. The STRUDL program, containing many analysis methods including both static and dynamic capabilities, is a general analysis program for structural design. For the purposes of this NOI, the use of the STRUDL program is acceptable. However, the application of the various program options to specific structural elements will be reviewed during the AFC.

3. To determine seismic performance criteria, or acceptable seismic risk, the Applicant proposed to do the following:

"The consulting geologist and soils engineer will investigate the following:

- a. Establish a range of possible earthquakes that could be used in the design of the structures.
- b. Analysis of the responses of the site during the postulated design earthquake to evaluate maximum site acceleration and the associated response spectra for various spectral damping ratios.
- c. Establish representative design spectra for each of the postulated design earthquakes.

The probability of the various earthquakes will be evaluated by the geologist and the structural engineer and will be submitted to the jurisdictional agencies for comments. This will establish seismic risk criteria for the specific building site and facility. The criteria will include safety and operational capacity information.

4. Prior to or at the time of the filing of the AFC, the Applicant shall have completed the tasks outlined in Finding #3 above including review by CEC and USGS (Jurisdictional agencies) and shall submit, in the form of a report, the conclusions reached as a result of the activities undertaken in Finding #3 above. The report shall include data, methodology, calculations and assumptions used to derive the conclusions.

5. To determine seismic design criteria, the Applicant proposes to do the following:

"Following evaluation and selection of a design earthquake, the structural engineer will determine the (sic) time period of the specific structures to be designed. He will also select a damping ratio and will use the appropriate spectral acceleration value as provided in the design acceleration spectra. The (sic) time period of the specific structure will be obtained by computer analysis. The structural analysis itself will be performed using the STRUDL program. If necessary, the structural engineer may elect to use a dynamic analysis. For equipment supports and tie downs, acceleration values, both horizontal and vertical, will also be selected by the structural engineer and used in his design."

6. Prior to or at the time of the AFC filing the Applicant shall have completed the study described in Finding #5 above and shall submit in the form of a report the work undertaken in Finding #5 above. The report shall include the data assumptions, methodology, and calculations used to derive the conclusions.

7. To determine seismic response of the site, structures, and the seismic environment of major equipment, the Applicant proposes to do the following:

"Seismic design criteria for the proposed structures would be developed through the use of SHAKE, TRAVEL, and/or FLUSH

computer programs developed by the University of California, Berkeley. University personnel instrumental in the development of these programs would be consulted on their application. Based on a review of historic seismic data, several regional faults would be selected for study. Synthetic or existing earthquake records for those faults would be used to compute ground response and structural response spectra for both maximum probable and maximum credible earthquakes. The resulting data would be presented in the form of structural response spectra."

8. Prior to or at the time of the filing of the AFC, the Applicant shall have completed the tasks outlined in Finding #7 above and shall submit, in the form of a report, the conclusions reached as a result of the work undertaken in response to Finding #7. The report shall include the data, methodology, calculations, and assumptions used to derive the conclusions.

Conclusions

1. The Applicant shall provide the information specified in Findings Nos. 4, 6, and 8 at or prior to the filing of the AFC for the NCPA Geothermal Project #2.

2. Subject to the receipt of additional data, the NCPA proposal regarding structural engineering and design is acceptable for an NOI.

3. The findings and conclusions presented herein relate only to general design concepts. The results of the application of these concepts cannot and should not be determined until the AFC. At that time, the methodology, results, and data will be scrutinized to ensure that the intent of the seismic performance criteria is achieved.

4. Staff and Applicant agree that no adjudication of this issue will be necessary in the NOI.

3. Committee Findings and Conclusions

The Committee adopts the Findings and Conclusions set forth above. At the Prehearing Conference, Staff and Applicant were asked to provide an explanation of "sic" appearing in Finding Number 5 (10/31/78 Transcript, pp. 16-18). The

Staff response of November 15, 1978 indicates, in part:

" 'Sic' was inserted as the term 'time period' which follows is not a technically correct term. The correct term should be 'fundamental period', or inversely stated, 'fundamental frequency'".

In its response of November 10, 1978, the Applicant stated:

"... 'time period' [was intended] to generically refer to the natural period of a structure."

PROPOSED FINDINGS AND CONCLUSIONS
TRANSMISSION LINE

Findings

1. The Applicant proposes to construct a 2.1 mile unbundled double circuit, 1113 KCM conductor transmission line from the plant site to PG&E's existing 230 KV transmission line. Only one circuit will be installed initially. The additional circuit will be added when generation capacity is increased.

2. PG&E and the Applicant are presently negotiating a transmission service agreement whereby PG&E will provide firm transmission service (wheeling) to the Applicant. The exact terms and conditions of the agreement have not yet been agreed upon. The Applicant shall file a copy of the transmission service agreement with the Committee as soon as it is finalized. If the agreement is not finalized and filed prior to the filing of the AFC, the Applicant shall file a status report regarding the transmission service agreement with the Committee at the time of the filing of the AFC, which shall specify the provisions upon which agreement has been reached and those which remain unresolved.

3. The Applicant is also studying additional methods of transmitting from the Geysers the power from its Geothermal Unit #2 rather than via PG&E's system. The Applicant has agreed to submit a copy of its study when it is completed. The study shall be filed prior to or at the time of the filing of the AFC.

4. Upon the receipt of the transmission study referred to in Finding 3 above, and/or Transmission Service Agreement referred to in Finding 2 above, the Staff shall report to the Committee regarding power transmission alternatives at the Geysers.

5. The Applicant has agreed to comply with Public Utilities Commission General Order 95.

Conclusions

1. *The Applicant shall provide the information requested in Findings Nos. 2 and 3 prior to or at the time of the filing of the AFC.*

2. *The Staff and Applicant agree that no adjudication of this issue during the NOI is necessary.*

4. Committee Findings and Conclusions

The Committee adopts all findings and Conclusions set forth above. Points of clarification ascertained during the Prehearing Conference are as follows:

- The "generator capacity" referred to in Finding Number 1 above refers to reasonably anticipated, though not definitive, future field developments in the general geographic area of the proposed project. The proposed transmission line would be capable of accomodating a total of approximately 300 MW (10/31/78 Transcript, pp. 20-21). In its response of November 10, 1978, however, the Applicant stated: "...the capacity of the transmission line is approximately 230 MW for the proposed twin circuit under a single contingency condition i.e., one of the two circuits out of service."
- The Applicant anticipates that the transmission service (wheeling) agreement referred to in Finding Numbers 2 and 4 above should be completed by January 1979 (10/31/78 Transcript, pp. 38-39).
- Public Utilities Commission General Order 95 referred to in Finding Number 5 above sets standards for construction of transmission lines and other structures.

V. ISSUES REQUIRING FURTHER REVIEW

A. Introduction

The first basis for identifying issues that may require further consideration in proceedings on NCPA's proposal to construct and operate its Geothermal Project No. 2 lies in the Findings and Conclusions presented in the foregoing sections. Several of these Findings and Conclusions reference information, studies, or reports that NCPA has agreed to provide prior to or at the time of filing the Application for Certification, should the Commission approve the Notice of Intention. The questions to which this additional information relates remain unanswered. The second source of issues that requires further consideration is the statements made by various participants and the discussions that have ensued during the proceedings to date on the Notice, as described in Section I.C.

The preceding Findings and Conclusions indicate that the areas of Hydrology and Water Resources and Socio-Economics would require no adjudication at the AFC stage. Additional information is to be submitted on the subjects of Demand Forecast Compliance, Biological Resources, Water Quality, Soils, Cultural Resources, Structural Design, Transmission Line, Public Health, Air Quality, and Air Quality New Source Review. The following subsection sets forth the information yet to be submitted for each area. The next subsection lists questions that the Committee plans to consider in making its recommendations on the NCPA Notice and a brief description of the information which the Committee expects to receive concerning each question. In most cases, the information required to resolve outstanding questions will not be available until NCPA files an AFC for its Geothermal Project No. 2.

Under these circumstances, unless new information is presented at hearings on the Preliminary Report, the Committee will issue its Final Report to the Commission based largely upon information available to date. NCPA, the various participants to the proceeding, and the public are therefore invited to state their views during hearings on the Preliminary Report as to whether or not the NOI for the NCPA Geothermal Project No. 2 should be approved.

B. Information Yet to be Submitted and Additional Tasks to be Performed

The following section contains a listing and a brief summary on a subject-by-subject basis, of the information and/or tasks yet to be submitted.

<u>Area</u>	<u>Information and Tasks*</u>
Demand Forecast Compliance	Evaluation of proposed financing arrangements and relative costs to determine merit of purchase power vs. self-generated power. (Finding 9).
Biological Resources	Detailed mitigation plan, to include nature and significance of water seep, by Nov. 30, 1978; data on effects of cooling tower drift by Nov. 30, 1978. (Findings 10, 12, 13; Conclusion 1).
Water Quality	Detailed design criteria for retention barrier and liner; specific details of proposal for disposal of all liquid wastes; showing of compliance with North Coast Regional Water Control Board Order 74-151 (Spill Prevention Contingency and Containment Plan). (Findings 6, 7, 8; Conclusion 3).
Soils	Specific measures, designs, and schedules to mitigate soil loss and erosion. (Finding 4; Conclusion 3).
Cultural Resources	Survey addressing and evaluating the paleontological; historical, ethnographical resources of the site, and resources of scientific, educational, religious and other significance. (Finding 4; Conclusion 2).
Structural Design	Establish range of possible earthquakes for design purposes; analysis of site responses during postulated design earthquake to evaluate maximum site acceleration and associated response spectra for various spectral damping ratios; establish representative design

*To be submitted and/or performed at the time the AFC is filed unless otherwise indicated.

<u>Area</u>	<u>Information and Tasks*</u>
Transmission Line	spectra for each postulated design earthquake; submit seismic risk criteria to jurisdictional agencies and a report of conclusions reached; detailed structural analysis; reports to include data assumptions, methodology, and calculations used to derive conclusions. (Findings 4, 5, 6, 8; Conclusion 1). A copy of the transmission service (wheeling) agreement or, if no agreement has been reached, a status report on the negotiations; study regarding additional methods of transmitting power from proposed project. (Findings 2, 3, 4; Conclusion 1).
Public Health	Study to develop data sufficient to analyze impacts of H₂S emissions from proposed project during normal power plant operation and from steam release valve during periods of steam stacking on ambient H₂S concentrations in the Geysers vicinity; detailed information on ²²²Rn monitoring program; air quality study would assist in resolving concerns for ammonia, arsenic, and mercury. (Finding 12; Conclusions 2, 3; "Ammonia", Finding 7, Conclusion 1; "Arsenic", Finding 7, Conclusion 1; "Mercury", Finding 8, Conclusion 1; "Radionuclides", Finding 8, Conclusion 2).
Air Quality	Operating data from PG&E Unit 15 to determine partitioning efficiency of surface condenser; information demonstrating the ability of the automated flow control valve to regulate the amount of steam released at the

AreaInformation and Tasks*

steam release valve to reduce H_2S stacking emissions in compliance with local APCD rules. (Findings 13, 15; Finding 7, Conclusions 1, 4).

Air Quality New Source Review

Detailed air quality analysis considering maximum impact at points of sensitive receptors, assessing impacts of normal plant operation and of steam stacking during shutdown; if analysis shows violation of H_2S standard at sensitive receptors, then perform a similar analysis under conditions specified in Findings and Conclusions, under specified meteorological conditions; air quality and meteorological study to be submitted to the Committee by Dec. 31, 1978. (Findings 13-17; Conclusions 3-4).

C. Issues

As the foregoing listing indicates, a substantial amount of information remains to be submitted, and considered, before the Commission would issue a final approval or disapproval of the NCPA Geothermal Project No 2. This subsection discusses principal areas of concern in these proceedings that information yet to be submitted by the Applicant or other participants is intended to resolve.

1. Air Quality

There are two major questions regarding the area of air quality: 1) will the proposed NCPA project, during normal operations and in periods of steam stacking, comply with applicable H_2S emissions limitations? and 2) will the proposed project, during normal operations and in periods of steam stacking,

prevent the attainment, interfere with the maintenance, or cause a violation of the H_2S ambient air quality standards? NCPA is proposing to use a surface condenser and Stretford H_2S abatement system on its Geothermal Project No. 2 to meet applicable H_2S emissions limitations.

Several general questions regarding the applicability of various regulations, such as federal PSD standards and proper interpretation of rules such as those of NSCAPCD, presently remain unanswered. These broad issues will require, among other things, further authoritative interpretation by the proper jurisdictional entities. There are, however, certain somewhat narrower issues which may be appropriately addressed by the Committee at the present time and on which the Applicant has proposed to submit clarifying information.

a. The Stretford H_2S abatement system treats H_2S which reaches the system in the gas stream. The amount of H_2S which reaches the Stretford system is dependent upon the amount of H_2S which the surface condenser is able to "partition" out of the steam and into the gas stream. The partitioning efficiency is thus critical to determining the abatement effectiveness of the Stretford system ("Air Quality", Findings 6-10).

Question: What is the partitioning efficiency of the surface condenser?

Information Required: At the present time, the partitioning efficiency of the surface condenser is not known since one is not yet in use at a geothermal power plant. PG&E's Unit 15, however, is scheduled to begin operation in December 1978 and will utilize a surface condenser. Operating data from this unit should assist in determining the partitioning efficiency of the surface condenser. It was thought earlier that this data would be available at the time

NCPA files an AFC for the proposed project ("Air Quality", Findings 11-13; Conclusion 1).^{*} This data will also bear on the timing and installation of a condensate treatment system which may be required concurrently with the construction of the NCPA power plant if the partitioning efficiency is less than 75-85 percent, or prior to January 1, 1985, in order to meet more stringent emissions limitations scheduled to take effect at that time. (Id., Findings 14-15).

b. NSCAPCD Rule 455(b) requires specified reductions of H₂S emissions during periods of steam stacking. Shell Oil Company, the steam supplier, proposes to comply with these H₂S stacking emissions limitations through the use of automated flow control valves, but has not yet demonstrated that such devices would actually result in compliance ("Emissions Limitations - Steam Stacking," Findings 3-6, Conclusion 5).

Question: Will the steam supplier be able to comply with the H₂S stacking emissions limitations through the use of automated flow control valves?

Information Required: At or prior to the time an AFC is filed, the Applicant should obtain and provide detailed information demonstrating the engineering feasibility of the automated flow control valve to reduce H₂S emissions in conformity with Rule 455(b) (Id., Finding 7; Conclusion 4).

^{*}During the proceedings on the Geysers 17 Preliminary Report, however, PG&E indicated that data from Unit 15 would not be available as early as initially anticipated. PG&E's latest estimate regarding availability of this information is "sometime" in 1979. Delay could of course cause NCPA difficulties in providing the information required to determine whether the project will comply with H₂S emissions limitations. The Committee understands that the Applicant will install a condensate treatment system if necessary to comply with emissions limitations ("Air Quality" Findings 14, 15). Nevertheless, the Applicant should comment, in hearings on this Preliminary Report, as to what contingency action will be taken in light of the delay in data from Unit 15.

c. Air Quality New Source Review

Question: Will the proposed NCPA Geothermal Project No. 2 prevent the attainment, interfere with the maintenance, or cause a violation of the H₂S ambient air quality standard during normal power plant operations and during periods of steam stacking?

Information Required: The air quality analysis provided in the NOI is inadequate to determine the above mentioned effects of the H₂S emissions ("Air Quality New Source Review", Finding 13). The Applicant has agreed to perform an additional air quality analysis to deal with specified concerns, and under specified conditions, to gather information sufficient to permit an informed evaluation of New Source Review issues (Id., Findings 13-15; Conclusion 3). The Applicant shall also conduct an air quality and meteorological study to provide data sufficient to adequately perform the specified air quality analysis; results of the meteorological study are to be provided by December 31, 1978 (Id., Finding 16; Conclusion 4).

2. Biological Resources

a. Question: How would the Applicant reduce the on-site impact of the power plant to biological resources?

Information Required: The Applicant shall submit, by November 30, 1978, a detailed mitigation plan specifying proposed mitigation measures, including a schedule for implementation and relative size, location, and configuration. The nature and significance of a water seep, located in the southeast portion of the plant site and believed to be an area of critical concern, will also be evaluated and appropriate mitigation measures identified. The Staff shall report to recommendations to the Committee after it has reviewed the plan ("Biological Resources," Findings 10, 12; Conclusion 1).

b. Question: What are the effects of cooling tower drift on vegetation in the area?

Information Required: Data on the effects of cooling tower drift on vegetation in the vicinity will be supplied by the Applicant about November 30, 1978. The Staff will review this information and make appropriate recommendations to the Committee (Id., Finding 13; Conclusion 1).

3. Water Quality

a. Question: What type, size, etc. retention barrier will be required to contain potential spills from the power plant site?

Information Required: The Applicant has proposed to construct an impermeable barrier around the entire plant which will have a volume larger than any known spill and greater than the quantity of water contained above the plant site ground level. Prior to or at the time of filing the AFC, NCPA will submit the detailed design criteria for the barrier and liner ("Water Quality," Finding 6; Conclusion 3).

b. Question: What method will be used for disposal of various sewerable and non-sewerable liquid wastes generated by the plant?

Information Required: The final selection of disposal methods depends upon the completion of several ongoing studies. Prior to or at the time of filing the AFC, the Applicant will submit the specific details of its proposal for disposal of all liquid wastes, including location and delineation of proposed facilities and their operational capabilities ("Water Quality", Finding 7; Conclusion 3).

c. Question: Has the North Coast Regional Water Control Board Order 74-151 (Spill Prevention Contingency and Containment Plan) been complied with?

Information Required: Prior to or at the time of filing the AFC, the Applicant shall provide such information as will show compliance with the above order ("Water Quality," Finding 8; Conclusion 3).

4. Soils

a. Question: What specific designs and schedules for the implementation of soil loss and erosion mitigation plans does the Applicant propose to utilize?

Information Required: Prior to or at the time of filing the AFC, the Applicant shall provide specific designs and schedules for implementation of soil loss and erosion control measures ("Soils," Finding 4; Conclusion 3).

5. Cultural Resources

a. Question: Have the cultural resource considerations of the plant site area been fully evaluated?

Information Required: No archeological resources are present in the proposed site area ("Cultural Resources," Finding 3; Conclusion 1). However, the existence and significance of paleontological, historical, and ethnographical resources, as well as resources of educational, scientific, or religious significance have not been fully evaluated. Applicant is presently conducting a cultural resources survey, dealing with the above areas, which shall be submitted prior to or at the time of filing the AFC (Id., Finding 4; Conclusion 2).

6. Public Health

a. Question: Will H_2S emissions from the proposed plant result in adverse public health impacts?

Information Required: The health effects of continuous exposure to H_2S in concentrations less than 0.08 ppm are not known, and it therefore cannot be concluded at present whether plant operations would adversely affect public health ("Public Health," Findings 2-4, 10; Conclusions 1-2). The Applicant has proposed to conduct a study which will develop sufficient data for an analysis of the impacts of H_2S from the proposed project and shall include a proposal in the AFC specifying the manner in which ambient H_2S concentrations will continue to be monitored in the vicinity of the proposed project (Id., Findings 12-13, Conclusion 3).

b. Question: Would ammonia, arsenic, mercury, or radionuclide emissions during operations of the proposed project pose public health hazards?

Information Required: A final determination regarding potential hazards posed by ammonia, arsenic, and mercury emissions must await the air quality analysis referred to in Sections V.1.a. and c. ("Ammonia," Finding 7, Conclusion 1; "Arsenic," Finding 7, Conclusion 1; "Mercury," Finding 8, Conclusion 1). A monitoring program would be initiated by NCPA to verify that concentrations of radon-222 from plant operations remain below applicable standards ("Radionuclides," Finding 8; Conclusion 2).

7. Structural Design

a. Question: How will seismic performance criteria or acceptable seismic risk be determined?

Information Required: Prior to or at the time the AFC is filed, the consulting geologist and soils engineer will investigate, analyze, and establish appropriate possible earthquake ranges, site responses during the postulated design earthquake, and representative design spectra. In addition, the results of the study shall be submitted to the Commission and the U. S. Geological Survey for review and, prior to filing the AFC, the Applicant shall submit, in the form of a report, the conclusions reached ("Structural Design," Findings 3-4; Conclusion 1).

b. Question: How will seismic design criteria be determined?

Information Required: The Applicant will submit a detailed report dealing with the fundamental period of the structures to be designed. Both horizontal and vertical acceleration values will be selected and used for equipment supports and tie downs. This report shall be submitted at or prior to the filing of the AFC ("Structural Design," Findings 5-6; Conclusion 1).

c. Question: How will the seismic response of the site, structures, and seismic environment of major equipment be determined?

Information Required: Prior to or at the time of filing the AFC, the Applicant shall submit a report containing the conclusions reached on seismic design criteria developed in part through the use of SHAKE, TRAVEL, and/or FLUSH computer programs. Several regional faults would be selected for study, and synthetic or existing earthquake records would be used to compute ground response and structural response spectra for both maximum probable and maximum credible earthquakes ("Structural Design," Findings 7-8; Conclusion 1).

8. Transmission Line

a. Question: What is the status of the proposed transmission service (wheeling) agreement between NCPA and PG&E?

Information Required: The exact terms of this agreement have not yet been reached. The Applicant shall file a copy as soon as it is finalized. If not finalized prior to the AFC filing, the Applicant shall then file a status report with the Committee specifying the resolved and unresolved areas ("Transmission Line," Finding 2; Conclusion 1).

b. Question: What are the alternative means of transmitting power from the proposed project to NCPA's members?

Information Required: Prior to or at the time the AFC is filed, NCPA shall submit a study regarding additional methods of transmitting power from its proposed project. The Staff shall also report regarding power transmission alternatives at the Geysers ("Transmission Line," Findings 3-4; Conclusion 1).

APPENDIX A

Timeline of Events

APPENDIX A
TIMELINE OF EVENTS

NOI filed	August 11, 1978
Executive Director Accepted NOI	August 22, 1978
Commission Committee Appointed	September 6, 1978
Issue Workshops	September 21, 22, 26, 1978
Procedural Conference	September 26, 1978
Informational Hearings, Santa Rosa and Kelseyville, CA	October 10, 1978
Joint Prehearing Conference	October 16, 1978
Statement Workshops	October 17, 1978
Prehearing Conference	October 31, 1978
Prehearing Conference Order	November 16, 1978
Preliminary Report	December 6, 1978
Public Hearings on Preliminary Report	December 21, 1978
Written Comments	Until January 5, 1979

APPENDIX B

Memorandum of Understanding
among the California Energy Commission
(CEC), U.S. Department of Energy (DOE),
U.S. Bureau of Land Management (BLM),
and U.S. Geological Survey (USGS)

MEMORANDUM OF UNDERSTANDING
REGARDING THE NORTHERN CALIFORNIA POWER AGENCY
GEOTHERMAL UNIT #2 POWER PLANT AT THE
GEYSERS, SONOMA COUNTY, CALIFORNIA

This agreement entered into this 16th day of November, 1978, by and between the United States Geological Survey, hereinafter referred to as USGS; the United States Bureau of Land Management, hereinafter referred to as BLM; the United States Department of Energy, hereinafter referred to as DOE, and the California State Energy Resources Conservation and Development Commission, hereinafter referred to as CEC,

W I T N E S S E T H

WHEREAS, the Northern California Power Agency, hereinafter referred to as NCPA, proposes to construct and operate a 110-Mw geothermal-powered thermal power plant on federally-owned and leased lands in the Geysers, Sonoma County; and

WHEREAS, NCPA has filed, pursuant to 43 CFR 3250 et seq., with BLM a license application (LA) to construct the plant on federally-owned land, and

WHEREAS, NCPA has filed pursuant to 30 CFR 270 et seq. with USGS, a plan of utilization (POU) for the construction and operation of the plant; and

WHEREAS, NCPA has filed pursuant to 10 CFR 790 et seq., with DOE, an application for a Federal Geothermal Guaranteed Loan to provide guaranteed financing for the construction of the plant; and

WHEREAS, NCPA has filed with the CEC, pursuant to Public Resources Code section 25500 and implementing regulations a notice of intention to file an application for certification (NOI); and

WHEREAS, the NCPA project may in the view of the CEC have a "substantial adverse impact" (as such is defined by the California Environmental Quality Act, hereinafter CEQA) upon the environment, including, but not limited to, impacts on air and water quality, waste disposal, fish and wildlife, agricultural and growth effects which must be considered by the CEC when reviewing and acting on the project pursuant to CEQA and other applicable state laws; and

WHEREAS, the NCPA project may significantly affect the quality of human environment, within the meaning of the National Environmental Policy Act, hereinafter NEPA, thus the environmental impact must be considered by USGS, BLM and DOE when reviewing and acting on the project pursuant to NEPA, and other applicable federal laws; and

WHEREAS, the additional informational requirements of the respective permitting authorities relative to the approval of the construction of a power plant are similar; and

WHEREAS, it is in the mutual beneficial interest of the USGS, BLM, DOE, and CEC to share in the task of the preparation of the appropriate environmental document, the collection of other data pertinent to the plant construction and to conduct the necessary public hearings on the proposed power plant and environmental document on the proposed NCPA project, jointly

wherever practicable, so as to reduce the duplication of staff efforts, share respective staff expertise and information already generated and to promote intergovernmental coordination at the state and federal levels, thus serving the goal of producing more efficient environmental review and power plant permitting process, and the public interest;

NOW THEREFORE, in consideration of the mutual covenants, conditions and promises hereinafter set forth is agreed as follows:

I. ENVIRONMENTAL STUDY

1. USGS, BLM, DOE, and the CEC agree to combine their efforts to prepare a joint environmental study, hereinafter referred to as the study, as set forth in this agreement and in accordance with provisions of NEPA and CEQA.

2. The study shall address itself to the impacts on the environment of the proposed NCPA project as well as alternatives thereto, including, but not limited to, air, water quality, fish and wildlife, agriculture and land use impacts at the proposed location.

3. The general tasks to be performed are outlined immediately below. Specific implementation measures are stated in paragraph 4 following:

a. Each agency (USGS, BLM, DOE and CEC) shall appoint a project representative. An agency may change its designated representative upon notice to other parties. The CEC project representative shall be overall project

leader for the preparation of the study. All contacts, to the extent possible, with NCPA, shall be made through the CEC project leader.

b. The CEC project representative shall in conjunction with the other present representatives prepare or cause to be prepared a draft study, which shall be consistent with the project description, format, outline and the provisions of CEQA and NEPA.

c. The study shall be prepared with all information which USGS, BLM, DOE or CEC believe is necessary in order for the document to properly evaluate the project, provided that use and inclusion of such information is not in violation of applicable laws and regulations.

d. The draft study may be organized to include by reference or appendices technical information, environmental data assessments, and other documents provided that such appendices are separate from the study itself, and the source of such appendices or information is included.

e. The final study shall also address the concerns and comments of public agencies and the general public. To this end, public review of the draft study shall take place through appropriate state and federal procedures jointly wherever practicable. The USGS, BLM, DOE, and CEC shall address public comments before certifying/determining the study as final and complete.

4. The provisions of paragraph 3 shall be implemented as follows:

a. The names, addresses and business phones of the initial agency project representatives are:

Mr. Robert Kent
United States Geological Survey
345 Middlefield Road
Menlo Park, CA 94025
(415) 323-8111

Mr. Joel Verner
Bureau of Land Management
P.O. Box 940
555 Leslie Street
Ukiah, CA 95482
(707) 462-3873

Ms. Kathryn Matthews (Environmental Team Leader)
California Energy Commission
1111 Howe Avenue
Sacramento, CA 95825
(916) 445-8094

Mr. Raymond A. Brechbill
Department of Energy
1333 Broadway
Oakland, CA
(415) 273-7964

b. Within ten days of receipt of an NOI by the CEC, the project coordinators shall meet to establish a preparation plan which shall include but not be limited to the following:

- 1) outline a time schedule;
- 2) design study format;
- 3) determine the possible scope of the proposal, significant issues to be addressed and the alternatives to be considered;
- 4) identify and eliminate nonsignificant issues from detailed study;

5) agree on data requirements, inventory methodologies and the level of detail for each resource component;

6) agree on assignments for the participating agencies for the preparation of specific sections of the study;

7) prepare a mailing list of interested or affected entities or individuals; and

8) agree on a plan for public involvement in the preparation of the study.

c. Each agency shall thereafter prepare the direct section(s) assigned to it, if any, in accordance with the preparation plan. The completed draft section(s) from the participating agencies shall be forwarded to CEC for incorporation into a predraft study. The predraft study shall be submitted to USGS, BLM, and DOE for review. Within fifteen days of receipt of the predraft, each of the parties to the agreement shall approve or provide comments on the prestudy to the CEC. The draft study shall not be issued without the informed concurrence of all parties.

5. In order to obtain comments from public agencies and input from the general public on the impacts of the project, the approved draft study shall be submitted to the appropriate federal, state, and local agencies and interested persons for review and comment. If deemed necessary by any party, a public hearing or hearings, in addition to the public hearings required for the ultimate approval of the power plant construction, may be conducted

by one or more parties, regarding the draft study. Such public hearing shall be noticed in accordance with the agencies' usual procedures, and shall be conducted jointly whenever possible.

6. After completion of the public review of the draft, the comments received shall be analyzed by each party and environmental issues raised in the review process shall be addressed in the final study.

7. Upon completion of the final study, notification shall be made by the CEC to the State Resources Agency pursuant to CEQA.

8. In the event of disputes as to scientific issues relating to the study, the study shall contain the conflicting viewpoints. Disputes other than scientific shall after the project representatives have exhausted every means of resolution, shall be referred to the next higher level of authority in the respective agencies for resolution.

II. PROJECT REVIEW AND DECISION

It is recognized and understood by all parties to this agreement that each must issue its appropriate agency license, permit, approval or decision for the NCPA project in accordance with its individual procedures. It is also recognized that each of the parties' license, permit, approval or decision may affect the license, permit, approval or decision of the other parties if differing conditions are placed on the respective decisions. It

is therefore the desire of the parties to ensure consistency of decisions to the maximum extent possible.

In order to fulfill the above understandings, the staffs of each party shall cooperate with one another and may participate in the review proceedings of the other parties.

The parties further agree to take whatever further steps they deem necessary, including further agreements or amendments to this memorandum, in order to fulfill the purpose of this memorandum.

III. GENERAL

1. It is the intent of the parties to the agreement to make the appropriate final determination regarding the project within one year from the date of the receipt of the NOI by the CEC to the extent allowable by law.

2. Amendments to any section or term of this agreement shall be made on mutual agreement provided in writing by BLM, USGS, DOE and CEC.

3. BLM, USGS, DOE and CEC may terminate their participation in the agreement upon thirty days written notice served upon the other parties. The party electing to terminate the agreement shall state in writing its reason for desiring the termination and provide such to the other parties. During the ensuing thirty day period all parties shall actively attempt to resolve any disagreements so that the termination of this agreement may be avoided.

4. In the event of termination of this agreement, CEC shall prepare the appropriate document as required under CEQA and other statutory requirements, and BLM, USGS, and DOE jointly or separately shall prepare the appropriate document as required by NEPA and other statutory requirements. The parties shall continue, however, to share and exchange information during the preparation of the environmental documents and project review in order to avoid duplication and excess expense.

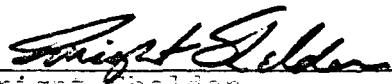
5. Unless terminated as set forth above, this agreement shall continue until a final decision has been made by all parties.

IN WITNESSETH THEREOF, the parties hereto have caused this Memorandum of Understanding to be duly executed on the respective date set forth opposite their signatures.

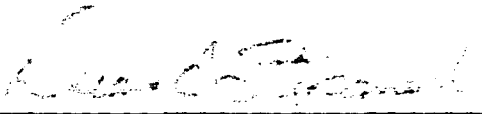
SIGNATURE PAGE

Attached to and made a part of the Memorandum of Understanding regarding the Northern California Power Agency Geothermal Unit #2 Power Plant at The Geysers, Sonoma County, California.

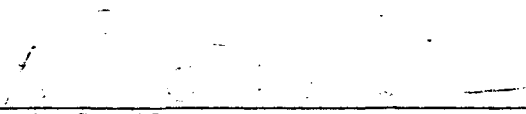
Dated: United States Geological Survey

By 
Wright Sheldon
Acting Manager, Conservation Division

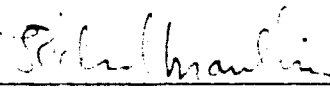
Dated: Bureau of Land Management

By 
Dean Stepanek
District Manager

Dated: Department of Energy

By 
Ruth C. Clusen
Assistant Secretary for Environment

Dated: Energy Resources Conservation
and Development Commission

By 
Richard L. Maullin
Chairman

APPENDIX C

1. Proof of Service List
2. Public Agency List

APPENDIX C
Proof of Service List
STATE OF CALIFORNIA

State Energy Resources
Conservation and Development Commission

In the Matter of:)

Notice of Intention to File)
An Application for Certification)
for 110 MW Geothermal Power)
Plant Site, NCPA Geothermal)
Project #2. (NCPA/Shell Project))

DOCKET NO. 78-NOI-5

APPLICANT

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APPENDIX C
Public Agency List

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1020 "N" Street
Sacramento, CA 95814

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Public Resources Section
555 Capitol Mall, Suite 350
Sacramento, CA 95814

Mr. Don Cunningham
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Cal Trans
1120 N Street
Sacramento, CA 95814

Mr. John Emig
Environmental Services
Region III
California Dept. of Fish and Game
P.O. Box 47
Yountville, CA 94599

Mr. Bill Foley
California Public Utilities Commission
350 McAllister Street
San Francisco, CA 94102

Mr. Dick Forester
California Dept. of Fish and Game
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1416 Ninth Street
Sacramento, CA 95814

Mr. Mike Honnold
State Water Resources Control Board
P.O. Box 100
Sacramento, CA 95801

Mr. Ed Lowe, Chief
Department of Health
Office of Noise Control
2151 Berkeley Way
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Mr. Neil Moyer
Executive Office
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Mr. Steve Rios
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Mr. Roger Sherburne
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Mr. William Arntz
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Department of Energy
111 Pine Street
San Francisco, CA 94111

Mr. Raymond A. Brechbill
Department of Energy
1333 Broadway
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Mr. Joe Cullen
Department of Energy
Geothermal Loan Guarantee Program
1333 Broadway
Oakland, CA 94612

Mr. Donald Ermak
U. S. Department of Energy
Lawrence Livermore Laboratory
L-453
P.O. Box 5507
Livermore, CA 94550

Mr. Gordon Estes, Director
Western Area Power Administration
U. S. Department of Energy
2800 Cottage Way
Sacramento, CA 95825

Mr. Robert Kent
United States Geological Survey
345 Middlefield Road
Menlo Park, CA 94025

Mr. Frank Leone
U. S. Department of Energy
Office of NEPA Affairs
Secretary for Environment
Washington, DC 20545

Mr. John Moon
Bureau of Land Management
Resources Division
2800 Cottage Way
Sacramento, CA 95825

Mr. James Ruch
Associate State Director
Bureau of Land Management
2800 Cottage Way
Sacramento, CA 95825

Mr. Felix Smith
Division of Ecological Service
Fish and Wildlife Service
2800 Cottage Way
Sacramento, CA 95825
Attention: Mr. Ed Aderkas

Mr. Joel Verner
Bureau of Land Management
BLM, Geothermal Coordinator
P.O. Box 940
555 Leslie Street
Ukiah, CA 95482

Mr. Fayne Tucker
Lake County APCD
255 North Forbes Street
Lakeport, CA 95453

Mr. Michael Tolmasoff
Northern Sonoma Co. APCD
141 North Street
Healdsburg, CA 95448

Mr. Dave Snetsinger
RWQCD, North Coast Region.
1000 Coddingtontown
Santa Rosa, CA 95406

Mr. David Kaplan
SMUD
P.O. Box 15830
Sacramento, CA 95813

Ms. Beverly Westphal
Planning Department
255 North Forbes Street
Lakeport, CA 95453

Mrs. Billie Holmes, Chairman
Lake County Planning Commission
255 North Forbes Street
Lakeport, CA 95453

Mr. Walter K. Muncheimer
Administrator's Office
255 North Forbes Street
Lakeport, CA 95453

Mr. Robert M. Jones, Chairman
Board of Supervisors of Lake County
255 North Forbes Street
Lakeport, CA 95453

Mr. Tom Cordill
Environmental Administrator
Sonoma County Planning Department
2555 Mendocino Avenue
Santa Rosa, CA 95401

Mr. William K. Johnson, Chairman
Board of Supervisors of Sonoma County
2555 Mendocino Avenue
Santa Rosa, CA 95401

Mr. James A. Swayne
City Manager
City of Ukiah
203 South School Street
Ukiah, CA 95482

Mr. Jack Shepard, General Manager
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Alameda, CA 94501

Mr. Alan G. Brown, City Engineer
City of Biggs
P.O. Box 307
Biggs, CA 95917

Mr. James M. Ward, City Engineer
City of Gridley
P.O. Box 755
Gridley, CA 95948

Mr. Robert L. Rosie, Director
Public Works Department
City of Healdsburg
126 Matheson Street
Healdsburg, CA 95448

Mr. William C. Lewis
Utility Engineer
221 West Pine Street
Lodi, CA 95240

Mr. William Ruffner
Electrical Superintendent
City of Lompoc
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Lompoc, CA 93436

Mr. Edward K. Aghjayan
Director of Utilities
250 Hamilton
Palo Alto, CA 94301

Mr. E. J. Simpson, Director
Electricity Department
City of Redding
760 Parkview Drive
Redding, CA 96001

Mr. Willis McMindes, Director
City of Roseville
Electric Utilities
316 Vernon Street
Roseville, CA 95678

Mr. Barry R. Flynn
Electricity Superintendent
City of Santa Clara
1500 Warburton Avenue
Santa Clara, CA 95050

APPENDIX D

Public Agency Comments

Following are written comments submitted by public agencies from the date of filing the Notice of Intention through the preparation of the Preliminary Report:

APPENDIX D
LIST OF PUBLIC AGENCY COMMENTS

<u>DATE</u>	<u>AGENCY</u>
August 31, 1978	California Regional Water Quality Control Board - North Coast Region David M. Snetsinger
September 7, 1978	U.S. Department of the Interior Geological Survey William R. Holman
September 7, 1978	Department of Transportation Division of Project Development William R. Green, Chief Office of Planning and Design
September 19, 1978	U.S. Department of the Interior Fish and Wildlife Service James J. McKeivitt, Field Supervisor
September 25, 1978	State Water Resources Control Board Larry F. Walker, Executive Director
October 3, 1978	Department of Fish and Game E. C. Fullerton, Director
October 10, 1978	Department of Fish and Game Director
October 18, 1978	U.S. Environmental Protection Agency Region IX Clyde B. Eller, Director, Enforcement Division
October 19, 1978	Lake County Air Pollution Control District Steve Zalusky, Deputy Director

 CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD—
NORTH COAST REGION

1000 CODDINGTOWN CENTER
SANTA ROSA, CALIFORNIA 95401
Phone: 707—545-2620

78-NOI-5

August 31, 1978

ENERGY COMMISSION
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SEP 6 1978

Mr. Frank Hahn
Deputy Executive Director
California Energy Commission
1111 Howe Avenue
Sacramento, California 95825

Dear Mr. Hahn:

We have reviewed the NOI for NCPA Geothermal Project No. 2 and offer the following comments.

Page VII - 2 includes a discussion of the Stretford unit effluent disposal that indicates it may be piped to a reinjection well. ReInjection of this material may not be acceptable; more information will be required relative to the constituents to be found in this waste stream.

Appendix C, Section 4, includes the following statements:

Page 4-1

"The maximum volume of condensate spill, approximately 250,000 gallons, and 2 years frequency were computed by averaging both the condensate and frequency of spills."

Our records indicate that a total of 27 condensate spills have occurred at the existing Geysers Geothermal Power Plants since May, 1974, an average frequency of one spill every 2 months.

Pages 4-2 and 4-3

The discussion of the design and mode of operation of the retention barrier includes the following sections that we believe need further explanation:

1."The sluice gate will be manually operated only when rainfall occurs by a plant operator....."

We believe rainfall runoff flows within the capacity of the sump pump should be pumped to the cooling tower basin. This procedure would eliminate the discharge of contaminants flushed from the containment area by the first runoff from any rainfall event.

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August 31, 1978

- 2 -

3. "When the sump is approximately full, the high level alarm would be an indication that the inflow into the sump is greater than the pump capacity"

What is the remaining capacity within the retention barrier when the high level alarm is activated on the sump?

4. "If a condensate spill was large, a portable pump would be brought in to pump the condensate back into the cooling tower."

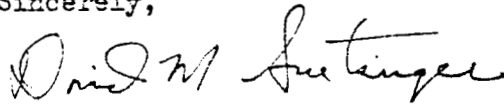
We believe the plan should be more specific, i.e., have a portable pump on standby at the site or at least have one available within an hours travel time from the site.

5. "If a condensate spill were to occur during rainfall, all steps would be taken to contain the spill within basin. This would include closing the sluice gate in the sump if the gate had previously been opened to drain accumulated rainwater."

Some of the other steps to be taken should be thought out now; planning at this stage can save time during the confusion of an emergency.

If we may be of further assistance, please contact us.

Sincerely,



David M. Snetsinger
Sanitary Engineering Associate



78-N61-5

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Area Geothermal Supervisor's Office
Conservation Division, MS 92
345 Middlefield Road
Menlo Park, CA 94025

SEP 11 1978

September 7, 1978

Mr. Martin Homec
California Energy Commission MS-27
1111 Howe Avenue
Sacramento, California 95825

Dear Mr. Homec:

The steam field that is to supply the NCPA - Shell power plant is thought to be like the steam field at The Geysers insofar as they both overlie vapor-dominated reservoirs in fractured Franciscan basement rock. The increase in vapor pressure with depth is very small in a vapor-dominated reservoir, much less than the increase in hydrostatic pressure with depth in the cooler groundwater that surrounds the reservoir. Thus, if the groundwater pressure exceeds the reservoir pressure at the top of the reservoir, it will exceed the reservoir pressure at all deeper levels and fluid will flow into rather than out of the reservoir throughout its periphery. The question then, is what are the relative pressures at the top of the reservoir.

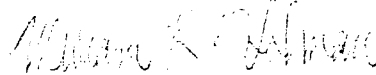
Vapor pressures at The Geysers were generally less than 35 bars for newly drilled wells; by 1977, production had decreased these shut in pressures by as much as 15 bars (Lipman, et al, 1977, p. 240, 253) and extended the vapor-dominated zone to a depth greater than 2.5 km. Because pressures of 35 bars or less are typical of many vapor-dominated systems, I shall assume a pressure of 35 bars near the top of the "Castle Rock Springs reservoir." Thirty-five bars is equal to the hydrostatic pressure of cool groundwater 360 meters below the water table. The top of the steam reservoir beneath the NCPA-Shell power plant is somewhat below sea level. The Collayomi Valley 5 km to the east, has the lowest nearby water table in an exploited aquifer. The valley bottom is 340 to 370 meters above sea level and its alluvium is at least seasonally saturated with groundwater. The pressure difference favoring flow from the geothermal reservoir to this aquifer should be very small, if not negative. It would surely be negative after a few months to a year of steam production had significantly lowered reservoir pressures. Furthermore, if one can speak of a water table in low permeability Franciscan basement rock, the water table should be much higher above the geothermal reservoir and beneath the intervening mountains than in the Collayomi Valley itself. This higher pressure groundwater, if it exists and is able to intercept all surface hydraulic connections between the top of the geothermal reservoir

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and the shallow alluvium of the Collayomi Valley, should effectively isolate these two aquifers from each other. This last argument also applies to the more distant Napa and Alexander Valleys.

In addition, rock of low permeability appears to nearly isolate The Geysers reservoir from the surrounding deep groundwater, for despite the very steep pressure gradient favoring flow of deep groundwater into the reservoir, it has received no measurable recharge. Isherwood (1977) calculated from gravity data the loss of mass from beneath the steam field; it was essentially the same as the total mass of steam produced from the field during that interval. However, because of inadequate data, Isherwood's calculation could be in error by as much as 20%.

Very truly yours,



William R. Holman

WRH:hmd

References

- Isherwood, W. (1977) Geothermal reservoir interpretation from change in gravity in Kruger, P. and Ramey, H.J., eds., Proceedings, Third Workshop Geothermal Reservoir Engineering, Stanford University, p. 18-23.
- Lipman, S.C., Strobel, C.J., Gulati, M.S. (1977) Reservoir performance of The Geysers field: Geothermal resource assessment and reservoir engineering, Proceedings of the ENEL-ERDA Workshop - Lardarello, p. 234-255.

Memorandum

78-NOI-5

Office of the Secretariat
California Energy Commission
1111 Howe Avenue
Sacramento, CA 95825

Date: September 7, 1978

File : 78-NOI-5

Telephone: ATSS ()
()

From : DEPARTMENT OF TRANSPORTATION - Division of Project Development
Office of Planning and Design

Subject: NCPA/Shell Geothermal Project Number 2

We have reviewed the above report for the construction of a geothermal electric power plant to be located approximately six miles west of Middletown near the Sonoma/Lake County line.

The project is in such a remote area that it will not have any direct affect on State Highways in the area.



W. R. GREEN
Chief, Office of Planning and Design

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78 - NOI - 5

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Division of Ecological Services
2800 Cottage Way, Rm. E-2727
Sacramento, California 95825

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SEP 27 1978

com
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September 19, 1978

Mr. Frank Hahn, Deputy Executive Director
Energy Resources Conservation and
Development Commission
1111 Howe Avenue
Sacramento, California 95825

Dear Mr. Hahn:

Your August 23 letter requested our comments and recommendations concerning the Northern California Power Agency's (NCPA) Notice of Intent (NOI) application for its proposed Geothermal Project No. 2 (NCPA/Shell Project), Sonoma County, California. We have reviewed the NOI and offer the following comments.

General Comments

With the exceptions listed under Specific Comments, the NOI adequately describes the existing fish and wildlife resources and a number of impacts which would result from project construction and operation. However, the NOI fails to adequately address two major issues associated with geothermal activities. They are:

1. A discussion of the cumulative effects of this project in relation to existing, nearby geothermal projects is needed. Pacific Gas and Electric Company currently operates 15 power plants and has plans for another 12 or more power plants in The Geysers. The continuing encroachment by geothermal projects will have long-term, adverse impacts on fish and wildlife resources and their habitat. While the loss of fish and wildlife habitat attributable to NCPA/Shell Project may appear minor, collectively a number of geothermal projects in an area would have significant impacts. For instance, the construction of Cobb Valley Project in Lake County with full-field development would result in the loss of 1,400 acres of habitat, but the cumulative effects of geothermal projects adjacent to the Cobb Valley Project would remove 10,056 acres of resource habitat (1). Another analogous situation can be shown with the tidal marshes and estuaries of California (excluding San Francisco Bay) which have been lost approximately 52 percent

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of these areas have been destroyed by dredging and filling (2). Each dredge and fill project was approved as having no major effect on the environment; however, the cumulative effect of many projects was significant.

The commitment to develop a large leasehold (acreage not listed in the NOI), i.e., full-field development, would convert a forested watershed into an industrial complex and result in long-term, adverse impacts on fish and wildlife resources and their habitat. The loss of wildlife habitat is minimized throughout the NOI. According to the State Geothermal Task Force 1977 Report (3), each geothermal plant and related facilities utilizes 700 to 1,000 acres of land. Full-field development of the leasehold could be considered irreversible. Recently, a proposal to dismantle nuclear power plants at some future date was discussed. The consensus of knowledgeable individuals suggested that excessive cost would preclude attempts to dismantle these plants. We believe this proposal is applicable to geothermal projects, and doubt that restoration of the leasehold to preproject conditions would be feasible for economic reasons.

2. The NOI fails to propose adequate measures to compensate for the loss of wildlife habitat that would be caused by geothermal activities. Consideration should be given to the significant economic, recreation, esthetic, and social benefits derived from fish and wildlife resources. The value of fish and wildlife resources is not limited to anglers and hunters but is shared by bird watchers, photographers, students, sightseers, and other members of society. Recreational activities such as fishing, hunting, hiking, and related uses are significant to the resort-oriented economy of The Geysers region. Because geothermal activities would take place on public lands, we recommend the loss of resource habitat be compensated by the acquisition and development of similar lands (equal to the size of the leasehold) adjacent to or farther removed from the project area. This is a common practice with water development projects where the construction agency, such as the Corps of Engineers, will acquire and develop lands for wildlife management purposes to compensate for losses just as residential and industrial properties, bridges, roads, and railroad tracks are replaced at project cost.

Specific Comments

1. Page IV-48, b. Rare and Endangered Plant Species. No details are provided in the NOI concerning how the plant survey was conducted and whether or not it was conducted by a professional botanist. Also, there is no information to indicate that the survey took into account the threatened and endangered plants listed in the Federal Register of July 1, 1975 and of June 16, 1976. Therefore, no valid conclusions can be made concerning the presence or absence of threatened (rare) and endangered plants in the leasehold.

2. Page IV-49. Rare and Endangered Wildlife Species. We disagree with the conclusion that "...it can be assumed that the proposed development will have little or no effect on the status of this species [the endangered peregrine falcon] in the region." The development could affect the status of the peregrine falcon because of its proximity to two eyries. Both eyries, one northwest of the power plant site and the other south of the site, have been designated as "Critical Habitat" by the Fish and Wildlife Service (4). Increased human activity during the nesting and rearing period could affect the reproductive success of the peregrine falcon. The lack of reported sightings of peregrine in the project area does not rule out the possibility that the area contains suitable habitat for these birds. Moreover, the reintroduction of peregrine falcons remains a viable management option.
3. Page VIII-1. Transmission Line. Because of the presence of raptors in the area, we suggest the following publication be consulted for guidance in project planning: Miller, D. et al. 1975. "Suggested Practices for Raptor Protection on Powerlines." Provo, Utah. Raptor Research Foundation, Inc. (Brigham Young University). 3 pp. plus Appendix.
4. Page 5-13. Noise and Disturbance. We disagree with the conclusion that noise levels and human disturbances during construction will cause only minor impacts on wildlife use adjacent to the plant site. Observations by California Department of Fish and Game personnel in Yosemite and Sequoia National Parks revealed that increased human activity was detrimental to deer populations: deer avoided certain areas formerly used for reproduction and rearing purposes (5). Similar behavior was noted in the North Kings River deer herd on the Sierra National Forest.
5. Page 5-13. Cumulative Impacts. The NOI concedes that existing geothermal activities are responsible for the loss of wildlife habitat. We are not convinced that efforts to improve the productivity of remaining habitat as a mitigative measure (page 5-14) would be practicable because the existing habitat already supports maximum wildlife populations. We are troubled by the lack of concern about replacing the loss of hunting opportunities on the leasehold. Prior to geothermal development, hunting was one of several uses made of the leasehold in public ownership. Contrary to the statement on page 10-4, hunting has a significant economic and recreational value. For example, a survey of the economic value of deer hunting in nearby Mendocino County revealed expenditures by deer hunters exceeded \$1.5 million annually (6). These figures are supported by the 1975 National Survey of Hunting, Fishing, and Wildlife-associated Recreation which showed that nearly 96 million Americans participated in one of these activities. Approximately 10.6 million Americans hunted in 1975 and spent an average of \$12.20 per day on hunting. Of this total, 13 million hunters spent over 2-1/2 billion dollars in their pursuit of big-game species. According to the California Department of Fish and Game (7), there were 337,400 licensed hunters in 1977 who spent an average of 7.5 days hunting deer in California.

Using these figures in combination with those of the 1975 National Survey, it is estimated that deer hunters contribute \$31 million annually to the state and local economy. Because "Deer harvest will be necessarily curtailed because geothermal installations and activities preclude hunting" (page 5-A-6), we maintain there is a need to replace the loss of wildlife habitat caused by geothermal activities.

6. Page 5-A-8. Species of Special Concern. Both Streptanthus morrisoni and S. brachiatus are candidate species under the Endangered Species Act of 1973 (8). Incidentally, Figure V-1 is not included in the NOI.
7. Page 10-8, Table 10-1.

Change: Mr. Robert Lassen
1001 Jedsmith Drive

To: Mr. Eugene V. Toffoli, Regional Manager
California Department of Fish and Game, Region III
P.O. Box 47
Yountville, California 94599

Rationale: The NCPA/Shell Geothermal Project lies in an area administered by Region III, not Region II.

8. Page 16-1. We disagree with the statement "No NCPA response needed for CEC 16.0". We believe there is a need to address these issues based on the reasons outlined under General Comments 1 and 2. It is our contention that NCPA (or any other project sponsor) has the obligation to respond to these issues because trade-offs involving public lands and public interests are involved (page 10-4, last paragraph).

Thank you for the opportunity to review and comment on this NOI.

Sincerely,


James J. McKevitt
Field Supervisor

Attachment: references cited

cc: Dir., CDF&G, Sacramento
Reg. Mgr., CDF&G, Reg. III, Yountville
Ca. Native Plant Soc., Davis (Attn: W. Robert Powell)

Memorandum

Mr. James A. Walker
Executive Director
California Energy Commission
1111 Howe Avenue
Sacramento, California 95825

Date: SEP 25 1978

ENERGY COMMISSION
SEP 25 1978

SEP 27 1978

From : STATE WATER RESOURCES CONTROL BOARD

Subject: NCPA/SHELL GEOTHERMAL PROJECT NO. 2 - NOI COMMENTS AND APPLICABLE LAWS

This is in response to your request for the Board's comments regarding the NCPA/Shell Geothermal Project NOI and the request for information regarding applicable laws and standards affecting the project.

Comments on the NOI are as follows:

Volume 1, Page IX-4, Hydrology and Water Quality, first paragraph, and Appendix B, Engineering Geologic Reconnaissance; Volume 2, Page 4-2, first paragraph -

In view of the plant site geology, the geotechnical design studies should include an assessment of the fracture permeability of the underlying sandstones and shales. Although engineering details of the "concrete curb" are unknown at this time, it is unlikely that this "impermeable retention barrier" can effectively prevent subsurface exfiltration of accidentally spilled waste to down-gradient areas.

To preclude the subsurface waste outflow potential, it appears that the area(s) surrounding all the plant facilities should be artificially lined. The liner(s) should consist of selected materials that can be properly compacted to attain and retain a permeability of 1×10^{-6} cm/sec or less.

Attached is a copy of the comments regarding the NOI previously sent to you by the Regional Water Quality Control Board, North Coast Region.

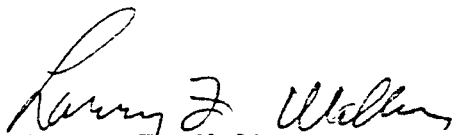
The North Coast Regional Board has provided detailed information relating to the laws, regulations, etc., applicable to the geothermal project in their response to a similar request for information regarding P G & E Geyser Unit 17 (See Memorandum to

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SEP 25 1978

Frank J. Hahn, Deputy Executive Director from David M. Snetsinger, Regional Water Quality Control Board, North Coast Region, dated June 13, 1978). This information should be sufficient for your analysis of the NCPA/Shell Project.

We are unable at this time to provide comments and recommendations concerning the conformity of the proposed project to the applicable laws, or concerning its design, operation and location, beyond the comments on the NOI. We rely on the Energy Commissions hearing process to develop sufficient information to enable us to make meaningful comments and recommendations.



Larry F. Walker
Executive Director
Water Quality

Attachment

cc: David M. Snetsinger
California Regional Water Quality
Control Board, North Coast Region
1000 Coddington Center
Santa Rosa, CA 95401

Gil Torres
Division of Planning & Research
2125 Nineteenth Street
Sacramento, CA 95818

August 31, 1978

Mr. Frank Hahn
Deputy Executive Director
California Energy Commission
1111 Howe Avenue
Sacramento, California 95825

Dear Mr. Hahn:

We have reviewed the NOI for NCEM Geothermal Project No. 2 and offer the following comments.

Page VII - 2 includes a discussion of the Stratford unit effluent disposal that indicates it may be piped to a reinjection well. ReInjection of this material may not be acceptable; more information will be required relative to the constituents to be found in this waste stream.

Appendix C, Section 4, includes the following statements:

Page 4-1

"The maximum volume of condensate spill, approximately 250,000 gallons, and 2 years frequency were computed by averaging both the condensate and frequency of spills."

Our records indicate that a total of 27 condensate spills have occurred at the existing Geysers Geothermal Power Plants since May, 1974, on average frequency of one spill every 2 months.

Pages 4-2 and 4-3

The discussion of the design and mode of operation of the retention barrier includes the following sections that we believe need further explanation:

1."The sluice gate will be manually operated only when rainfall occurs by a plant operator....."

We believe rainfall runoff flows within the capacity of the sump pump should be pumped to the cooling tower basin. This procedure would eliminate the discharge of contaminants flushed from the containment area by the first runoff from any rainfall event.

August 31, 1978

- 2 -

3. "When the sump is approximately full, the high level alarm would be an indication that the inflow into the sump is greater than the pump capacity"

What is the remaining capacity within the retention barrier when the high level alarm is activated on the sump?

4. "If a condensate spill was large, a portable pump would be brought in to pump the condensate back into the cooling tower."

We believe the plan should be more specific, i.e., have a portable pump on standby at the site or at least have one available within an hours travel time from the site.

5. "If a condensate spill were to occur during rainfall, all steps would be taken to contain the spill within basin. This would include closing the sluice gate in the sump if the gate had previously been opened to drain accumulated rainwater."

Some of the other steps to be taken should be thought out now; planning at this stage can save time during the confusion of an emergency.

If we may be of further assistance, please contact us.

Sincerely,

DMS:ph

David M. Snettinger
Sanitary Engineering Associate

Memorandum

To : Mr. Frank J. Hahn
Deputy Executive Director
California Energy Commission
1111 Howe Avenue
Sacramento, California 95825

Date: October 3, 1978

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OCT 4 1978

From : Department of Fish and Game

Subject: Northern California Power Agency's Geothermal Project No. 2 (NCPA/Shell Project)
Notice of Intention (Docket No. 78-NOI-5)

The Department of Fish and Game has reviewed subject report as requested by your letter of August 23, 1978, and has the following comments.

Page IV-1, Sec. 1. The report states "the route for the transmission line has not been selected as yet. . ." Alternative routes and access roads should be surveyed for rare and endangered plant species and significant wildlife habitats. The alternative with the least biological impact should be selected.

Page IV-30, Table III-S. Explanation should be provided for the high or erratic values reported for mercury, boron, and lead.

Page IV-27, Figure IV-12; Page 4-7, Figure 4-2. No water quality stations are located near the project area.

Page IV-46, Sec. 1.a. Figures IV-2 and IV-5 which are referred to as showing the site do not indicate the extent of the fill area.

Page IV-49, Sec. 3. The statement on a lack of fish resources in Big Sulphur, Bear Canyon, and Dry Creeks is incorrect. Volume II, page 5-5 does have a more appropriate discussion.

Page IV-50, Sec. 5. It is stated that game hunting will be reduced on an area of about 10 acres. This figure is only for the plant site. It does not include the drilling pads, roads, shop areas, equipment landings, disposal areas, and other facilities which will be needed with development. It is also inconsistent with the last paragraph, page 5-13, which states that no policy has yet been developed regarding public hunting on this area. If public hunting is to be restricted, the decision to do so should be made at this time so that appropriate mitigation (opening equivalent areas now closed to the public) may be included as part of the requirements for project approval.

Page V-6, Sec. 2; page V-17, Sec. b. These sections indicate that substantial water sources will be needed for project construction and operation. Alternatives should be identified, impacts assessed, and mitigations developed for this aspect of the project.

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Page V-31, Sec. C; page 4-5, Sec. 4.3. The storage area for the sulphur generated by the Stratford process should be identified, wildlife habitat losses considered, and measures to prevent accidental discharges proposed.

Page V-23, Sec. D. The report states, "The associated transmission line right-of-way will revert to a natural condition once the transmission towers are removed and clearing is discontinued." This form of restoration is inadequate. Re-vegetation plans utilizing species of value for erosion control and as wildlife habitat should be developed.

Page VI-2, Sec. 3. It is stated that "no springs are known to exist on or near the site." This is not correct. A spring is found in the tributary south of the site and is proposed to be covered by fill from the plant. Project plans should be modified so that fill is not placed on this or adjacent wildlife habitats. This omission indicates that surveys of the area have not been adequate.

Page VI-2, Sec. B. It is stated that "most of the clearing and grading activities will take place during the dry season. . ." To prevent erosion and stream sedimentation, no grading or clearing should be permitted from November 1 to April 15. All erosion control measures, including drainage culverts, sedimentation basins, and seeding and planting on exposed areas should be completed prior to November 1.

Page VI-3, Sec. B. The report is incorrect in stating that fish populations are not found in Big Sulphur Creek. Refer to Volume II, page 5-5 for a description of the aquatic resources of this area.

Page VII-2, Sec. B. The reinjection well and condensate line should be planned such that the line traverses the least possible distance, avoids hazardous areas, such as steep slopes, landslides, or areas of vehicle operation, and should contain automatic shut-off valves to prevent spills in event of breakages.

Page VII-5, Sec. B.1. The studies reported concerning the effects of noise on wildlife should be referenced so that their adequacy in reaching the conclusions reported may be evaluated.

Page VII-6, Sec. C.2. Our comments for page IV-50, Sec. 5 regarding hunting in the project area also apply to this section.

Page VIII-1, Sec. A. Additional spur roads for transmission tower placement should not be built. Towers should be placed by helicopter to avoid unnecessary land disturbance.

Page IX-1, Sec. A.1.a.D. Specific plans for temporary erosion control measures should be presented for evaluation.

Page IX-2, paragraph 4. Specific plans for landscaping should be presented for evaluation.

Page IX-4, Sec. 2. The retention barrier should be sized to contain a spill of 250,000 gallons of steam condensate.

Page IX-5, Sec. B.1; page 4-4, Sec. 4.2. The long-term water quality monitoring should be presented for evaluation. Corrective action should be taken if the monitoring program indicates development of adverse impacts.

Page 5-1, Sec. 5.1. The data request asks for a discussion of additional studies to assess potential adverse effects on biological resources. Although this request was not answered in the NCPA response, on page 5-12 it is stated that "no specific, quantitative investigations seem to be required at this time."

We disagree with this statement. Studies are needed to evaluate possible impacts of the development, provide for integration of additional facilities with the natural conditions to minimize impacts, and develop baseline information for future assessments of impacts and effectiveness of mitigation measures. As stated on page 5-11 of the NOI, "No detailed studies of fish or wildlife resources have been conducted within the project area." Since studies have not been done, they should be completed prior to any further development of the leasehold for geothermal power. We believe that such studies are required under 30 CFR 270.34(k), the Federal Regulations on the Leasing of Geothermal Resources. An outline for the needed work is contained in the Department's response to the CEC Notice to Public Agencies and Request for Information for the NCPA NOI dated September 9, 1978.

Page 5-13, Sec. 5.7. The discussion of cumulative impacts is inadequate. In addition to documenting the habitat losses and impacts resulting from development of the NCPA/Shell Geothermal Project No. 2 steamfield, this section should discuss the impacts from any future additional facilities, as well as development of steamfields on surrounding lands. As indicated on page 5-12, this consideration has been requested previously of the USGS Area Geothermal Supervisor.

Page 5-14, Sec. 5.8. This discussion of mitigation measures is inadequate. Specific plans should be developed and presented for evaluation for erosion control, revegetation, preventing accidental condensate spills, and replacement of lost wildlife habitat for the project site and steam supply field.

Page 5-A-8, Figure V-1; page 5-A-9, Figure V-2. These figures are indicated in the text but could not be located.

The Department's recommendations on the project and studies needed are contained in a separate memorandum to the Office of the Secretariat, California Energy Commission, in response to the Notice to Public Agencies and Request for Information dated September 9, 1978.

Department of Fish and Game personnel are available to discuss our comments and recommendations. To arrange a meeting, please contact Mr. Theodore W. Wooster, Environmental Services Supervisor, Region 3, Department of Fish and Game, Post Office Box 47, Yountville, California 94599, telephone (707) 944-2443.


Director

Memorandum

78-NOI-5

Date: October 10, 1978

Office of the Secretariat
California Energy Commission
1111 Howe Avenue
Sacramento, California 95825

RECEIVED

OCT 12 1978

ADP

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From : Department of Fish and Game

Subject: Northern California Power Agency's Geothermal Project No. 2 (NCPA/Shell Project)
Notice of Intention (Docket No. 78-NOI-5) Notice to Public Agencies and Request
for Information

The Commission's Notice of September 9, 1978 requested written responses to statements concerning our agency's participation in the proceedings pursuant to PRC 25506. This memorandum is to comply with these requests, as follows.

I. Identify each aspect of the proposed site and related facility for which the agency has an interest or permit authority.

The Department of Fish and Game is concerned with project impacts on fish and wildlife resources. Fish resources may be affected by erosion and stream sedimentation resulting from the clearing, grading, and filling required for the power plant site, steam transmission lines, electrical power transmission facilities, well drilling sites, associated roadways, and other facilities. In addition, large volumes of geothermal steam condensate will be generated. This condensate contains toxic components, and if allowed to discharge into area streams, may have adverse effects on aquatic life. Wildlife resources will be affected by the loss of habitat resulting from clearing, grading, and filling. This habitat loss will be especially severe if critical habitats, such as breeding areas, water sources, foraging areas, or other sites of high value are eliminated. Other losses may occur through reduced wildlife uses of lands adjacent to the facilities because of continuous disturbances associated with development. Finally, public use and enjoyment of wildlife on these public lands may be impaired by development, or use restrictions may be required for protection of the facilities.

II. List and summarize the laws, regulations, ordinances, or standards which the agency administers, enforces, or otherwise has an interest which are applicable to the proposed site and related facility.

The Department has broad statutory authority to promote and protect fish and wildlife resources of California. Part of that authority is found in Section 21001 Public Resources Code subdivision (c) in which it is declared to be the policy of the State to "Prevent the elimination of fish and wildlife species due to man's activities, insure that fish and wildlife populations do not drop below self-perpetuating levels, . . .".

In addition, the following sections of the Fish and Game Code are applicable.

Section 900-903; Declares it is the intent of the Legislature to preserve, protect, and enhance the birds, mammals, fish, amphibia, and reptiles of this state, and determination of criteria for rare and endangered species, inventory, and reporting by the Department.

Section 1301; Declares that the preservation, protection and restoration of wildlife within the State is an inseparable part of providing adequate recreation for our people in the interest of the public welfare.

Section 1600; Provides that the protection and conservation of the fish and wildlife resources of the State are of the utmost public interest. Fish and wildlife are the property of the people and provide a major contribution to the economy of the State as well as providing a significant part of the people's food supply and therefore their conservation is a proper responsibility of the State.

Section 1700; Declares that it is the policy of the state to encourage the conservation, maintenance, and utilization of the living resources of the ocean and other waters under the jurisdiction of the state for the benefit of all citizens.

Section 1750-1756; Native Species Conservation and Enhancement Act; states that it is the policy of this state;

- (1) "To maintain sufficient populations of all species of wildlife and native plants and the habitat necessary to insure their continued existence. . .
- (2) To provide for the beneficial use and enjoyment of wildlife and native plants. . .
- (3) To perpetuate native plants and all species of wildlife for their intrinsic and ecological values, as well as for their direct benefits to man.
- (4) To provide for aesthetic, educational, and nonappropriative uses of the various wildlife and native plant species."

Section 1756 also states that "the policy set forth in this chapter is in the public interest regardless of the economic value or lack of such value of wildlife or native plants."

Section 1801; Declares that it is the policy of the State to encourage the conservation and maintenance of wildlife resources under the jurisdiction and influence of the state. This policy includes the following objectives:

- (a) To maintain sufficient populations of all species of wildlife and the habitat necessary to achieve the objectives stated in subdivisions (b), (c), and (d).
- (b) To provide for the beneficial use and enjoyment of wildlife by all citizens of the state.
- (c) To perpetuate all species of wildlife for their intrinsic and ecological values, as well as for their direct benefits to man.
- (d) To provide for aesthetic, educational, and nonappropriative uses of the various wildlife species.
- (e) To maintain diversified recreational uses of wildlife, including the sport of hunting, as proper uses of certain designated species of wildlife, subject to regulations consistent with the maintenance of healthy, viable wildlife resources, the public safety, and a quality outdoor experience.
- (f) To provide for economic contributions to the citizens of the state, through the recognition that wildlife is a renewable resource of the land by which economic return can accrue to the citizens of the state, individually and collectively, through regulated management. Such management shall be consistent with the maintenance of healthy and thriving wildlife resources and the public ownership status of the wildlife resources.

Section 1900-1913; Native Plant Protection; declares that the intent of the Legislature and the purpose of this chapter is to preserve, protect, and enhance endangered or rare native plants of this state.

Section 2014; Declares that it is the policy of this State to conserve its natural resources and to prevent the willful or negligent destruction of birds, mammals, fish or amphibian, and further provides that the State may recover damages in a civil action against any person who unlawfully or negligently takes or destroys such resources.

Section 2050-2055; Expresses legislative concern over California's threatened wildlife; defines rare and endangered wildlife and gives authority to the Fish and Game Commission to deem what species in California are rare and endangered.

Section 5650; Prohibits discharge into State waters of any substance or material deleterious to fish, plant life, or bird life.

Sections 3511, 3505, 4700, 5000, 5050, and 5515; Regarding fully protected fish and wildlife species.

- III. Describe the nature and scope of the informational requirements which the Applicant must eventually meet in order to satisfy the concerns or permit requirements of the agency; summarize the agency's procedures for resolution of such concerns or requirements and indicate the amount of time necessary to do so; describe any other studies, analyses, or other data collection which the Applicant, agency, or commission would have to perform in order to resolve all concerns or permit requirements of the agency.

Studies should be initiated on fish and wildlife resources of the area encompassed by the steam supply field for the proposed power plant. This information is needed to evaluate possible impacts of the development, provide for integration of the facilities with the natural conditions to minimize impacts, and develop baseline information for future assessments of impacts and effectiveness of mitigation measures. These studies should respond to our concerns, and meet the requirements of 30 CFR 270.34(k). In our view, operations have proceeded on this leasehold without compliance with this section of the federal "Regulations on the Leasing of Geothermal Resources", as developed to implement the Geothermal Steam Act of 1970 (30 USC 1001-1025). This section specifies that the studies should cover a period of at least one year prior to production. To thoroughly document the existing resources, the required studies of the ecological system should cover a minimum period of five years prior to development. This time is necessary because of the variance of a species group or population with climate, population cycles of other species or groups, forage and cover growth, and other environmental factors.

The following specific studies of the ecological system and its components should be made for the area:

1. Rare and endangered plant and wildlife species: Inventory of location and assessment of habitat requirements. Present and potential habitats should be indicated on a map scaled 1:6000. Habitat requirements should be defined so these species may be protected, maintained, and enhanced.
2. Vegetation types should be mapped on a scale of 1:6000. Critical wildlife habitats should be indicated, including deer fawning meadows or glades, den and nest trees, snags, oak stands, riparian growth, waterholes, springs, seeps, and unique associations of mixed plant species.

3. In each season of each year of study, populations should be defined (numbers and biomass per unit area) for the following species or groups in each major vegetation type or association where they occur: Insects, reptiles, small mammals, ringtail cats, deer, tree squirrels, rabbits, songbirds, and quail.
4. In each season of each year of study, indices of abundance should be developed for bats, carnivores, doves, band-tailed pigeons, and raptors.
5. Maps of Bear Canyon and upper Big Sulphur Creeks should be prepared, showing configuration, pool areas, fish spawning areas, riffles, runs, bottom types, gradient, and wetted stream widths.
6. The following water quality parameters should be sampled monthly each two years in upper Big Sulphur Creek: COD, DO, flow, pH, specific conductance, temperature, TDS, TSS, turbidity, ammonia, boron, nitrates, nitrates, sulfates, zinc, aluminum, cadmium, chromium, and lead. Alkalinity, hardness, fluoride, and selenium should be sampled quarterly. Mercury in sediments should be sampled semi-yearly. This program is similar to the present study being conducted by PG & E in the Putah Creek drainage.
7. Streambed sediment composition should be sampled quarterly in upper Big Sulphur Creek for a year prior to development, and a year during development.
8. Fish populations, amphibians, and aquatic insects in upper Big Sulphur Creek and Bear Canyon Creek should be sampled each year for five years. Habitat parameters of study sections should be quantified.
9. Assessments should be made of the public recreational use of this area, including hunting, fishing, and camping, and recreation-days, and success rates determined.
10. Information from the above studies should be utilized to develop population models, and energy flow patterns for each year of study.
11. Revegetation studies should be conducted to replace lost endemic and/or native species. This should include growth studies and seed production. Information derived from these studies should be utilized to aid in reestablishment of endemic and/or native plant species.

The above studies should be repeated after full development has occurred to determine the impacts of geothermal operations and the results of mitigation measures.

- IV. Conduct a preliminary analysis, based upon the information available, for the purpose of providing comments and recommendations to the Commission regarding the design, operation, and location of the facilities designated in the notice, in relation to environmental quality, public health, and safety, and other factors on which the agency may have expertise. For purposes of a notice, the preliminary analyses should be limited to identifying any aspects of the proposed site and facilities which are likely to substantially affect the ability of the Commission to make findings on conformity of the site and related facility to applicable state, regional, and local laws and regulations. The Commission will not request or expect agencies to perform for review of a notice a complete analysis sufficient to resolve all agency concerns or to satisfy all requirements for an ultimate permit.

On September 15, 1978, a field inspection was attended at the proposed project site. Representatives from CEC, NCPA, Shell, Aminoil, DOE, USGS, BLM, and USFWS were present. This inspection concerned only the project site, not the steam supply field or surrounding area.

The site is on a knoll immediately to the west of Shell's drill site D. The project will involve cutting the knoll to create a flat area of about six acres and placing the fill in the intermittent tributaries to the east, south, and west of the site. Drains will be installed in the filled areas to convey seepage water to a point downstream of the fill area.

Site vegetation is chaparral, primarily chamise and buckbrush. A small grassy area is adjacent to the tributary southeast of the site, and shows heavy deer use. A spring in the tributary south of the site was flowing at time of inspection. Heavy willow growth, green bunch grass, and aquatic insects indicated the spring's permanence. The water was in pools for about a 100 foot section and then disappeared in channel gravels. Below this area was a grassy glade beneath some aged knobcone pine, at about the junction with the tributary west of the site. These important wildlife habitats (grass area, spring, and wooded glades) will be eliminated by fill as the project is now proposed. Modifications in project design are needed to protect these areas. Major species or groups which inhabit the area would include deer, small mammals, songbirds, and reptiles.

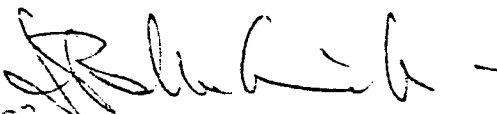
The power plant would be supplied by steam from drill sites A, C, D, F, Q, and possibly B. The total steam field is about 900 acres. Steam lines would generally follow roadways. The condensate injection well is not yet selected, and there is no routing for the condensate injection line. There are no plans for the condensate sedimentation pond. The cooling tower is to be aligned to prevailing wind to minimize drift. A berm around the plant is needed to retain spills. The plant site is adjacent to well site D, which is a consolidation of facilities that reduces disturbance to wildlife.

V. Identify mitigation or modifications, if any, to the proposed project required to achieve conformity.

1. Critical wildlife habitats adjacent to the plant site should be protected. These include the areas proposed to be covered by fill: spring, glade, and the grassy area southeast of the site. No fill should be placed within 100 feet of these areas or in the tributary south of the site.
2. The electrical transmission corridor, steam transmission lines, access roads, and any other proposed facilities should be surveyed for critical wildlife habitats or rare or endangered plants.
3. A berm should be placed around the plant site to contain up to 250,000 gal. condensate that may be spilled from the cooling tower basin.
4. The steam condensate sedimentation pond should be sized to retain any potential overflow of condensate.
5. The condensate injection line should be constructed of material which is not likely to corrode or rupture and should be located so as to extend the minimum possible distance, should avoid hazardous areas, such as steep slopes, landslides, or areas of vehicle operation, and should contain automatic shut-off valves to prevent spills in event of breakages.
6. Sedimentation basins should be placed in tributaries directly below cut or fill slopes. Collected sediment should be removed periodically. The basins should have impermeable clay linings so as to retain water for wildlife during summer months.
7. Roads intended for all-weather travel should be compacted, paved, and drainage systems installed to prevent erosion. Road drainage systems should be designed to eliminate discharges of runoff into erodible areas.
8. Those areas altered by construction activity, but not needed for operation of the facilities, such as cut or fill slopes, should be restored to their former wildlife habitat value. This would require soil preparation, application of fertilizer, immediate seeding with appropriate quantity and mixture of grass and herb species, and planting of trees and shrubs of the kind which are found in the area. Such plantings should be watered and tended during their establishment period to ensure survival. Any of the trees or shrubs which do not survive to maturity should be replaced.

9. The carrying capacity of wildlife habitat not in the immediate vicinity of the well sites should be increased to replace habitat lost with project construction. This area should be selected such that it will not be subject to impacts of future development. Management to increase wildlife carrying capacity would continue for the life of the project and would include:
 - a. Development of watering sites or small ponds in areas of low water availability. If seeps or springs are not available, then a water well should be drilled, a pump installed and maintained, and a pond to retain water should be constructed. At least one such site should be available on a 100 acre parcel.
 - b. The habitat and forage value of brush areas should be increased by controlled burning or mechanical crushing and removal. The selected method would depend on the soil type and physical characteristics of the area. Generally, a strip about 100 feet in width and several hundred yards in length on approximately each 25 acres of dense brush would provide increased forage and trail access.
10. Cleared areas which are later abandoned because they are no longer needed for project operations should be restored to their former habitat value. This would include scarification of compacted ground, soil preparation, application of fertilizer, immediate seeding with an appropriate quantity and mixture of grass species, and planting of trees and shrubs of the kind which are found in the area. Such plantings should be watered and tended during their establishment period to ensure survival. Any of the trees or shrubs which do not survive to maturity should be replaced.
11. Continuing public use of this area for hunting, camping or other recreation should not be restricted or prohibited. If restrictions are necessary, then an equivalent area where the public is now excluded should be opened to public use and maintained as such for the life of the project.

Department of Fish and Game personnel are available to discuss our comments and recommendations. To arrange a meeting, please contact Mr. Theodore W. Wooster, Environmental Services Supervisor, Region 3, Department of Fish and Game, Post Office Box 47, Yountville, CA 94599, telephone (707) 944-2443.


Director



78-NOI-5

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

215 Fremont Street
San Francisco, Ca. 94105

In Reply
Refer to: E-4-3
NSR 2-6

Mr. F. J. Hahn
Deputy Executive Director
State of California
Energy Resources and Development Commission
1111 Howe Avenue
Sacramento, CA 95825

RECEIVED

OCT 25 1978

ADP

OCT 18 1978

Dear Mr. Hahn:

This is in response to your letter of September 21, 1978 to Mr. Charles Eckerman in which you requested EPA's review and comments as to our regulatory requirements on the California Energy Commissions Notice of Intention (NOI) for the Northern California Power Agency's (NCPA) Geothermal Project No. 2.

There are two federal EPA regulations which are potentially applicable to the proposed project, Review of New Sources and Modifications (NSR) and Prevention of Significant Air Quality Deterioration (PSD).

NSR is applicable to new stationary sources which have the potential to emit (or modifications which have the potential to emit an increase of) 100 tons/year of a criteria air pollutant (particulate, sulfur dioxide, nitrogen oxides, hydrocarbon) or 1000 tons/year of carbon monoxide. PSD applies to any new source or modification which has the potential to emit 250 tons/year of any air pollutant regulated under the Clean Air Act (except that there are 28 categories of sources for which the PSD cut-off is 100 tons/year potential).

I have attached copies of the following:

1. a July 5, 1978 draft of proposed changes to EPA's NSR regulations (to be promulgated in the Federal Register shortly);
2. EPA's PSD regulation (FR Vol 43, No. 118, Monday, June 19, 1978);
3. an EPA memorandum dated May 1, 1978 which discusses the agency's opinion as to the applicability of PSD in respect to the control of hydrogen sulfide emissions from new geothermal power plants;
4. EPA's PSD application requirements

On Wednesday, October 4, 1978, members of my staff met with Mr. Charles Schnautz, Project Coordinator for NCPA to discuss the proposed project, as well as EPA's NSR and PSD regulatory requirements. During that meeting, Mr. Schnautz indicated that NCPA would be submitting an application for an EPA NSR/PSD Approval to Construct in the relatively near future.

If you have any questions regarding this letter, please feel free to call me at (415) 556-0102 or have your staff call Mr. James Grove at (415) 556-8005.

Sincerely,



Clyde B. Eller
Director, Enforcement Division

attachments

Title 40 - Protection of Environment
CHAPTER I - ENVIRONMENTAL PROTECTION AGENCY

DRAFT

Subchapter C - Air Programs

0 5 JUL 1978

Part 51 - Requirements for Preparation, Adoption and
Submittal of Implementation Plans

Emission Offset Interpretative Ruling

AGENCY: Environmental Protection Agency.

ACTION: Final Rule.

SUMMARY: This action makes certain revisions to EPA's Interpretative Ruling of December 21, 1976, (41 FR 55524) which addresses the issue of whether and to what extent the national ambient air quality standards established under the Clean Air Act restrict or prohibit growth of major new or expanded air pollution sources. These revisions are a result of the public comments (including four public hearings) on the December 21, Interpretative Ruling and changes required by the Clean Air Act Amendments of 1977 (P.L. 95-95, note under 42 USC 7401).

DATES: These changes are applicable to permits applied for on or after [date of publication in the FEDERAL REGISTER]. Comments on specified issues should be submitted to D. Kent Berry at the address listed below and must be received on or before [60 days after publication in the FEDERAL REGISTER].

FOR FURTHER INFORMATION CONTACT:

D. Kent Berry

Office of Air Quality Planning and Standards

Environmental Protection Agency

Mail Drop 11

Research Triangle Park, North Carolina 27711

Telephone: 919-541-5341

SUPPLEMENTARY INFORMATION: On December 21, 1976, EPA issued an Interpretative Ruling (41 FR 55524) addressing the issue of whether and to what extent national ambient air quality standards (NAAQS) established under the Clean Air Act may restrict or prohibit construction of major new or expanded stationary air pollution sources. The Ruling provides, in general, that a major new source may locate in an area with air quality worse than a national standard only if stringent conditions can be met. These conditions are designed to insure that the new source's emissions will be controlled to the greatest degree possible; that more than equivalent offsetting emission reductions ("emission offsets") will be obtained from existing sources; and that there will be progress toward achievement of the standards.

Although this Ruling was made immediately effective, the Agency solicited written comments and held public hearings in San Francisco, Dallas, Chicago, and New York. The comments received (including a summary of those comments) and the public hearing records are available for public inspection and copying during normal business hours at:

Public Information Reference Unit
Environmental Protection Agency
Room 2922 (EPA Library)
401 M Street, S.W.
Washington, D.C. 20460

Immediately Effective Changes Resulting from
1977 Clean Act Amendments

Section 129(a)(1) of the Clean Air Act Amendments of 1977¹ states that the December 21, 1976, Interpretative Ruling, as it may be amended (Emission Offsets Ruling) shall remain in effect, except that the baseline for determining emission offset credit is changed. Effective as of the date of enactment of the 1977 Amendments (August 7, 1977), the baseline is the approved or promulgated State Implementation Plan (SIP) at the time a permit application is submitted (i.e., control of existing sources beyond that required by the SIP can be used to offset emissions from new sources).

New Part D of Title I of the Act² requires States to revise their SIP's for every area where a NAAQS is not being met (nonattainment area). For each nonattainment area, the conditions of the Emission Offsets Ruling will apply to major sources and modifications anywhere in the State that emit pollutants (which exceed specified amounts) causing or contributing to a violation of the NAAQS within the nonattainment area during the time allowed for development, submittal and approval of the required SIP revision. For areas initially designated as nonattainment areas under Section 107(d) of the Act,³ the deadline for States to

1. Sec. 129(a)(1), P.L. 95-95 (note under 42 USC 7502).
2. Part D of the Act, which includes Sections 171 through 178 (42 USC 7501-7508).
3. Initial designations were published by EPA on March 3, 1973, 41 FR 8962. Revisions to the initial designations, if necessary, will be published soon. Designations are codified at 40 CFR, Part 81, Subpart C.

submit required SIP revisions is January 1, 1979. Revised SIP's meeting the requirements of Part D must be in effect by July 1, 1979. For areas initially designated as attainment or unclassified areas, which are later found to be nonattainment areas, additional time may be necessary for development, submittal, and approval of the required SIP revisions. During the periods before the deadline when revised SIP's must be in effect, as explained above, the Emission Offsets Ruling will apply.

After the deadline when revised SIP's must be in effect for any nonattainment area, the conditions of this Ruling will be superseded for sources within the area--(a) by requirements under the revised SIP, if the SIP meets the requirements of Part D; or (b) by a prohibition on construction or modification under Section 110(a)(2)(I) if the SIP does not meet those requirements, under certain circumstances discussed below. Proposed sources outside of the designated nonattainment area that will cause or contribute to a violation of the NAAQS within the area will (1) be governed by requirements under the revised SIP, if the SIP meets the requirements of Part D, or (2) remain subject to the conditions of this Ruling, if the SIP does not meet those requirements.

Under the preconstruction permit requirements in Part D, States have two basic options for dealing with proposed new major sources within a nonattainment area that cause or contribute to a violation of a NAAQS. The SIP may provide an allowance for growth while assuring reasonable further progress toward attainment, and new sources may be allowed that do not result in emissions that exceed the allowance. If

the growth allowance is used up, or if none is provided, the State's other option is to allow sources to be constructed only if case-by-case offsets are obtained sufficient to provide for reasonable further progress towards attaining the NAAQS by the attainment date prescribed under Part D. If the SIP for the nonattainment area is not being carried out, however, no permits may be issued within the area. Section 173(4).

If the SIP for a nonattainment area does not meet the requirements of Part D after the time for revision has expired, restrictions under Section 110(a)(2)(I) of the Act⁴ will prohibit commencement of construction or modification of any major stationary source within the area, if emissions from the new source or modification (of a pollutant for which the source or modification is defined as "major") will cause or contribute to a violation of a NAAQS in the area. Section 110(a)(2)(I) provides that construction and modification be exempt from these restrictions, even when the SIP does not satisfy Part D, if a permit for the construction or modification was applied for during a period when the SIP was in compliance with Part D, or before the deadline for having a revised SIP in effect that satisfies Part D. As noted above, this deadline is July 1, 1979, for areas initially designated as nonattainment areas.

Changes Resulting from Act Amendments

Section 129 also requires that the offset requirements be applicable to all major stationary sources as defined in Section 302 of the Act (i.e., sources with potential emissions of 100 tons or more per year). The emission offset requirements currently apply to sources with allowable

4. 42 USC 7410(a)(2)(I).

emissions greater than 100 tons per year. Since the 1977 Act Amendments did not define potential emissions and there has been some question as to the Congressional intent of this term, this change was not made immediately effective. However, this issue was dealt with in EPA's proposed regulations for preventing significant deterioration (PSD) of air quality (42 FR 57497) and was resolved in EPA's recently promulgated PSD regulations (43 FR 26388). As set forth in the final PSD regulations, potential emissions are defined in terms of uncontrolled emissions but sources are exempt from the best available control technology and the air quality related tests if the source's allowable emissions would be less than each of the following cutoff points: 50 tons per year, 1000 pounds per day or 100 pounds per hour. The short-term criteria are included to ensure that a source that operates seasonally or intermittently is adequately dealt with regarding its impact on short-term air quality. For the same reasons as are discussed in the preamble to the PSD regulations, the emission offset ruling is revised to require review of sources based on their uncontrolled emissions, but to exempt sources from the major conditions of the Ruling if the allowable emissions after meeting the applicable SIP emission limit or new source performance standard set forth in Part 60 of this chapter are less than the above cutoff points.

It should be noted that any source with allowable emissions less than the above amounts which is exempted from the offset requirements will use up part of the State's allocation for growth (see discussion in preceding section) at the time such source begins operation. Thus,--

State plan may need to require additional control of existing sources (or more rapid compliance) in order to achieve the "annual reasonable further progress toward attainment" required by the Act.

The establishment of cut-off points was developed in response to comments on EPA's proposed PSD regulations. EPA invites comments on any respect in which the cut-off points in this Ruling should be altered to take account of considerations that were not relevant in developing the PSD regulation.

Changes Resulting from Public Comment

1. Definition of "source." A number of commentors indicated the need for a more explicit definition of "source." The changes set forth below define a source as "any structure, building, facility, equipment, installation or operation (or combination thereof) which is located on one or more contiguous or adjacent properties and which is owned or operated by the same person (or by persons under common control)." This definition precludes a large plant from being separated into individual production lines for purposes of determining applicability of the offset requirements.
2. Applicability to modifications accomplished by emission reductions within the same source. There has been some question as to whether a modification (including the addition of new facilities at an existing source) which increases allowable emissions by 50 tons per year, 1000 pounds per day, or 100 pounds per hour, or more should be subject to the Ruling if there are accompanying reductions within the same source such that the net increase from the source is less than the above amounts (or

even decreases). The original intent was that such modifications should be subject to the emission offset requirements, and the Ruling is revised to make this clear.

Without this interpretation, a source owner could construct or substantially modify a facility by obtaining only partial offsets and avoiding the other conditions required for major pollution sources in nonattainment areas. This would totally conflict with one of the basic purposes of the Ruling, which is to assure that the new facilities meet the lowest achievable emission rate (LAER) and that other sources owned by the applicant be in compliance with the approved SIP or on acceptable compliance schedules. As stated in the preamble to the original Ruling (41 FR 55526): "It is EPA's judgment that a new source should be allowed to emit pollutants into an area violating a NAAQS only if its contribution to the violations is reduced to the greatest degree possible." Therefore, it is not enough that a "net air quality benefit" be found; there are additional independent requirements, including lowest achievable emission rate (LAER) and the other conditions of Section IV of the Ruling which must be met. There is no reason to depart from this principle simply because offsets happen to come from a facility which is being replaced or are otherwise obtained from within the same source. Since the facility will be new or substantially modified, it has the same opportunity to employ LAER as any other source subject to the Ruling.

Although EPA's recently-published PSD regulations include an exemption for modifications of existing facilities which are accompanied by reductions

elsewhere in the same plant so that there would be no net increase in emissions (see discussion at 43 FR 26394, June 19, 1978), this exemption is not included in the Emission Offset Ruling. It is not clear whether Congress intended this exemption to apply in nonattainment areas, since the Act ratifies EPA's existing Ruling, which did not provide such an exemption. For the policy reasons stated above, EPA does not believe it appropriate to include this exemption in the Ruling. Public comment is solicited on the Congressional intent on this issue, and whether, as a policy matter, it is appropriate to include such an exemption in the Ruling.

3. Definition of "significant" air quality impact. Several commentators requested that EPA provide specific quantification as to the incremental level of pollution that would be considered as contributing to an existing violation of a NAAQS. This question is only applicable when a major source is to be located in a "clean" area (i.e., a locality where both the primary and secondary standards are being met), but might impact an area that exceeds a NAAQS some distance away. The Ruling has been revised to include "significance levels" which are generally based on the Class I prevention of significant deterioration (PSD) increments contained in Section 163 of the Act. A new or modified source will not be considered to cause or contribute to a violation of a NAAQS if the air quality impact of the source is less than the specified significance levels. The significance levels are not intended to be used for PSD

purposes where the Class I increments are concerned, nor are they to be used for implementing Condition 4 of Section IV of the Ruling (i.e., emission offsets must result in a net air quality benefit). Significance increments are not specified for photochemical oxidants, since atmospheric simulation models are not adequate to predict the air quality impact of a single source of volatile organic compounds (VOC). Further discussion of offsets for VOC sources appears below.

4. Relationship of offset requirements to designations of attainment status. On March 3, 1978, EPA published the attainment status of all States in relation to the NAAQS, as required by Section 107(d) of the Act. 43 F.R. 8962. Nevertheless, the determination under this Ruling of whether a source will cause or contribute to a violation of a NAAQS will continue to be made on a case-by-case basis. A source may try to prove that a locality meets a NAAQS even if the locality is part of a nonattainment area designated under Section 107 of the Act. There are several reasons for this. First, the initial Section 107 determinations were made on the basis of 1975 or 1976 air quality data, while the determination of whether a source would cause or contribute to a violation of a NAAQS must be made as of the new source's start-up date. Thus, a source locating in a nonattainment area which is projected to be an attainment area as part of an approved SIP control strategy by the source's start-up date may not be subject to the requirements of the Offset Ruling. Also a State may have designated a large county or air quality control region (AQCR) as nonattainment on the basis of a localized

violation of standards in a small portion of the county or AQCR. The designations were designed to provide a starting point for State planning, and were not designed to resolve issues of air quality for purposes of individual permit applications. Therefore, the Ruling makes the following provisions relating to the Section 107 designations:

a. Sources in attainment or undesignated areas. Certain portions of the Ruling may be applicable in areas designated as attaining the NAAQS or which cannot be classified as to their attainment status pursuant to Section 107(d)(1)(D) or (E) of the Act. A source locating in such an area which would contribute to a violation of a NAAQS anywhere must meet Conditions 1, 2, 4, and 5 of Section IV of this Ruling. This is true regardless of the designation under Section 107(d) that applies to the locality where the violation would occur. However, such a source must only obtain emission offsets sufficient to compensate for its air quality impact where the violation occurs..

Most such sources will be subject to prevention of significant deterioration (PSD) requirements, which include a requirement for best available control technology for all pollutants regulated under the Act. In addition, after August 7, 1978, many sources subject to PSD must present air quality monitoring data at the proposed site as part of their application to construct, especially where there is good reason to believe that a new source would cause or worsen a violation of a NAAQS. Thus, major sources applying for a permit after August 7, 1978, will not be exempt from the requirements of this Ruling simply because no air

quality data are available to determine whether the source would adversely impact upon a NAAQS.

b. Sources locating in a "clean" portion of a designated non-attainment area. A source locating in a clean portion (or which will be clean as of the new source start-up date) of a nonattainment area designated pursuant to Section 107 of the Act may be exempt from the requirements of this Ruling if the source would not exceed the significance levels discussed above in the actual area of nonattainment (as of the new source start-up date). If such a source would exceed the significance increments in the actual nonattainment area, it is subject to the same requirements applicable to sources in designated attainment or unclassified areas (i.e., Conditions 1, 2, 4, and 5).

c. General impact of nonattainment designations on the proceedings.

It will be assumed initially that every locality within a designated nonattainment area will exceed the NAAQS (as of the new source start-up date), and that any source with allowable emissions exceeding 50 tons per year, 1000 pounds per day, or 100 pounds per hour locating in the area will significantly contribute to a violation. However, if the applicant or any other participant presents a substantial and relevant argument why that assumption is incorrect, then the reviewing authority must conduct a de novo consideration of the argument. For example, the applicant might be able to demonstrate that the new source would locate in and affect only a clean pocket of the designated nonattainment area, that the source (as discussed below for rural sources of volatile organic

compounds) would not cause or contribute to the ambient violation, or that the designation itself was incorrect.

The data and policy underlying the original designation may, in appropriate circumstances, constitute significant proof that a locality will violate the ambient standard. But this proof would arise from the merits of the data and policy when reviewed in the individual proceeding, not from any presumption imposed across-the-board by the designation itself.

5. Exemptions. The Ruling has been revised to exempt temporary emissions, such as pilot plants, portable facilities which will be relocated after a short period of time, and emissions resulting from the construction phase of a new source, from the emission offset and net air quality benefit requirements (Conditions 3 and 4 of Section IV of the Ruling). The LAER requirement and other conditions of the Ruling would still be applicable to such sources. A similar exemption would also be available to resource recovery projects burning municipal solid waste (as defined in Section 104 of the Resource Recovery and Conservation Act of 1976, P.L. 94-580).

The exemption for temporary emissions does not change the intent of the original Ruling and is consistent with interpretations issued under the original Ruling. Emissions occurring for less than two years at one location would generally be considered temporary. Emissions for longer periods of time might also be considered to be temporary (such as the emissions related to the construction of power plants and other large sources), but should be dealt with on a case-by-case basis.

Again, it should be noted that any source which is exempted from the offset requirements will use up part of the State's allocation for growth at the time such source begins operation. Thus, a State plan may need to require additional control of existing sources (or more rapid compliance) in order to achieve the "annual reasonable further progress toward attainment" required by the Act.

6. Geographic applicability to major VOC sources. One of the issues not totally resolved in the December 21, 1976, Ruling was the determination of the areas where offsets for sources of volatile organic compounds (VOC) would be required, especially since atmospheric simulation modeling techniques are generally not available to estimate the air quality impact on an individual VOC source. For rural VOC sources, as for other sources, offsets and other conditions of the Ruling were required for major sources that would cause or contribute to a violation of a NAAQS. Any source locating within a major metropolitan area (over 200,000 population) where the standard was violated was assumed to cause or contribute to the violation. 41 F.R. 55527 col. 1. However, no firm rules were adopted for application of the Ruling to sources outside of such areas, or for determining where offsets could be found for proposed sources in or out of such areas. Reviewing authorities were left with discretion to determine, on a case-by-case basis, whether any particular proposed rural source would cause or contribute to a violation, or whether any particular emission reduction would constitute an acceptable offset for a proposed source.

The Ruling did refer to a discussion of the rural oxidant problem published in the same FEDERAL REGISTER issue as the Ruling, 41 F.R. 55528 col. 2, 55559-60. This discussion suggested tentative reasons why proposed VOC sources outside of major metropolitan areas should not need offsets, and why sources within such areas should obtain offsets from sources that are also within such areas. However, since that discussion was contained in an advance notice of proposed rulemaking, it was intended only to inform, not to govern individual permit decisions.

On the basis of comments received responding to the advance notice of proposed rulemaking, EPA has developed the proposal for rural VOC sources stated in this Ruling. Comments are invited on this proposal. This proposal will still only inform, rather than govern decisions on individual applications from VOC sources, until any further comments are considered and the proposal is made final.

Under the proposal, offsets will generally be required for VOC sources located in any area that is classified as nonattainment for oxidant pursuant to Section 107(d)(1)(A) of the Act, or is otherwise shown to be exceeding the NAAQS for oxidant. In addition, there are many situations where a source locating outside a nonattainment area may adversely impact upon a nearby locality where the standard is violated. Since photochemical dispersion models are not available to estimate the air quality impact of a single VOC source, it is necessary to use a general approximation of the area around a nonattainment monitor where emissions would reasonably be expected to have an impact on a measured

violation. Unless specific data are available to define the impact of a VOC source, offsets should be required for VOC sources locating within 36 hours travel time (under wind conditions associated with multi-day stagnation conditions) of a nonattainment monitor. This distance is based on evidence which suggest that precursor emissions which occur within 36 hours travel time of each other interact to form oxidant.

In addition, the changes to the Ruling provide the owner of a proposed VOC source an opportunity to show that the emissions from the proposed source would have "virtually no effect on any area that exceeds the oxidant standard" and therefore the source would be exempt from the Ruling. This exemption is only intended for remote rural sources whose emissions would be very unlikely to interact with other significant sources of VOC or NO_x to form additional oxidant. Such a demonstration might include a showing that the proposed source would be located in an area that is not subject to multi-day stagnation conditions or that VOC and NO_x emissions within the same AQCR or within 36 hours travel time are minimal. Suggestions from the public are invited on establishing specific criteria or cut-offs to assist applicants in making such a demonstration.

Generally, offsets will be acceptable if obtained from within the same AQCR as the new source or from other areas which may be contributing to the oxidant problem affected by the proposed new source. As with other pollutants, it is desirable to obtain offsets from sources located as close to the proposed new source site as possible. If the proposed

offsets would be from sources located at greater distances from the new source, the reviewing authority should increase the ratio of the required offsets or require a showing that nearby offsets were investigated and reasonable alternatives were not available.

7. Changes to Section IV, Condition 2. In the original Ruling, the reviewing authority was required to examine all enforcement orders for other sources owned by the applicant in the AQCR to determine if more expeditious compliance was practical. Some commentators pointed out that in interstate AQCR's, the reviewing authority has no control over compliance schedules or enforcement orders in the adjoining State(s). Also, in a very similar provision set forth in Section 173(3) of the Act, the demonstration concerning compliance by other sources owned by the applicant is specified on a State rather than an AQCR basis. Consequently, the Ruling has been changed to be consistent with the provisions in the 1977 Act Amendments. The wording of Condition 2 has also been changed in accordance with Section 173(3) to clarify the various forms of ownership and control covered by Condition 2. Condition 2 is intended to be applied in a broad sense so as to cover subsidiaries controlled by the applicant and to all facilities owned by any individual business entity that controls a joint enterprise applicant.

For the time being, determinations of what entities control, are controlled by, or are under common control with, the applicant will be made on a case-by-case basis. However, to save time and resources of both applicants and decisionmakers, EPA proposes to establish criteria

for determining issues of control. For example, any person with a ten percent voting interest in an entity, or with the power to make or veto decisions by the entity to implement major emission-control measures, might be deemed to control the entity. Such criteria would also be used for determining whether facilities are part of the same source, under Section II.A.1. of this Ruling. Since the definition of "source" is the same under the Agency's PSD regulations as well as this Ruling, the criteria for determining whether facilities are part of the same source are expected to be identical. Comments and suggestions are invited on such criteria for determining control.

8. Change to Condition 4. Condition 4 of the original Ruling required that an emission offset must also result in a "net air quality benefit" in the area affected by the new source. In response to questions as to whether an air quality analysis is necessary for VOC and NO_x emissions pursuant to the "net air quality benefit" requirement, the Ruling is clarified to indicate that fulfillment of the emission offset requirements of Condition 3 will be adequate to meet the requirements of Condition 4 for these pollutants.

It should be noted that the "net air quality benefit" test need not be interpreted as requiring an air quality improvement at every location affected by the source. This condition is intended to ensure that the sources involved in an offset situation impact air quality in the same general area, but the net air quality benefit test should be made "on balance" for the area affected by the new source.

9. Change to Condition 5. Condition 5 of the original Ruling contained a prohibition on major source growth after January 1, 1979, in areas where EPA had called for a SIP revision, unless EPA had approved or promulgated the required SIP revision by that date. As discussed above, Section 110(a)(2)(I) closely parallels the requirements of Condition 5, except that the date after which new source construction must be suspended for failure to submit an adequate SIP revision is changed from January 1, 1979, to June 30, 1979. The Ruling is, therefore, changed to be consistent with the Act in this respect.

10. Baseline where there is no meaningful SIP requirement. Section IV.C.2 had previously provided that where the particulate emission limit in the SIP for fuel combustion exceeded the uncontrolled emission rate for the fuel being burned (as when a State has a single emission limit for all fuels), emission offset credit would be allowed only for control below the appropriate uncontrolled emission factor. Since this situation may occur for sources other than fuel combustion sources, this provision has been made more general and incorporated in Section IV.C.1.

11. Fuel conversion. The Interpretative Ruling, as originally published, provided that the use of an alternative fuel would not be considered a modification subject to the Ruling if, prior to December 21, 1976, the sources could accommodate such alternative fuel. In an associated Notice of Proposed Rulemaking published on December 21, 1976 (41 FR 55558), comments were solicited on whether this exemption should apply in nonattainment areas. In the Administrator's judgment, the most

appropriate way to handle fuel conversions where no major physical modification takes place is through the SIP revision process. In particular, new Section 124 of the Clean Air Act requires States to review their plans to ensure that they will be adequate to attain and maintain the national ambient air quality standards in light of known or anticipated fuel conversions. Furthermore, under Section 172 (b)(4), emissions from fuel conversions must be considered in determining periodically whether the plan is adequate to assure attainment by the required date. Therefore, the Ruling still exempts a fuel conversion where the source is designed to accommodate the alternative fuel.

For purposes of controls to protect air quality in clean areas, and controls that States must adopt in nonattainment areas, Congress provided that "modification" should not include a conversion to an alternative fuel by reason of an order under the Energy Supply and Environmental Coordination Act of 1974 or a natural gas curtailment plan pursuant to the Federal Power Act. See sections 111(a)(4) and (8), 169(2)(C), and 171(4), 42 U.S.C. 7411(A) and (8), 7479 (2)(C), and 7501(4). EPA therefore has decided that it would be consistent with Congressional intent to exclude such conversions from the definition of "modification" in this Ruling as well.

To further conform the Ruling to the Act and avoid confusion, EPA has also qualified the definition of modification by adding the provision that a switch to an alternative fuel by reason of an order or rule under section 125 of the Act (41 U.S.C. 7425) is not a modification.

In nonattainment areas, States must deal with increased emission from fuel conversions in their 1979 SIP revisions. This may be done in several ways. A State may include in their control strategy demonstration an assumption that all sources which could reasonably convert to a dirtier fuel will do so. Alternately, the State may require all major fuel conversions to be subject to the preconstruction review requirements of Section 173. Such conversions would then be reviewed against the margin for growth provided by the State or would be required to find offsets pursuant to the requirements of Section 173(1)(A).

12. Banking. One of the issues that was frequently raised in comments on the Ruling involved "banking" of emission reductions to allow for future new source growth. The advocates of banking felt that if the offsets obtained in a given situation were considerably greater than the new source's emissions, some of the "excess" emission reductions should be "bankable" to allow for future growth. The general argument was that a "no-banking" rule would have an adverse air quality impact (at least in the short-term) by discouraging early clean-up of sources. For example, if a source were undergoing a modernization program, and retiring a number of obsolete facilities, a "no-banking" provision might encourage the owner to delay retirement of several of the facilities so that they could be used in future offset situations.

Banking was restricted by EPA because it was felt that banking would create a difficult accounting problem, probably would not result in any environmental benefit, and tended to dilute the potential benefits

of the offset policy. The Clean Air Act Amendments of 1977 modified this restriction by allowing States to incorporate provisions for growth in SIP plans for nonattainment areas. Under Section 173(1) of the Act, emission reductions are compared to a "reasonable further progress" goal, and reductions beyond the minimum requirement may be used to offset future growth. In essence, the State becomes the banker and must decide how to allocate the banked emissions. Therefore, the restriction on banking in the Ruling has been removed for offsets approved after the date of publication of these changes in the FEDERAL REGISTER. States which wish to allow banking may do so, as long as it is recognized that there will be changes in the basis for approval of major new sources after June 30, 1979.

A State that allows sources to retain control of banked emissions past June 30, 1979, must continue to exercise control of how and when such banked emissions are used. A State may not approve the construction of a source using banked emissions if the new source would interfere with "reasonable further progress" toward attainment as required by Section 173. To preserve banked emission reductions, the reviewing authority should identify them in either a SIP revision or a permit. Furthermore, the reviewing authority should provide a registry to identify the person, private entity, or governmental authority that has the right to use or allocate the banked emission reductions, and to record any transfers of, or liens on, this right that the reviewing authority may allow.

EPA is studying alternative mechanisms for providing an allocation for growth in the revised SIP's. These studies will be completed later this year and the results will be made available to the States for their use in determining how to allocate the margin for growth.

13. Source shutdowns and curtailments. A sub-issue related to banking is the credit which may be taken for source shutdowns or curtailments occurring prior to the date the new source application is filed. Footnote 7 of the original Ruling had restricted offset credit to situations where the shutdown or curtailment occurred as a result of an enforcement action and the new source was clearly a replacement. The Ruling has been changed to eliminate the requirement that a prior shutdown be related to an enforcement action in order to be used as offset credit. However, to ensure that an offset relates to the current air quality problem, it is necessary to put some limit on the credit that can be taken for shutdowns that have taken place in the past. Therefore, the Ruling requires that a source shutdown must have occurred after the date of enactment of the 1977 Amendments or less than one year prior to the date the new source permit application is filed, whichever is earlier, in order to be acceptable as offset credit. Such credits may be banked, subject to the limitations outlined above.

14. Equivalency of State regulations. Some States have, or may wish to develop, offset regulations which differ in some of the details from the EPA Interpretative Ruling. EPA intends to approve such regulations if the State submits a demonstration that the overall impact on emissions

in the areas where the regulation will apply is at least as stringent as the EPA Interpretative Ruling. At a minimum, the State regulations must contain the four major conditions specified in Section IV.A. This does not apply to offset regulations applying after June 30, 1979, in accordance with the requirements of Section 173(1)(A); separate guidance will be issued for meeting these requirements. Nor does this apply to general waivers of the requirements of this Ruling, under Section 129(a)(2) of the Clean Air Act Amendments of 1977 (note under 42 U.S.C. 7502).

15. Technology transfer in determining LAER. The definition of lowest achievable emission rate (LAER) has been modified to clarify EPA's interpretation that the reviewing authority may consider transfer of technology from one source type to another where such technology is applicable. Congress intended to require new sources in nonattainment areas to apply the "maximum feasible pollution control," even if this involves "technology-forcing."⁵ Therefore, the Agency does not feel that the phrase "achieved in practice by such class or category of source" [Section 171(3)] prohibits technology transfers from other types of sources. If pollution-control technology can feasibly be transferred from one type of source to another, then for purposes of determining LAER, EPA will consider both types of source to be in the same "class or category of source."

5. See report to accompany H.R. 6161, H.R. Rep. No. 95-294, 95th Congress, First Session 215 (May 12, 1977)..

16. Fugitive dust. As noted above, an Advance Notice of Proposed Rulemaking was published on December 21, 1976 (41 FR 55558) which dealt with several issues closely related to the Interpretative Ruling published on the same date. Comments were urged to be submitted on both notices in a consolidated fashion.

One of the issues raised related to how fugitive dust, particularly rural fugitive dust which may significantly contribute to violations of the NAAQS for particulate matter, should be accounted for in performing new source reviews. This issue was also raised in conjunction with EPA's proposed PSD regulations. The Ruling provides that fugitive dust sources locating in clean portions of nonattainment areas or in attainment or unclassified areas shall be subject only to applicable requirements for preventing significant deterioration of air quality (see 40 CFR 52.21). Fugitive dust sources locating in an actual nonattainment area shall be subject to Conditions 1, 2, 3, and 5 of Section IV.A. of this Ruling.

Authority

The Administrator has determined that this rulemaking is nationally applicable and is based on determinations of nationwide scope and effect. This rulemaking is issued under Section 129(a) of the Clean Air Act Amendments of 1977, P.L. 95-95, 91 Stat. 745, August 7, 1977 (note under 42 USC 7502) and Section 301 of the Clean Air Act (42 USC 7601).

Date: _____

Administrator

The Interpretative Ruling published by EPA on December 21, 1975, at 41 FR 55524 is revised and codified as a new Appendix S to 40 CFR Part 51. In the footnote to 40 C.F.R. 51.18, "41 FR 55528, December 21, 1975," is deleted and "Appendix S" is inserted in its place. As revised, Appendix S reads as follows:

Appendix S

EMISSION OFFSET INTERPRETATIVE RULING

I. INTRODUCTION

This appendix sets forth EPA's Interpretative Ruling on the preconstruction review requirements for stationary sources of air pollution (not including indirect sources) under 40 CFR 51.18 and Section 129 of the Clean Air Act Amendments of 1977, P.L. 95-95, (note under 42 USC 7502). A major new source or modification which would contribute to a violation of a national ambient air quality standard (NAAQS) may be allowed to construct only if the stringent conditions set forth below are met. These conditions are designed to insure that the new source's emissions will be controlled to the greatest degree possible; that more than equivalent offsetting emission reductions ("emission offsets") will be obtained from existing sources; and that there will be progress toward achievement of the NAAQS.

For each nonattainment area (as defined in Section 171(2) of the Clean Air Act), this Ruling will apply to sources anywhere in the State that will cause or contribute to any violation of the NAAQS within the nonattainment area, during the time allowed under the Clean Air Act for

ensuring that the SIP in effect for that area meets the requirements of Part D of the Act. After this period has expired, this Ruling will be superseded for sources within the nonattainment area--(a) by requirements under the revised SIP, if it meets the requirements of Part D; and (b) by restrictions under Section 110(a)(2)(I) of the Act, if the SIP does not meet the requirements of Part D. Proposed sources outside of the designated nonattainment area that will cause or contribute to a violation of the NAAQS within the area will (1) be governed by requirements under the revised SIP, if the SIP meets the requirements of Part D, or (2) remain subject to the conditions of this Ruling, if the SIP does not meet those requirements.

II. INITIAL SCREENING ANALYSES AND DETERMINATION OF APPLICABLE REQUIREMENTS

A. Definitions. For purposes of this Ruling:

1. "Source" means any structure, building, facility, equipment, installation or operation (or combination thereof) which is located on one or more contiguous or adjacent properties and which is owned or operated by the same person (or by persons under common control).
2. "Facility" means an identifiable piece of process equipment. A stationary source is composed of one or more pollutant-emitting facilities.
3. "Potential" to emit means the maximum capacity to emit a pollutant absent air pollution control equipment. "Air pollution control equipment" includes control equipment which is not, aside from air pollution control laws and regulations, vital to production of the normal product of the source or to its normal operation. Annual

potential shall be based on the maximum annual rated capacity of the source, unless the source is subject to enforceable permit conditions which limit the operating rate or hours of operation, or both. Enforceable permit conditions on the type or amount of materials combusted or processed may be used in determining the potential emission rate of a source.

4. "Major source" means any source for which the potential emission rate is equal to or greater than 100 tons per year of any of the following pollutants: particulate matter, sulfur oxides, nitrogen oxides, volatile organic compounds, or carbon monoxide.

5. "Major modification" means any physical change in, change in the method of operation of, or addition to a stationary source which increases the potential emission rate of any air pollutant specified in A.4 above (including any not previously emitted and taking into account all accumulated increases in potential emissions occurring at the source since [date of publication in the FEDERAL REGISTER], or since the time of the last construction approval issued for the source pursuant to this ruling, whichever time is more recent, and regardless of any emission reductions achieved elsewhere in the source) by 100 tons per year or more.

(i) A physical change shall not include routine maintenance, repair, and replacement.

(ii) A change in the method of operation, unless limited by previous permit conditions, shall not include:

(a) An increase in the production rate, if such increase does not exceed the operating design capacity of the source;

(b) An increase in the hours of operation;

(c) Use of an alternative fuel or raw material, if on December 21, 1976, the source was capable of accommodating such fuel or material; or

(d) Use of an alternative fuel or raw material by reason of an order in effect under Sections 2(a) and (b) of the Energy Supply and Environmental Coordination Act of 1974 (or any superseding legislation), or by reason of a natural gas curtailment plan in effect pursuant to the Federal Power Act.

(e) Use of an alternative fuel by reason of an order or rule under Section 125 of the Act.

(f) Change in ownership of a source.

6. "Allowable emissions" means the emission rate calculated using the maximum rated capacity of the source (unless the source is subject to enforceable permit conditions which limit operating rate, or hours of operation, or both) and the most stringent of the following:

(i) Applicable new source performance standards set forth in 40 CFR Part 60,

(ii) Applicable SIP emission limitation; or

(iii) The emission rate specified as an enforceable permit condition.

7. "Lowest achievable emission rate" means, for any source, that rate of emissions based on the following, whichever is more stringent:

(i) The most stringent emission limitation which is contained in the implementation plan of any State for such class or category of source, unless the owner or operator of the proposed source demonstrates that such limitations are not achievable; or

(ii) The most stringent emission limitation which is achieved in practice or can reasonably be expected to occur in practice by such class or category of source taking into consideration the pollutant which must be controlled.

This term applied to a modification means the lowest achievable emission rate for the new or modified facilities within the source. In no event shall the application of this term permit a proposed new or modified source to emit any pollutant in excess of the amount allowable under applicable new source standards of performance.

8. "Fugitive dust" means particulate emissions composed of soil which is uncontaminated by pollutants resulting from industrial activity. Fugitive dust may include emissions from haul roads, wind erosion of exposed soil surfaces and soil storage piles and other activities in which soil is either removed, stored, transported, or redistributed.

9. "Reconstruction" will be presumed to have taken place where the fixed capital cost of the new components exceed 50 percent of the fixed capital cost of a comparable entirely new facility or source. However, any final decision as to whether reconstruction has occurred shall be made in accordance with the provisions of 40 C.F.R. §60.15(f)(1)(3). A reconstructed source will be treated as a new source for purposes of this ruling, except that use of an alternative fuel or raw material by reason of an order in effect under Sections 2(a) and (b) of the Energy Supply and Environmental Coordination Act of 1974 (or any superseding legislation), by reason of a natural gas curtailment plan in effect

pursuant to the Federal Power Act, or by reason of an order or rule under Section 125 of the Act, shall not be considered reconstruction.

In determining LAER for a reconstructed source, the provisions of 40 C.F.R. §60.15(f)(4) shall be taken into account in assessing whether a new source performance standard is applicable to such source.

10. "Fixed capital cost" means the capital needed to provide all the depreciable components.

8. Review of all sources for emission limitation compliance. The reviewing authority must examine each proposed major new source and proposed major modification¹ to determine if such a source will meet all applicable emission requirements in the SIP, any applicable new source performance standard in 40 CFR Part 60, or any national emission standard for hazardous air pollutants in 40 CFR Part 61. If the reviewing authority determines that the proposed major new source cannot meet the applicable emission requirements, the permit to construct must be denied.

C. Review of specified sources for air quality impact. In addition, for each proposed major new source with allowable emissions exceeding 50 tons per year, 1000 pounds per day, or 100 pounds per hour, whichever is most restrictive, the reviewing authority must determine if the source will cause or contribute to a violation of a NAAQS.² A proposed source

1. Hereafter the term "source" will be used to denote both any source and any modification.
2. Required only for those pollutants for which the increased allowable emissions exceeds 50 tons per year, 1000 pounds per day, or 100 pounds per hour, although the reviewing authority may address other pollutants if deemed appropriate.

which would not exceed any of the above emission levels may be approved without further analysis, provided such a source meets the requirements of Part II. 8.

Where a source is constructed or modified in increments which individually do not emit more than the above amounts and the increments have not been offset in accordance with this Ruling, the allowable emissions from all such increments granted a permit to construct after December 21, 1976, shall be added together and this Ruling may be applicable when a proposed increment would cause the sum of the allowable emissions which have not been offset to equal or exceed 50 tons per year, 1000 pounds per day, or 100 pounds per hour. If the total modification would cause or contribute to a violation of the NAAQS, all of the provisions of this Ruling are then applicable to each increment. If any of the increments has not previously been subject to Condition 1 of Section IV.A. (requiring the source to meet the lowest achievable emission rate), such determination must consider the stage of construction of such increment and the ability of the source to install additional control equipment.

For "stable" air pollutants (i.e., SO_2 , particulate matter and CO), the determination of whether a source will cause or contribute to a violation of a NAAQS generally should be made on a case-by-case basis as of the proposed new source's start-up date using the source's allowable emissions in an atmospheric simulation model (unless a source will clearly impact on a receptor which exceeds a NAAQS).

For sources of nitrogen oxides, the initial determination of whether a source would cause or contribute to a violation of the NAAQS for NO₂ should be made using an atmospheric simulation model assuming all the nitric oxide emitted is oxidized to NO₂ by the time the plume reaches ground level. The initial concentration estimates may be adjusted if adequate data are available to account for the expected oxidation rate.

For photochemical oxidants, sources of volatile organic compounds (VOC) locating in areas classified as nonattainment pursuant to Section 107(d)(1)(A) of the Clean Air Act or otherwise shown to be in violation of the NAAQS for oxidant shall be subject to the provisions of Section IV of this Ruling. In addition, VOC sources locating within 36 hours travel time (under wind conditions associated with high oxidant concentrations) of a nonattainment monitor shall also be subject to Section IV of this Ruling. However, a VOC source may be exempt from these requirements if the source owner can demonstrate that the emissions from the proposed source will have virtually no effect upon any area that exceeds the NAAQS for photochemical oxidant. This exemption is only intended for remote rural sources whose emissions would be very unlikely to interact with other significant sources of VOC or NO_x to form additional oxidant.*

As noted above, the determination as to whether a source would cause or contribute to a violation of a NAAQS should be made as of the new source's start-up date. Therefore, if an area designated as nonattain-

* The discussion in this paragraph on VOC sources is a proposal, and therefore may inform but need not govern decisions on individual permits.

ment under Section 107 is projected to be an attainment area as part of an approved SIP control strategy by the new source start-up date, offsets would not be required.

D. Sources locating in a "clean" portion of a designated nonattainment area. A source locating in a clean portion (or which will be clean as of the new source start-up date) of a nonattainment area designated pursuant to Section 107 of the Act may be exempt from the requirements of this Ruling if the allowable emissions from the source or facility (not including any emission reductions achieved elsewhere in the source) would not cause the following significance levels to be exceeded in the actual area of non-attainment (as of the new source start-up date):

<u>Pollutant</u>	<u>Averaging Time</u>				
	<u>Annual</u>	<u>24-Hour</u>	<u>8-Hour</u>	<u>3-Hour</u>	<u>1-Hour</u>
SO ₂	1.0 µg/m ³	5 µg/m ³		25 µg/m ³	
TSP	1.0 µg/m ³	5 µg/m ³			
NO ₂	1.0 µg/m ³				
CO			0.5 mg/m ³		2 mg/m ³

No significance increments are applicable for hydrocarbons or photochemical oxidants. If the source would exceed the significance levels in the actual area of nonattainment, all requirements of this Ruling (except Condition 3 of Section IV.A.) would be applicable.

It will be assumed initially that every locality in a designated nonattainment area will exceed the NAAQS (as of the new source start-up date), and that any major source locating in the area will significantly

contribute to the violation. However, if the applicant or any other participant presents a substantial and relevant argument why that assumption is incorrect, then the reviewing authority must conduct a de novo consideration of the argument.

E. Sources in attainment or undesignated areas. For areas designated as attaining the NAAQS or which cannot be classified as to their attainment status pursuant to Section 107(d)(1)(D) or (E) of the Act, sources locating in such areas which would exceed the above significance increments at any locality that does not meet the NAAQS are subject to this Ruling. However, such a source may be exempted from Condition 3 of Section IV.A. of this Ruling.

F. Fugitive dust sources. Fugitive dust sources locating in clean portions of designated nonattainment areas or in designated attainment or unclassified areas shall be subject only to applicable requirements for preventing significant deterioration of air quality (see 40 CFR 52.21). Fugitive dust sources locating in an actual nonattainment area shall be subject to Conditions 1, 2, 3, and 5 of Section IV.A. of this Ruling.

III. SOURCES LOCATING IN "CLEAN" AREAS, BUT WOULD CAUSE A NEW VIOLATION OF A NAAQS

If the reviewing authority finds that the emissions³ from a proposed source would cause a new violation of a NAAQS, but would not contribute

- 3.. Where a new source will result in specific and well defined secondary emissions which can be accurately quantified, the reviewing authority should consider such secondary emissions in determining whether the source would cause or contribute to a violation of the NAAQS. However, since EPA's authority to perform or require indirect source review relating to mobile sources regulated under Title II of the Act (motor vehicles and aircraft) has been restricted by statute, consideration of the indirect impacts of motor vehicles and aircraft traffic is not required under this Ruling.

to an existing violation, approval may be granted only if both of the following conditions are met:

Condition 1. The new source is required to meet a more stringent emission limitation⁴ and/or the control of existing sources below allowable levels is required so that the source will not cause a violation of any NAAQS.

Condition 2. The new emission limitations for the new source as well as any existing sources affected must be enforceable in accordance with the mechanisms set forth in Part V below.

IV. SOURCES THAT WOULD CONTRIBUTE TO CONCENTRATIONS WHICH EXCEED A NAAQS

A. Conditions for approval. If the reviewing authority finds that the emissions³ from a proposed source would contribute to concentrations which exceed a NAAQS as of the source's proposed start-up date, approval may be granted only if the following conditions are met:

Condition 1. The new source is required to meet an emission limitation⁴ which specifies the lowest achievable emission rate for such source.²

4. If the reviewing authority determines that technological or economic limitations on the application of measurement methodology to a particular class of sources would make the imposition of an enforceable numerical emission standard infeasible, the authority may instead prescribe a design, operational or equipment standard. In such cases, the reviewing authority shall make its best estimate as to the emission rate that will be achieved and must specify that rate in the required submission to EPA (see Part V). Any permits issued without an enforceable numerical emission standard must contain enforceable conditions which assure that the design characteristics or equipment will be properly maintained (or that the operational conditions will be properly performed) so as to continuously achieve the assumed degree of control. Such conditions shall be enforceable as emission limitations by private parties under Section 304. Hereafter, the term "emission limitation" shall also include such design, operational, or equipment standards.

Condition 2. The applicant must certify that all existing major sources owned or operated by the applicant (or any entity controlling, controlled by, or under common control with the applicant) in the same State as the proposed source are in compliance with all applicable emission limitations and standards under the Act (or are in compliance with an expeditious schedule which is Federally enforceable or contained in a court decree).

Condition 3. Emission reductions ("offsets") from existing sources⁵ in the area of the proposed source (whether or not under the same ownership) are required such that there will be reasonable progress toward attainment of the applicable NAAQS.² Only intrapollutant emission offsets will be acceptable (e.g., hydrocarbon increases may not be offset against SO₂ reductions).

Condition 4. The emission offsets will provide a positive net air quality benefit in the affected area (see Part IV. D. below).² This requirement applies only to the "stable" pollutants (SO₂, particulate matter and CO); for volatile organic compounds and NO_x, fulfillment of Condition 3 will be considered adequate to meet this condition.

Condition 5. For a major source which would be located in an area where EPA has found that a SIP is substantially inadequate to attain a NAAQS and has formally requested a SIP revision pursuant to Section 110(a)(2)(H)(ii) or where a SIP revision is otherwise required pursuant to Section 178(b) of the Act and such source would contribute to a

5. Subject to the provisions of Part IV. C. below.

violation of an NAAQS in the area, permits applied for after June 30, 1979,⁶ must specify that the source may not commence construction until EPA has approved or promulgated a SIP revision for the area that meets the requirements of Part D of the Clean Air Act (if the source is a major source of the pollutant for which the SIP revision is required).

8. Exemptions from certain conditions. The reviewing authority may exempt the following sources from Condition 1 under Part III or Conditions 3 and 4 under Part IV. A.: (i) resource recovery projects burning municipal solid waste, and (ii) sources which must switch fuels due to lack of adequate fuel supplies or where a source is required to be modified as a result of EPA regulations (e.g., lead-in-fuel requirements) or other Federal statute and no exception from such regulation or statute is available to the source. Such an exemption may be granted only if:

1. The applicant demonstrates that it made its best efforts to obtain sufficient emission offsets to comply with Condition 1 under Part III or Conditions 3 and 4 under Part IV. A. and that such efforts were unsuccessful;

2. The applicant has secured all available emission offsets; and

3. The applicant will continue to seek the necessary emission offsets and apply them when they become available.

Such an exemption may result in the need to revise the SIP to provide additional control of existing sources.

6. Or, if later, the date which is six months after the deadline for submittal of the revision.

Temporary emission sources; such as pilot plants, portable facilities which will be relocated after a short period of time, and emissions resulting from the construction phase of a new source, are exempt from Conditions 3 and 4 of this Section.

C. Baseline for determining credit for emission and air quality offsets. The baseline for determining credit for emission and air quality offsets will be the SIP emission limitations in effect at the time the application to construct or modify a source is filed. Thus, credit for emission offset purposes may be allowable for existing control that goes beyond that required by the SIP. Emission offsets generally should be made on a pounds per hour basis when all facilities involved in the emission offset calculations are operating at their maximum expected or allowed production rate. The reviewing agency should specify other averaging periods (e.g., tons per year) in addition to the pounds per hour basis if necessary to carry out the intent of this Ruling. When offsets are calculated on a tons per year basis, the baseline emissions for existing sources providing the offsets should be calculated using the actual annual operating hours for the previous one or two year period (or other appropriate period if warranted by cyclical business conditions). Where the SIP requires certain hardware controls in lieu of an emission limitation (e.g., floating roof tanks for petroleum storage), baseline allowable emissions should be based on actual operating conditions for the previous one or two year period (i.e., actual throughput and vapor pressures) in conjunction with the required hardware controls.

1. No meaningful or applicable SIP requirement. Where the applicable SIP does not contain an emission limitation for a source or source category, the emission offset baseline involving such sources shall be the actual emissions determined in accordance with the discussion above regarding operating conditions.

Where the SIP emission limit allows greater emissions than the potential emission rate of the source (as when a State has a single particulate emission limit for all fuels), emission offset credit will be allowed only for control below the potential emission rate.

2. Combustion of fuels. Generally, the emissions for determining emission offset credit involving an existing fuel combustion source will be the allowable emissions under the SIP for the type of fuel being burned at the time the new source application is filed (i.e., if the existing source has switched to a different type of fuel at some earlier date, any resulting emission reduction [either actual or allowable] shall not be used for emission offset credit). If the existing source commits to switch to a cleaner fuel at some future date, emission offset credit based on the allowable emissions for the fuels involved is not acceptable unless the permit is conditioned to require the use of a specified alternative control measure which would achieve the same degree of emission reduction should the source switch back to a dirtier fuel at some later date. The reviewing authority should ensure that adequate long-term supplies of the new fuel are available before granting emission offset credit for fuel switches.

3. Operating hours and source shutdown. A source may be credited with emission reductions achieved by shutting down an existing source or permanently curtailing production or operating hours below baseline levels (see initial discussion to this Section C) provided, that the work force to be affected has been notified of the proposed shutdown or curtailment. Emission offsets that involve reducing operating hours or production or source shutdowns must be legally enforceable, as in the case for all emission offset situations.⁷

4. Credit for hydrocarbon substitution. As set forth in the Agency's "Recommended Policy on Control of Volatile Organic Compounds" (42 FR 35314, July 8, 1977), EPA has found that almost all non-methane hydrocarbons are photochemically reactive and that low reactivity hydrocarbons eventually form as much photochemical oxidant as the highly reactive hydrocarbons. Therefore, no emission offset credit may be allowed for replacing one hydrocarbon compound with another of lesser reactivity, except for those compounds listed in Table 1 of the above policy statement.

5. "Banking" of emission offset credit. For offsets approved after [date of publication in the FEDERAL REGISTER], the reviewing authority may allow offsets which exceed the reasonable further progress

7. Source shutdowns and curtailments in production or operating hours occurring prior to the date the new source application is filed generally may not be used for emission offset credit. However, where an applicant can establish that it shut down or curtailed production after August 7, 1977, or less than one year prior to the date of permit application, whichever is earlier, and the proposed new source is a replacement for the shutdown or curtailment, credit for such shutdown or curtailment may be applied to offset emissions from the new source.

requirement to be "banked" for use in the future. A reviewing authority that allows sources to retain control of banked emissions past June 30, 1979, must continue to exercise control of how and when such banked emission are used. A reviewing authority may not approve the construction of a source using banked emissions if the new source would interfere with "reasonable further progress" toward attainment as required by Section 173. To preserve banked emission reductions, the reviewing authority should identify them in either a SIP revision or a permit.

D. Location of offsetting emissions. In the case of emission offsets involving volatile organic compounds (VOC), the offsets may be obtained from sources located anywhere in the broad vicinity of the proposed new source. Generally, offsets will be acceptable if obtained from within the same AQCR as the new source or from other areas which may be contributing to the oxidant problem at the proposed new source location. Offsets for NO_x sources may also be obtained within the broad area of nonattainment. This is because areawide oxidant and NO_2 levels are generally not as dependent on specific hydrocarbon or NO_x source location as they are on overall area emissions. Since the air quality impact of SO_2 , particulate and carbon monoxide sources is site dependent, simple areawide mass emission offsets are not appropriate. For these pollutants, the reviewing authority should consider atmospheric simulation modeling to ensure that the emission offsets provide a positive net air quality benefit. However, to avoid unnecessary consumption of limited, costly and time consuming modeling resources, in most cases it

can be assumed that if the emission offsets are obtained from an existing source on the same premises or in the immediate vicinity of the new source, and the pollutants disperse from substantially the same effective stack height, the air quality test under Condition 4 of Part IV. A. above will be met. Thus, when stack emissions are offset against a ground level source at the same site, modeling would be required. The reviewing authority may perform this analysis or require the applicant to submit appropriate modeling results.

E. Reasonable progress towards attainment. As long as the emission offset is greater than one-for-one, and the other criteria set forth above are met, EPA does not intend to question a reviewing authority's judgment as to what constitutes reasonable progress towards attainment as required under Condition 3 in Part IV. A. above.

V. ADMINISTRATIVE PROCEDURES

The necessary emission offsets may be proposed either by the owner of the proposed source or by the local community or the State. The emission reduction committed to must be enforceable by authorized State and/or local agencies and under the Clean Air Act, and must be accomplished by the new source's start-up date. If emission reductions are to be obtained in a State that neighbors the State in which the new source is to be located, the emission reductions committed to must be enforceable by the neighboring State and/or local agencies and under the Clean Air Act. Where the new facility is a replacement for a facility that is

being shut down in order to provide the necessary offsets, the reviewing authority may allow up to 180 days for shakedown of the new facility before the existing facility is required to cease operation.

A. Source initiated emission offsets. A source may propose emission offsets which involve: (1) reductions from sources controlled by the source owner (internal emission offsets); and/or (2) reductions from neighboring sources (external emission offsets). The source does not have to investigate all possible emission offsets. As long as the emission offsets obtained represent reasonable progress toward attainment, they will be acceptable. It is the reviewing authority's responsibility to assure that the emission offsets will be as effective as proposed by the source. An internal emission offset will be considered enforceable if it is made a SIP requirement by inclusion as a condition of the new source permit and the permit is forwarded to the appropriate EPA Regional Office.⁸ An external emission offset will not be accepted unless the affected source(s) is subject to a new SIP requirement to ensure that its emissions will be reduced by a specified amount in a specified time. Thus, if the source(s) does not obtain the necessary reduction, it will be in violation of a SIP requirement and subject to enforcement action by EPA, the State and/or private parties.

The form of the SIP revision may be a State or local regulation, operating permit condition, consent or enforcement order, or any other

8. The emission offset will, therefore, be enforceable by EPA under Section 113 as an applicable SIP requirement and will be enforceable by private parties under Section 304 as an emission limitation.

mechanism available to the State that is enforceable under the Clean Air Act. If a SIP revision is required, the public hearing on the revision may be substituted for the normal public comment procedure required for all major sources under 40 CFR 51.18. The formal publication of the SIP revision approval in the FEDERAL REGISTER need not appear before the source may proceed with construction. To minimize uncertainty that may be caused by these procedures, EPA will, if requested by the State, propose a SIP revision for public comment in the FEDERAL REGISTER concurrently with the state public hearing process. Of course, any major change in the final permit/SIP revision submitted by the State may require a reproposal by EPA.

8. State or community initiated emission offsets. A State or community which desires that a source locate in its area may commit to reducing emissions from existing sources (including mobile sources) to sufficiently outweigh the impact of the new source and thus open the way for the new source. As with source-initiated emission offsets, the commitment must be something more than one-for-one. This commitment must be submitted as a SIP revision by the state.

VI. POLICY WHERE ATTAINMENT DATES HAVE NOT PASSED

In some cases, the dates for attainment of primary standards under Section 110 have not yet passed due to a delay in the promulgation of a plan under this section of the Act. In addition the Act provides more flexibility with respect to the dates for attainment of secondary NAAQS than for primary standards. Rather than setting specific deadlines,

Sections 110 and 172 require secondary NAAQS to be achieved within a "reasonable time" and "as expeditiously as practicable." Therefore, in some cases, the date for attainment of secondary standards may also not yet have passed. In such cases, a new source which would cause or contribute to a NAAQS violation may be exempt from the Conditions of Part IV. A. so long as the new source meets the applicable SIP emission limitations and will not interfere with attainment date specified under Section 110 of the Act.

[Section 129(a), P.L. 95-95, (note under 42 USC 7502), and Section 301 of the Clean Air Act, as amended (42 USC 7601)].

MONDAY, JUNE 19, 1978
PART V



**ENVIRONMENTAL
PROTECTION
AGENCY**

**1977 CLEAN AIR ACT;
PREVENTION OF
SIGNIFICANT AIR
QUALITY
DETERIORATION**

**State Implementation Plans;
Requirements**

**1977
Clean
Air
Act
Prevention
of
Significant
Air
Quality
Deterioration**

[6560-01]

Title 40—Protection of Environment

CHAPTER I—ENVIRONMENTAL
PROTECTION AGENCY

Subchapter C—Air Programs

(FRL 904-3)

PART 51—REQUIREMENTS FOR PREP-
ARATION, ADOPTION, AND SUB-
MITTAL OF IMPLEMENTATION
PLANSPrevention of Significant Air Quality
DeteriorationAGENCY: Environmental Protection
Agency.

ACTION: Final rule.

SUMMARY: The Clean Air Act Amendments of 1977 (Pub. L. 95-95) include comprehensive new requirements for the prevention of significant air quality deterioration (PSD). EPA is today publishing final guidance to assist States in preparing State implementation plan (SIP) revisions meeting the new requirements. Each State is to submit such a revision to EPA for approval within nine months of today.

DATES: State implementation plan revisions due within nine months after this publication date (March 19, 1979).

FOR FURTHER INFORMATION CONTACT:

Darryl Tyler, Chief, Standards Implementation Branch (MD-15), Office of Air Quality Planning and Standards, Research Triangle Park, N.C. 27711, 919-541-5425.

SUPPLEMENTARY INFORMATION:

Pre-1977 Amendments

On December 3, 1974, EPA published regulations under the 1970 version of the Clean Air Act (Pub. L. 91-604) for the prevention of significant air quality deterioration (PSD). These regulations, codified at 40 CFR 52.21, established a program for protecting areas with air quality cleaner than the national ambient air quality standards (NAAQS).

Under EPA's regulatory program, clean areas of the Nation could be designated under any of three "Classes." Specified numerical "increments" of air pollution were permitted under each class up to a level considered to be "significant" for that area. Class I increments permitted only minor air quality deterioration; class II increments, moderate deterioration; class III increments, deterioration up to the secondary NAAQS.

EPA initially designated all clean areas of the Nation as class II. States, Indian Governing Bodies, and officials having control over Federal lands

(Federal land managers) were given authority to redesignate their lands under specified procedures. The area classification system was administered and enforced through a preconstruction permit program for nineteen specified types of stationary air pollution sources. This preconstruction review in addition to limiting future air quality deterioration required that any source subject to the requirements would apply best available control technology (BACT).

1977 AMENDMENTS

On August 7, 1977, the Clean Air Act Amendments of 1977 became law. The 1977 amendments changed the 1970 act and EPA's regulations in many respects, particularly with regard to PSD. (See Clean Air Act sections 160-169, 42 U.S.C. 7470-79 (Clean Air Act Amendments of 1977, Pub. L. 95-95, 127(a), 91 Stat. 731), as amended, Pub. L. 95-190, section 14(a) (40)-(54), 91 Stat. 1401-02 (November 18, 1977) (technical and conforming amendments).) In addition to mandating certain immediately effective changes to EPA's PSD regulations, the new Clean Air Act, in sections 160-169, contains comprehensive new PSD requirements. These new requirements are to be incorporated by States into their implementation plans (under section 110 of the act). By virtue of section 406(d) of the amendments, such State implementation plan revisions are due nine months after EPA issues these regulations published today which provide the States with guidance on submitting approvable plan provisions. In the interim, implementation of the PSD program under 40 CFR 52.21 will continue but as amended today.

In a rulemaking action appearing elsewhere in today's *FEDERAL REGISTER*, EPA amends its own PSD regulations (40 CFR 52.21) to incorporate all of the new requirements of sections 160-169. The two rulemaking actions promulgated today are essentially identical, with the difference in reviewing agency, EPA as opposed to a State, being the major distinction. The issues discussed below as supplementary information to this rulemaking focus on concerns inherent to State PSD implementation. Other topics of concern to States choosing to develop their own PSD programs are discussed in the rulemaking affecting EPA's current implementation of the PSD program (40 CFR 52.21). Thus, the two rules should be read together.

PROTECTION OF INCREMENTS

New section 163(b) of the act sets forth immediately effective ambient air increments for particulate matter and sulfur dioxide in class I, class II, and class III areas. EPA specifically solicited public comments as to whether the PSD "increments" were to be

protected only through the preconstruction review process of section 161 of the act. Section 161 of the act requires that each implementation plan "contain emission limits and such other measures as may be necessary . . . to prevent significant deterioration . . ." Section 163 requires plans to "contain measures assuring protection of ambient increments and ceilings."

State agencies and major industries that addressed the question uniformly felt that preconstruction review alone was the mechanism considered by Congress to protect increment consumption. Environmental groups felt that the increments should be treated in basically the same regulatory manner as the ambient air quality standards established under Section 109. A careful review of the legislative history indicates that the latter approach is the approach intended by Congress. The legislative history is particularly clear in the conference report on the bill that was finally adopted by Congress and signed into law. (H.R. Rep. No. 95-564, at 149 (1977).) The conference report describes the approach taken in the House bill regarding increment protection: "If increments are exceeded, the State must revise the State implementation plan to insure that the increment is not exceeded. Sources receiving new emission limitations would be eligible for compliance date extension under the compliance date extension section of the bill." (Id.) This approach differs considerably from the approach in the Senate bill which was specifically limited to the review of major sources. Since Congress had a clear choice to make and as the language in the final act is that of the House bill, States are required to secure appropriate emissions reductions where the increment has been exceeded.

Any SIP relaxations submitted after today that would affect a PSD area must include a demonstration that the applicable increment will not be exceeded. Increment consumption due to a plan relaxation would be typically determined through modeling the difference between the allowable emissions resulting from the new relaxed SIP limit and the emissions of the applicable sources which would be included in the baseline. SIP relaxations received by EPA after August 7, 1977, but before today's *FEDERAL REGISTER* will consume increment. However, EPA believes that such revisions require special consideration due to the uncertainty of how the new Act would apply to such SIP relaxations. To review these proposed revisions as to the degree of anticipated increment consumption without advance notice would have caused considerable delay and economic disruption. Therefore,

the Administrator feels that these SIP relaxations need not be individually assessed to determine the precise amount of consumed increment before such relaxations may be approved. The periodic assessment requirement to verify that the applicable increments have not been exceeded is thought to be sufficient protection.

The State must include a program to assess periodically whether emissions from exempted or unreviewed sources are endangering an applicable increment. Such periodic reviews must be subject to the opportunity for public hearing. If a periodic review or the ambient impact review of a major source shows an area to be in violation of an increment, then the plan must be revised within 60 days or such time as determined by the Administrator. The SIP revision should be designed to roll back emissions to a level such that the increment is no longer exceeded. This may induce the use of economic incentives such as emissions charges or the development of offset markets. SIP revisions are more thoroughly discussed in the supplementary information to EPA's PSD regulation published elsewhere in today's *FEDERAL REGISTER*.

The comments raised a number of other issues related to consumption of increments. The Administrator wishes to clarify first that States can expand the available PSD increment(s) by requiring emission reductions from existing sources. Similarly, the procurement of acceptable emission offsets (i.e., additional control of existing sources) may be used by a source, if a State so permits, in order to allow its construction where the increment would not otherwise allow approval. For further discussion of increment consumption, see the preamble to EPA's PSD regulations published elsewhere in today's *FEDERAL REGISTER*.

State implementation plan revisions to implement the new PSD requirements are required to specify the measures both to protect the increments and allocate their use. States under today's 40 CFR part 51 regulations are encouraged to examine alternative approaches to the allocation of available increments in order to provide for their individual growth objectives and planning concerns. To support this effort, the Agency is initiating studies to assess the merits and feasibility of various allocation programs. The Agency will evaluate approaches in which economic incentives serve as a supplement to, or a replacement for, an administrative permitting procedure and variations on first-come, first-served permitting. The economic incentive based approaches to be considered include marketable permits, emissions fees, and emissions density zoning.

A marketable permit program would allow, among other things, a permitted

source to sell portions of its permit to other sources. An ordinary permit specifies certain conditions on the maximum emissions from the source but provides no incentive to reduce emissions below the level specified in the permit. A marketable permit allows the source to sell a portion of its permit proportional to the degree to which it reduces emissions below the level specified in the original permit through the application of improved control technology. Thus, a source would have an incentive to reduce emissions since it could sell the emission reduction to another source. A source would purchase this offsetting reduction if it were cheaper than its own cost of reduction. Thus, a marketable permit program could lead to the same emission reduction as a standard permit program but at a lower total cost. Sources with higher marginal costs of compliance would control less and sources with lower marginal costs would control more.

Under another approach, emission fees would be charged to a source according to the quantity of pollutants it emits. These would serve as an incentive to minimize pollution since reducing pollution will lower costs to the source. Emissions fees might be used as a supplement to or replacement for ordinary permits.

Emission density zoning classifies each land area according to the quantity of pollutants that could be emitted into the air over that land. This might be based on some allowable ambient pollutant concentration. Thus, each acre of land translates to a fixed quantity of emissions allowed. Sources would then purchase the "air rights" to enough land to cover their emissions. If these rights are expensive, sources will control more than if these air rights were cheap. In general, these air rights will be more expensive in areas where there is high demand from many sources than in areas where there are fewer sources of comparable size. More expensive air rights would lead to higher levels of control, since more costly equipment would be justified in order to buy the remaining air rights.

EPA in the past has implemented the PSD program on a first-come, first-served basis. However, it does not appear that this approach alone may be adequate to achieve the purposes of the act on a long-term basis. While EPA is administering the PSD permit program, the Administrator will solicit and give careful consideration during the permit review process to the views of State and local officials regarding the impact of proposed permit decisions on an area's potential for economic development. For further discussion, see the preamble to EPA's PSD regulations published elsewhere in today's *FEDERAL REGISTER*.

PERMIT REVIEW PROCESS

Virtually every comment spoke to the issue of subjecting sources to PSD review on the basis of their uncontrolled emissions as EPA proposed. Many State and local agencies expressed a deep concern that to make sources subject to the full PSD requirements on this basis would result in an unmanageable number of detailed and resource intensive reviews. The rulemaking allows States generally to exempt from air quality reviews those sources with minimal emissions. Only those sources which would have allowable emissions equal to or greater than 50 tons per year, 1,000 pounds per day, or 100 pounds per hour (50/1,000/100), or would impact a class I area or an area where the increment is known to be violated, must receive an ambient review. In addition only these sources must undergo case-by-case review for BACT and then only as to those pollutants regulated under the act for which the source would be major.

The rulemaking also allows States to exempt sources with allowable emissions of less than 50 tons per year from a case-by-case BACT review where the State feels such an exemption is appropriate. It should be noted that this approach is based on analysis which indicates that, on a national basis, such sources are a very small part of emissions growth. In some States such sources may be a more significant portion of the emissions inventory and thus BACT review of smaller sources may be appropriate. States should examine this issue carefully in preparing their implementation plan. EPA will also consider this issue in evaluating plan revisions submitted by States.

State implementation plans must include procedures for expeditiously informing a PSD permit applicant of the completeness of the application. The permitting authority must specify a time period within which the completeness of a permit application would be determined. For example, EPA specifies 30 days when implementing the PSD program under 40 CFR 52.21.

BACT

The November 3, 1977, proposal solicited comment on the use of a de minimis level of 100 tons per year potential emissions for each pollutant for triggering the BACT requirement. The Agency stated the issue:

For example, if a source is subject to PSD review either because it is one of the named sources or because it has potential emissions of 250 tons per year of a given pollutant, BACT would be required only for those pollutants whose potential emissions exceed 100 tons per year.

Comments received indicated that if a source is subject to PSD on the basis

of the 250 tons per year criterion, then the BACT de minimis level should be made consistent for such sources (i.e., BACT should be required only for those pollutants for which the potential emissions exceed 250 tons). The Administrator agrees with this argument and appropriate changes are made in the regulations set forth below.

MONITORING AND MODELING

Extensive public comment was received on the proposed requirements for monitoring and modeling. These issues are extensively discussed in the Part 52 rulemaking published elsewhere in today's *FEDERAL REGISTER*. As noted, EPA intends that monitoring should generally focus on obtaining data necessary for required review against NAAQS. Although the increment consumption must of necessity be tracked through the use of modeling, EPA does not intend that there be no "real world" checks on the accuracy of modeling. If a source or other party believes that the recommended models have either overpredicted or underpredicted the air quality impact of a source, the State may accept the submission of data which will more precisely define the impact of the source.

REDESIGNATION

In response to comments, a number of changes have been made regarding redesignations of areas. The analysis and public hearing requirement have been modified to conform to the language in the 1977 Amendments. The requirement for public availability of information relating to sources which may be permitted only if an area is redesignated has been limited to sources for which an ambient impact analysis must be done. Finally, this rulemaking removes the provision requiring that final action on a permit be delayed if the source would impact upon an area where a proposed redesignation to a more stringent class was pending. The original intent of this provision was to protect potential class I areas during startup of the new PSD program. All areas were then class II. Now Congress has specifically designated Federal class I areas and States have had considerable opportunity to designate any others. States may establish such a requirement at their own discretion.

Several other issues are discussed in the "Supplementary Information" to the part 52 PSD rulemaking also published today. That discussion should be considered in conjunction with this one.

FINAL ACTION

The following regulatory amendments are nationally applicable, and this action is based upon determina-

tions of nationwide scope and effect. Therefore, under section 307(b)(1) of the Act, judicial review may be sought only in the U.S. Court of Appeals for the District of Columbia. Petitions for judicial review must be filed on or before August 18, 1978.

(Secs. 101(b)(1), 110, 114, 123, 125(e), 160-169, 301(a) of the Clean Air Act, as amended (42 U.S.C. 7401(b)(1), 7410, 7414, 7423, 7425(e), 7470-7479, 7601(a)).)

Dated: June 9, 1978.

DOUGLAS M. COSTLE,
Administrator.

Title 40, Part 51 of the Code of Federal Regulations is amended by adding § 51.24 as follows:

§ 51.24 Prevention of significant deterioration of air quality.

(a) (1) *Plan requirements.* In accordance with the policy of section 101(b)(1) of the act and the purposes of section 160 of the Act, each applicable State implementation plan shall contain emission limitations and such other measures as may be necessary to prevent significant deterioration of air quality.

(2) *Plan revisions.* If a State implementation plan revision would result in increased air quality deterioration over any baseline concentration, the plan revision shall include a demonstration that it will not cause or contribute to a violation of the applicable increment.

(3) *Required plan revision.* If the State or the Administrator determines that a plan is substantially inadequate to prevent significant deterioration or that an applicable increment is being violated, the plan shall be revised to correct the inadequacy or the violation. The plan shall be revised within 60 days of such a finding by a State or within 60 days following notification by the Administrator, or by such later date as prescribed by the Administrator after consultation with the State.

(4) *Plan assessment.* The State shall review the adequacy of a plan on a periodic basis and within 60 days of such time as information becomes available that an applicable increment is being violated.

(5) *Public participation.* Any State action taken under this paragraph shall be subject to the opportunity for public hearing in accordance with procedures equivalent to those established in § 51.4.

(b) *Definitions.* For the purposes of this section:

(1) "Major stationary source" means:
(i) Any of the following stationary sources of air pollutants which emit, or have the potential to emit, 100 tons per year or more of any air pollutant regulated under the Clean Air Act (the "Act"): Fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input,

coal cleaning plants (with thermal dryers), kraft pulp mills, portland cement plants, primary zinc smelters, iron and steel mill plants, primary aluminum ore reduction plants, primary copper smelters, municipal incinerators capable of charging more than 250 tons of refuse per day, hydrofluoric, sulfuric, and nitric acid plants, petroleum refineries, lime plants, phosphate rock processing plants, coke oven batteries, sulfur recovery plants, carbon black plants (furnace process), primary lead smelters, fuel conversion plants, sintering plants, secondary metal production plants, chemical process plants, fossil fuel boilers (or combination thereof) totaling more than 250 million British thermal units per hour heat input, petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels, taconite ore processing plants, glass fiber processing plants, and charcoal production plants; and

(ii) Notwithstanding the source sizes specified in paragraph (b)(1)(i) of this section, any source which emits, or has the potential to emit, 250 tons per year or more of any air pollutant regulated under the Act.

(2) "Major modification" means any physical change in, change in the method of operation of, or addition to a stationary source which increases the potential emission rate of any air pollutant regulated under the Act (including any not previously emitted) and taking into account all accumulated increases in potential emissions occurring at the source since regulations were approved under this section, or since the time of the last construction approval issued for the source pursuant to such regulations approved under this section, whichever time is more recent, regardless of any emission reductions achieved elsewhere in the source) by either 100 tons per year or more for any source category identified in paragraph (b)(1)(i) of this section, or by 250 tons per year or more for any stationary source.

(i) A physical change shall not include routine maintenance, repair and replacement.

(ii) A change in the method of operation, unless previously limited by enforceable permit conditions, shall not include:

(a) An increase in the production rate, if such increase does not exceed the operating design capacity of the source;

(b) An increase in the hours of operation;

(c) Use of an alternative fuel or raw material by reason of an order in effect under sections 2(a) and (b) of the Energy Supply and Environmental Coordination Act of 1974 (or any succeeding legislation), or by reason a natural gas curtailment plan in effect pursuant to the Federal Power Act;

(d) Use of an alternative fuel or raw material, if prior to January 6, 1975, the source was capable of accommodating such fuel or material; or

(e) Use of an alternative fuel by reason of an order or rule under section 125 of the Act.

(f) Change in ownership of the source.

(3) "Potential to emit" means the capability at maximum capacity to emit a pollutant in the absence of air pollution control equipment. "Air pollution control equipment" includes control equipment which is not, aside from air pollution control laws and regulations, vital to production of the normal product of the source or to its normal operation. Annual potential shall be based on the maximum annual rated capacity of the source, unless the source is subject to enforceable permit conditions which limit the annual hours of operation. Enforceable permit conditions on the type or amount of materials combusted or processed may be used in determining the potential emission rate of a source.

(4) "Source" means any structure, building, facility, equipment, installation or operation (or combination thereof) which is located on one or more contiguous or adjacent properties and which is owned or operated by the same person (or by persons under common control).

(5) "Facility" means an identifiable piece of process equipment. A stationary source is composed of one or more pollutant-emitting facilities.

(6) "Fugitive dust" means particulate matter composed of soil which is uncontaminated by pollutants resulting from industrial activity. Fugitive dust may include emissions from haul roads, wind erosion of exposed soil surfaces and soil storage piles, and other activities in which soil is either removed, stored, transported, or redistributed.

(7) "Construction" means fabrication, erection, installation, or modification of a source.

(8) "Commence" as applied to construction of a major stationary source or major modification means that the owner or operator has all necessary preconstruction approvals and either has:

(i) Begun, or caused to begin, a continuous program of physical on-site construction of the source to be completed within a reasonable time; or

(ii) Entered into binding agreements or contractual obligations, which cannot be cancelled or modified without substantial loss to the owner or operator, to undertake a program of construction of the source to be completed within a reasonable time.

(9) "Necessary preconstruction approvals or permits" means those permits or approvals required under Federal air quality control laws and regu-

lations and those air quality control laws and regulations which are part of the applicable State implementation plan.

(10) "Best available control technology" means an emission limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under the act which would be emitted from any proposed major stationary source or major modification which the permitting authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant. In no event shall application of the best available control technology result in emissions of any pollutant which would exceed the emissions allowed by any applicable standard under 40 CFR Part 60 and Part 61. If the reviewing agency determines that technological or economic limitations on the application of measurement methodology to a particular class of sources would make the imposition of an emission standard infeasible, it may instead prescribe a design, equipment, work practice or operational standard, or combination thereof, to require the application of best available control technology. Such standard shall, to the degree possible, set forth the emission reduction achievable by implementation of such design, equipment, work practice or operation and shall provide for compliance by means which achieve equivalent results.

(11) "Baseline concentration" means that ambient concentration level reflecting actual air quality as of August 7, 1977, minus any contribution from major stationary sources and major modifications on which construction commenced on or after January 6, 1975. The baseline concentration shall include contributions from:

(i) The actual emissions of other sources in existence on August 7, 1977, except that contributions from facilities within such existing sources for which a plan revision proposing less restrictive requirements was submitted on or before August 7, 1977, and was pending action by the Administrator on that date shall be determined from the allowable emissions of such facilities under the plan as revised; and

(ii) The allowable emissions of major stationary sources and major modifications which commenced construction before January 6, 1975, but were not in operation by August 7, 1977.

(12) "Federal Land Manager" means, with respect to any lands in the United States, the Secretary of the de-

partment with authority over such lands.

(13) "High terrain" means any area having an elevation of 900 feet or more above the base of the stack of a facility.

(14) "Low terrain" means any area other than high terrain.

(15) "Indian Reservation" means any federally-recognized reservation established by treaty, agreement, Executive order, or act of Congress.

(16) "Indian Governing Body" means the governing body of any tribe, band, or group of Indians subject to the jurisdiction of the United States and recognized by the United States as possessing power of self-government.

(17) "Allowable emissions" means the emission rate calculated using the maximum rated capacity of the source (unless the source is subject to enforceable permit conditions which limit the operating rate or hours of operation, or both) and the most stringent of the following:

(i) Applicable standards as set forth in 40 CFR Part 60 and Part 61.

(ii) The applicable State implementation plan emission limitation, or

(iii) The emission rate specified as a permit condition.

(18) "Reconstruction" will be presumed to have taken place where the fixed capital cost of the new components exceed 50 percent of the fixed capital cost of a comparable entirely new facility or source. However, any final decision as to whether reconstruction has occurred shall be made in accordance with the provisions of 40 CFR 80.15(f)(1)-(3). A reconstructed source will be treated as a new source for purposes of this section, except that use of an alternative fuel or raw material by reason of an order in effect under Sections 2 (a) and (b) of the Energy Supply and Environmental Coordination Act of 1974 (or any superseding legislation), by reason of a natural gas curtailment plan in effect pursuant to the Federal Power Act, or by reason of an order or rule under Section 125 of the Act, shall not be considered reconstruction. In determining best available control technology for a reconstructed source, the provisions of 40 CFR 80.15(f)(4) shall be taken into account in assessing whether a standard of performance under 40 CFR Part 60 is applicable to such source.

(19) "Fixed capital cost" means the capital needed to provide all the depreciable components.

(c) *Ambient air increments.* The plan shall contain emission limitations and such other measures as may be necessary to assure that in areas designated as Class I, II, or III, increases in pollutant concentration over the baseline concentration shall be limited to the following:

RULES AND REGULATIONS

Pollutant	Maximum allowable increase (micrograms per cubic meter)
Class I	
Particulate matter:	
Annual geometric mean	5
24-hr maximum	10
Sulfur dioxide:	
Annual arithmetic mean	2
24-hr maximum	3
3-hr maximum	25
Class II	
Particulate matter:	
Annual geometric mean	19
24-hr maximum	37
Sulfur dioxide:	
Annual arithmetic mean	20
24-hr maximum	91
3-hr maximum	512
Class III	
Particulate matter:	
Annual geometric mean	37
24-hr maximum	73
Sulfur dioxide:	
Annual arithmetic mean	40
24-hr maximum	182
3-hr maximum	709

For any period other than an annual period, the applicable maximum allowable increase may be exceeded during one such period per year at any one location.

(d) *Ambient air ceilings.* The plan shall provide that no concentration of a pollutant shall exceed:

(1) The concentration permitted under the national secondary ambient air quality standard, or

(2) The concentration permitted under the national primary ambient air quality standard, whichever concentration is lowest for the pollutant for a period of exposure.

(e) *Restrictions on area classifications.* The plan shall provide that—

(1) All of the following areas which were in existence on August 7, 1977, shall be Class I areas and may not be redesignated:

(i) International parks,

(ii) National wilderness areas which exceed 5,000 acres in size,

(iii) National memorial parks which exceed 5,000 acres in size, and

(iv) National parks which exceed 6,000 acres in size.

(2) Areas which were redesignated as Class I under regulations promulgated before August 7, 1977, shall remain Class I, but may be redesignated as provided in this section.

(3) Any other area, unless otherwise specified in the legislation creating such an area, is initially designated Class II, but may be redesignated as provided in this section.

(4) The following areas may be redesignated only as Class I or II:

(i) An area which as of August 7, 1977, exceeded 10,000 acres in size and was a national monument, a national primitive area, a national preserve, a national recreational area, a national wild and scenic river, a national wildlife refuge, a national lakeshore or seashore; and

(ii) A national park or national wilderness area established after August 7, 1977, which exceeds 10,000 acres in size.

(f) *Exclusions from increment consumption.* (1) The plan may provide that the following concentrations shall be excluded in determining compliance with a maximum allowable increase:

(i) Concentrations attributable to the increase in emissions from stationary sources which have converted from the use of petroleum products, natural gas, or both by reason of an order in effect under Sections 2 (a) and (b) of the Energy Supply and Environmental Coordination Act of 1974 (or any superseding legislation) over the emissions from such sources before the effective date of such an order.

(ii) Concentrations attributable to the increase in emissions from sources which have converted from using natural gas by reason of a natural gas curtailment plan in effect pursuant to the Federal Power Act over the emissions from such sources before the effective date of such plan;

(iii) Concentrations of particulate matter attributable to the increase in emissions from construction or other temporary emission-related activities; and

(iv) The increase in concentrations attributable to new sources outside the United States over the concentrations attributable to existing sources which are included in the baseline concentration.

(2) If the plan provides that the concentrations to which paragraph (f)(1) refers shall be excluded, it shall also provide that—

(i) No exclusion of such concentrations shall apply more than five years after the effective date of the order to which paragraph (f)(1)(i) refers or the plan to which paragraph (f)(1)(ii) refers, whichever is applicable.

(ii) If both such order and plan are applicable, no such exclusion shall apply more than five years after the later of such effective dates.

(g) *Redesignation.* (1) The plan shall provide that all areas of the State (except as otherwise provided under paragraph (e) of this section) shall be designated either Class I, Class II, or Class III. Any designation other than Class II shall be subject to the redesignation procedures of this paragraph. Redesignation (except as otherwise precluded by paragraph (e) of this section) may be proposed by the respective States or Indian Governing Bodies, as provided below, subject to approval by the Administrator as a revision to the applicable State implementation plan.

(2) The plan may provide that the State may submit to the Administrator a proposal to redesignate areas of

the State Class I or Class II: *Provided, That:*

(i) At least one public hearing has been held in accordance with procedures established in § 51.4.

(ii) Other States, Indian Governing Bodies, and Federal Land Managers whose lands may be affected by the proposed redesignation were notified at least 30 days prior to the public hearing;

(iii) A discussion of the reasons for the proposed redesignation, including a satisfactory description and analysis of the health, environmental, economic, social, and energy effects of the proposed redesignation, was prepared and made available for public inspection at least 30 days prior to the hearing and the notice announcing the hearing contained appropriate notification of the availability of such discussion;

(iv) Prior to the issuance of notice respecting the redesignation of an area that includes any Federal lands, the State has provided written notice to the appropriate Federal Land Manager and afforded adequate opportunity (not in excess of 60 days) to confer with the State respecting the redesignation and to submit written comments and recommendations. In redesignating any area with respect to which any Federal Land Manager had submitted written comments and recommendations, the State shall have published a list of any inconsistency between such redesignation and such comments and recommendations (together with the reasons for making such redesignation against the recommendation of the Federal Land Manager); and

(v) The State has proposed the redesignation after consultation with the elected leadership of local and other subordinate general purpose governments in the area covered by the proposed redesignation.

(3) The plan may provide that any area other than an area to which paragraph (e) of this section refers may be redesignated as Class III if—

(i) The redesignation would meet the requirements of provisions established in accordance with paragraph (g)(2) of this section;

(ii) The redesignation, except any established by an Indian Governing Body, has been specifically approved by the Governor of the State, after consultation with the appropriate committees of the legislature, if it is in session, or with the leadership of the legislature, if it is not in session (unless State law provides that such redesignation must be specifically approved by State legislation) and if general purpose units of local government representing a majority of the residents of the area to be redesignated legislation (including resolution) concurring in the redesignation;

(iii) The redesignation would not cause, or contribute to, a concentration of any air pollutant which would exceed any maximum allowable increase permitted under the classification of any other area or any national ambient air quality standard; and

(iv) Any permit application for any major stationary source or major modification subject to provisions established in accordance with paragraph (l) of this section which could receive a permit only if the area in question were redesignated as Class III, and any material submitted as part of that application, were available, insofar as was practicable, for public inspection prior to any public hearing on redesignation of any area as Class III.

(4) The plan shall provide that lands within the exterior boundaries of Indian Reservations may be redesignated only by the appropriate Indian Governing Body. The appropriate Indian Governing Body may submit to the Administrator a proposal to redesignate areas Class I, Class II, or Class III: *Provided, That:*

(i) The Indian Governing Body has followed procedures equivalent to those required of a State under paragraphs (g)(2), (g)(3)(iii), and (g)(3)(iv) of this section; and

(ii) Such redesignation is proposed after consultation with the State(s) in which the Indian Reservation is located and which border the Indian Reservation.

(5) The Administrator shall disapprove, within 90 days of submission, a proposed redesignation of any area only if he finds, after notice and opportunity for public hearing, that such redesignation does not meet the procedural requirements of this section or is inconsistent with paragraph (e) of this section. If any such disapproval occurs, the classification of the area shall be that which was in effect prior to the redesignation which was disapproved.

(6) If the Administrator disapproves any proposed area designation, the State or Indian Governing Body, as appropriate, may resubmit the proposal after correcting the deficiencies noted by the Administrator.

(h) *Stack heights.* The plan shall provide, as a minimum, that the degree of emission limitation required for control of any air pollutant under the plan shall not be affected in any manner by—

(1) So much of a stack height, in existence before December 31, 1970, as exceeds good engineering practice, or

(2) Any other dispersion technique implemented before then.

(i) *Review of major stationary sources and major modifications—Source applicability and general exemptions.* (1) The plan shall provide that no major stationary source or

major modification shall be constructed unless, as a minimum, requirements equivalent to those contained in the subparagraphs of paragraphs (j), (l), (n), (p), and (r) of this section, have been met. The plan may provide that such requirements shall apply to a proposed source or modification only with respect to those pollutants for which the proposed construction would be a major stationary source or major modification.

(2) The plan may provide, as a minimum, that requirements equivalent to those contained in the subparagraphs of paragraphs (j), (l), (n), and (p) of this section shall not apply to a major stationary source or major modification with respect to a particular pollutant if the owner or operator demonstrates that—

(i) As to that pollutant, the source or modification is subject to the emission offset ruling (41 FR 55524) as it may be amended or to regulations approved or promulgated pursuant to Section 173 of the Act, and

(ii) The source or modification would impact no area attaining the national ambient air quality standards (either internal or external to areas designated as nonattainment under Section 107 of the Act).

(3) The plan may provide that requirements equivalent to those contained in the subparagraphs of paragraphs (j), (l), (n), (p), and (r) shall not apply to nonprofit health or education institutions.

(4) The plan may provide that a portable facility which has received construction approval under requirements equivalent to those contained in the subparagraphs of paragraphs (j), (l), (n), (p), (q), and (r) may relocate without being subject to such requirements if—

(i) Emissions from the facility would not exceed allowable emissions; and

(ii) Such relocation would impact no Class I area and no area where an applicable increment is known to be violated; and

(iii) Notice is given to the reviewing authority at least 30 days prior to such relocation identifying the proposed new location and the probable duration of operation at such location.

(j) *Control technology review.* The plan shall provide that—

(1) A major stationary source or major modification shall meet all applicable emission limitations under the State implementation plan and all applicable emission standards and standards of performance under 40 CFR Part 60 and Part 61.

(2) A major stationary source or major modification shall apply best available control technology for each applicable pollutant, unless the increase in allowable emissions of that pollutant from the source would be less than 50 tons per year, 1,000

pounds per day, or 100 pounds per hour, whichever is most restrictive.

(i) The preceding hourly or daily rates shall apply only with respect to a pollutant for which an increment, or national ambient air quality standards, for a period less than 24 hours or a period of 24 hours, as appropriate, has been established.

(ii) In determining whether and to what extent a modification would increase allowable emissions, there shall be taken into account no emission reductions achieved elsewhere at the source at which the modification would occur.

(3) In the case of a modification, the requirement for best available control technology shall apply only to each new or modified facility which would increase the allowable emissions of an applicable pollutant.

(4) Where a facility within a source would be modified but not reconstructed, the requirement for best available control technology, notwithstanding paragraph (j)(2) of this section, shall not apply if no net increase in emissions of an applicable pollutant would occur at the source, taking into account all emission increases and decreases at the source which would accompany the modification, and no adverse air quality impact would occur.

(5) For phased construction projects the determination of best available control technology shall be reviewed, and modified as appropriate, at the latest reasonable time prior to commencement of construction of each independent phase of the proposed source or modification.

(6) In the case of a major stationary source or major modification which the owner or operator proposes to construct in a Class III area, emissions from which would cause or contribute to air quality exceeding the maximum allowable increase that would be applicable if the area were a Class II area and where no standard under 40 CFR Part 60 has been promulgated for the source category, the Administrator shall approve the determination of best available control technology.

(k) *Exemptions from impact analysis.* (1) The plan may provide that with respect to a particular pollutant the requirements of provisions established in accordance with paragraphs (l), (n), and (p) of this section shall not apply to a proposed major stationary source or major modification, if—

(i) The increase in allowable emissions of that pollutant from the source or modification would impact no Class I area and no area where an applicable increment is known to be violated; and

(ii) The increase in allowable emissions of that pollutant from the source or modification would be less than 50 tons per year, 1,000 pounds per day, or 100 pounds per hour, whichever is most restrictive; or

(iii) The emissions of the pollutant are of a temporary nature including but not limited to those from a pilot plant, a portable facility, construction, or exploration; or

(iv) A source is modified, but no increase in the net amount of emissions for any pollutant subject to a national ambient air quality standard and no adverse air quality impact would occur.

(2) The hourly or daily rates set in paragraph (k)(1)(ii) of this section shall apply only with respect to a pollutant for which an increment, or national ambient air quality standard, for a period of less than 24 hours or for a period of 24 hours, as appropriate, has been established.

(3) The plan shall provide that, in determining for the purpose of provisions established in accordance with paragraph (k)(1)(ii) of this section whether and to what extent a modification would increase allowable emissions, there shall be taken into account no emission reductions achieved elsewhere at the source at which the modification would occur.

(4) The plan shall provide that, in determining for the purpose of provisions established in accordance with paragraph (k)(1)(iv) of this section whether and to what extent there would be an increase in the net amount of emissions of any pollutant subject to a national ambient air quality standard from the source which is modified, there shall be taken into account all emission increases and decreases occurring at the source since August 7, 1977.

(5) The plan may provide that the requirements of provisions established in accordance with paragraphs (l), (n), and (p) of this section shall not apply to a major stationary source or major modification with respect to emissions from it which the owner or operator has shown to be fugitive dust.

(l) *Air quality review.* (1) The plan shall provide that the owner or operator of the proposed source or modification must demonstrate that allowable emissions increases from the source or modification, in conjunction with all other applicable emissions increases or reductions, will not cause or contribute to air pollution in violation of—

(i) Any national ambient air quality standard in any air quality control region; or

(ii) Any applicable maximum allowable increase over the baseline concentration in any area.

(m) *Air quality models.* (1) The plan shall provide for procedures which specify that—

(i) All estimates of ambient concentrations required under paragraph (l) shall be based on the applicable air quality models, data bases, and other requirements specified in the *Guidelines on Air Quality Models* (OAQPS

1.2-080, U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, N.C. 27711, April 1978).

(ii) Where an air quality impact model specified in the *Guideline on Air Quality Models* is inappropriate, the model may be modified or another model substituted.

(iii) A substitution or modification of a model shall be subject to public comment procedures developed in accordance with paragraph (r) of this section.

(iv) Written approval of the Administrator must be obtained for any modification or substitution.

(v) Methods like those outlined in the *Workbook for the Comparison of Air Quality Models* (U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, N.C. 27711, April 1977) should be used to determine the comparability of air quality models.

(2) The *Guidelines on Air Quality Models* is incorporated by reference. On April 27, 1978, the Office of the Federal Register approved this document for incorporation by reference. A copy of the guideline is on file in the Federal Register library.

(3) The documents referenced in this paragraph are available for public inspection at EPA's Public Information Reference Unit, Room 2922, 401 M Street SW., Washington, D.C. 20460, and at the libraries of each of the ten EPA Regional Offices. Copies are available as supplies permit from the Library Service Office (MD-35), U.S. Environmental Protection Agency, Research Triangle Park, N.C. 27711. Also, copies may be purchased from the National Technical Information Service, 5285 Port Royal Road, Springfield, Va. 22161.

(n) *Monitoring.* The plan shall provide that—

(1) The owner or operator of a proposed source or modification shall, after construction of the source or modification, conduct such ambient air quality monitoring as the reviewing authority determines may be necessary to establish the effect which emissions from the source or modification of a pollutant for which a national ambient air quality standard exists (other than non-methane hydrocarbons) may have, or is having, on air quality in any area which such emissions would affect.

(2) As necessary to determine whether emissions from the proposed source or modification would cause or contribute to a violation of a national ambient air quality standard, any permit application submitted after August 7, 1978, shall include an analysis of continuous air quality monitoring data for any pollutant emitted by the source or modification for which a national am-

bient air quality standard exists, except non-methane hydrocarbons. Such data shall relate to, and have been gathered over, the year preceding receipt of the complete application, unless the owner or operator demonstrates to the Administrator's satisfaction that such data gathered over a portion or portions of that year or another representative year would be adequate to determine that the source or modification would not cause or contribute to a violation of a national ambient air quality standard.

(o) *Source information.* (1) The plan shall provide that the owner or operator of a proposed source or modification shall submit all information necessary to perform any analysis or make any determination required under procedures established in accordance with this section.

(2) The plan may provide that such information shall include:

(i) A description of the nature, location, design capacity, and typical operating schedule of the source or modification, including specifications and drawings showing its design and plant layout;

(ii) A detailed schedule for construction of the source or modification;

(iii) A detailed description as to what system of continuous emission reduction is planned by the source or modification, emission estimates, and any other information as necessary to determine that best available control technology as applicable would be applied;

(3) The plan shall provide that upon request of the State, the owner or operator shall also provide information on:

(i) The air quality impact of the source or modification, including meteorological and topographical data necessary to estimate such impact; and

(ii) The air quality impacts and the nature and extent of any or all general commercial, residential, industrial, and other growth which has occurred since August 7, 1977, in the area the source or modification would affect.

(p) *Additional impact analyses.* The plan shall provide that—

(1) The owner or operator shall provide an analysis of the impairment to visibility, soils, and vegetation that would occur as a result of the source or modification and general commercial, residential, industrial, and other growth associated with the source or modification. The owner or operator need not provide an analysis of the impact on vegetation having no significant commercial or recreational value.

(2) The owner or operator shall provide an analysis of the air quality impact projected for the area as a result of general commercial, residential, industrial, and other growth associated with the source or modification.

(q) *Sources impacting Federal CDPs / areas—additional requirements—*

(1) *Notice to EPA.* The plan shall provide that the reviewing authority shall transmit to the Administrator a copy of each permit application relating to a major stationary source or major modification and provide notice to the Administrator of every action related to the consideration of such permit.

(2) *Federal Land Manager.* The Federal Land Manager and the Federal official charged with direct responsibility for management of Class I lands have an affirmative responsibility to protect the air quality related values (including visibility) of any such lands and to consider, in consultation with the Administrator, whether a proposed source or modification would have an adverse impact on such values.

(3) *Denial—impact on air quality related values.* The plan shall provide a mechanism whereby a Federal Land Manager of any such lands may present to the State, after the reviewing authority's preliminary determination required under procedures developed in accordance with paragraph (r) of this section, a demonstration that the emissions from the proposed source or modification would have an adverse impact on the air quality-related values (including visibility) of any Federal mandatory Class I lands, notwithstanding that the change in air quality resulting from emissions from such source or modification would not cause or contribute to concentrations which would exceed the maximum allowable increases for a Class I area. If the State concurs with such demonstration, the reviewing authority shall not issue the permit.

(4) *Class I Variances.* The plan may provide that the owner or operator of a proposed source or modification may demonstrate to the Federal Land Manager that the emissions from such source would have no adverse impact on the air quality related values of such lands (including visibility), notwithstanding that the change in air quality resulting from emissions from such source or modification would cause or contribute to concentrations which would exceed the maximum allowable increases for a Class I area. If the Federal Land Manager concurs with such demonstration and so certifies to the State, the reviewing authority may: *Provided*, That applicable requirements are otherwise met, issue the permit with such emission limitations as may be necessary to assure that emissions of sulfur dioxide and particulate matter would not exceed the following maximum allowable in-

creases over baseline concentration for such pollutants:

	Maximum allowable increase (micrograms per cubic meter)
Particulate matter:	
Annual geometric mean	19
24-hr. maximum	37
Sulfur dioxide:	
Annual arithmetic mean	20
24-hr. maximum	91
3-hr. maximum	325

(5) *Sulfur Dioxide Variance by Governor with Federal Land Manager's Concurrence.* The plan may provide that—

(i) The owner or operator of a proposed source or modification which cannot be approved under procedures developed pursuant to paragraph (q)(4) of this section may demonstrate to the Governor that the source or modification cannot be constructed by reason of any maximum allowable increase for sulfur dioxide for periods of twenty-four hours or less applicable to any Class I area and, in the case of Federal mandatory Class I areas, that a variance under this clause would not adversely affect the air quality related values of the area (including visibility);

(ii) The Governor, after consideration of the Federal Land Manager's recommendation (if any) and subject to his concurrence, may grant, after notice and an opportunity for a public hearing, a variance from such maximum allowable increase; and

(iii) If such variance is granted, the reviewing authority may issue a permit to such source or modification in accordance with provisions developed pursuant to paragraph (q)(7) of this section: *Provided*, That the applicable requirements of the plan are otherwise met.

(6) *Variance by the Governor with the President's concurrence.* The plan may provide that—

(i) The recommendations of the Governor and the Federal Land Manager shall be transferred to the President in any case where the Governor recommends a variance in which the Federal Land Manager does not concur;

(ii) The President may approve the Governor's recommendation if he finds that such variance is in the national interest; and

(iii) If such a variance is approved, the reviewing authority may issue a permit in accordance with provisions developed pursuant to the requirements of paragraph (q)(7) of this section: *Provided*, That the applicable requirements of the plan are otherwise met.

(7) *Emission Limitations for Presidential or Gubernatorial Variance.* The plan shall provide that in the case of a permit issued under procedures

developed pursuant to paragraph (q) (5) or (6) of this section, the source or modification shall comply with emission limitations as may be necessary to assure that emissions of sulfur dioxide from the source or modification would not (during any day on which the otherwise applicable maximum allowable increases are exceeded) cause or contribute to concentrations which would exceed the following maximum allowable increases over the baseline concentration and to assure that such emissions would not cause or contribute to concentrations which exceed the otherwise applicable maximum allowable increases for periods of exposure of 24 hours or less for more than 18 days, not necessarily consecutive, during any annual period:

Maximum Allowable Increase
(Micrograms per cubic meter)

Period of exposure	Terrain areas	
	Low	High
24-hr maximum	36	62
3-hr maximum	130	321

(8) *Public participation.* The plan shall provide that—

(1) The reviewing authority shall notify all applicants within a specified time period as to the completeness of the application or any deficiency in the application or information submitted. In the event of such a deficiency, the date of receipt of the application shall be the date on which the reviewing authority received all required information.

(2) Within one year after receipt of a complete application, the reviewing authority shall:

(i) Make a preliminary determination whether construction should be approved, approved with conditions, or disapproved.

(ii) Make available in at least one location in each region in which the proposed source would be constructed a copy of all materials the applicant submitted, a copy of the preliminary determination, and a copy or summary of other materials, if any, considered in making the preliminary determination.

(iii) Notify the public, by advertisement in a newspaper of general circulation in each region in which the proposed source would be constructed, of the application, the preliminary determination, the degree of increment consumption that is expected from the source or modification, and of the opportunity for comment at a public hearing as well as written public comment.

(iv) Send a copy of the notice of public comment to the applicant, the Administrator and to officials and agencies having cognizance over the location where the proposed construc-

tion would occur as follows: any other State or local air pollution control agencies, the chief executives of the city and county where the source would be located; any comprehensive regional land use planning agency, and any State, Federal Land Manager, or Indian Governing body whose lands may be affected by emissions from the source or modification.

(v) Provide opportunity for a public hearing for interested persons to appear and submit written or oral comments on the air quality impact of the source, alternatives to it, the control technology required, and other appropriate considerations.

(vi) Consider all written comments submitted within a time specified in the notice of public comment and all comments received at any public hearing(s) in making a final decision on the approvability of the application. The reviewing authority shall make all comments available for public inspection in the same locations where the reviewing authority made available preconstruction information relating to the proposed source or modification.

(vii) Make a final determination whether construction should be approved, approved with conditions, or disapproved.

(viii) Notify the applicant in writing of the final determination and make such notification available for public inspection at the same location where the reviewing authority made available preconstruction information and public comments relating to the source.

(s) *Source obligation.* The plan shall include legally enforceable procedures to provide that approval to construct shall not relieve any owner or operator of the responsibility to comply fully with applicable provisions of the plan and any other requirements under local, State or Federal law.

NOTE.—Incorporation by reference provisions approved by the Director of the Federal Register April 27, 1978.

CFR Doc. 78-16889 Filed 6-14-78; 4:15 pm

[6560-01]

CFR 904-3A1

PART 52—APPROVAL AND PROMULGATION OF STATE IMPLEMENTATION PLANS

1977 Clean Air Act Amendments to Prevent Significant Deterioration

AGENCY: Environmental Protection Agency.

ACTION: Final rule.

SUMMARY: By these final regulations, EPA amends its regulations relating to prevention of significant air

quality deterioration (PSD) in order to implement the new PSD requirements of the Clean Air Act Amendments of 1977 (Pub. L. 95-95). As amended, the PSD regulations are now more comprehensive and stringent than they were. States may substitute comparable requirements through implementation plan revisions pursuant to regulations also being published today.

DATES: See § 52.21(i) of the regulations.

FOR FURTHER INFORMATION CONTACT:

Darryl Tyler, Chief, Standards Implementation Branch, Control Programs Development Division, Office of Air Quality Planning and Standards, Research Triangle Park, N.C. 27711.

SUPPLEMENTARY INFORMATION:

INTRODUCTION

In 1974, EPA promulgated regulations under Section 101(b)(1) of the Clean Air Act (Act) to prevent emissions of sulfur dioxide (SO₂) and particulate matter (PM) from significantly deteriorating air quality in areas where concentrations of those pollutants were lower than the applicable national ambient air quality standards (NAAQS). 39 FR 42510 (codified at 40 CFR 52.21). EPA incorporated those regulations into the implementation plan (SIP) of each State. The regulations, as amended before August 7, 1977, prohibited construction of any stationary source in any of nineteen specified categories, unless EPA or a delegate State had issued a permit evidencing that the source would apply "best available control technology" (BACT) for SO₂ and PM and that emissions of those pollutants from the source would not cause significant deterioration of air quality in any area. For determining what levels of deterioration were significant, the regulations set out an area classification system. Under it, clean air areas could be classified as Class I, II, or III. In Class I areas, small increases of SO₂ and PM would be significant; in Class II areas, moderate increases; and in Class III areas, increases up to a NAAQS. The regulations classified all clean areas as Class II, but gave States, Indian Governing Bodies and Federal Land Managers the opportunity to reclassify their lands under specified requirements.

On August 7, 1977, the President signed into law new PSD requirements as part of the Clean Air Act Amendments of 1977 (1977 Amendments). These requirements follow the outline of the pre-existing regulations, but are in general more comprehensive and stringent. The permit requirements and classification system remain; but, among other things, many more

sources are covered. Class II increments are different and sometimes more restrictive. Class III increments are now specifically defined, ambient ceiling requirements apply. BACT applies to all pollutants regulated under the Act, certain lands are permanently Class I, the procedures for reclassifying to Class III are more rigorous, the scope of the ambient impact analysis is much broader, and the opportunity for public comment on a proposed permit must include an opportunity for a public hearing. See Clean Air Act Sections 160-169 42 U.S.C. §§ 7470-79 (Clean Air Act Amendments of 1977, Pub. L. 95-95, § 127(a), 91 Stat. 731), as amended, Pub. L. 95-190, Sections 14(a)(40)-(54), 91 Stat. 1401-02 (November 13, 1977) (technical and conforming amendments).

On November 3, 1977, EPA announced in the Federal Register several specific actions. The first was a final decision not to implement the new PSD requirements of Section 165 of the Act as of August 7, 1977, 42 FR 57459. The second, which embodied the first, was the promulgation of amendments to the pre-existing PSD regulations conforming them, not to Section 165, but primarily to Sections 162(a), 163(b) and 164(a) of the Act in accordance with Section 168(b). Id. Section 162(a) sets forth the new mandatory Class I areas; Section 163(b) identifies the new Class II and Class III increments and the ambient ceilings requirement; and Section 164(a) lists those areas which may not be reclassified as Class III and outlines the new Class III reclassification procedures. The third action EPA announced was the proposal of regulations giving guidance for the preparation of SIP revisions which would meet the new PSD requirements. Id. at 57471. The fourth action was the proposal of further, comprehensive amendments to the pre-existing PSD regulations. Id. at 57479. In announcing the proposals, EPA said that it intended to promulgate final regulations no later than March 1, 1978. Id. at 57459, 57471, 57479. Because Section 406(d)(2) of the 1977 Amendments directs the States to submit required SIP revisions within nine months of the promulgation of regulations giving guidance for their preparation, EPA also said that SIP revisions incorporating the new PSD requirements would be due no later than December 1, 1978. Id. at 57471, 57479.

On December 3, 1977, EPA published a supplement to the November 3 proposals. In the supplement, EPA clarified what sources the proposed amendments would exempt from the new PSD requirements, solicited comments on two additional issues, filed the public that technical and conforming amendments to the 1977 Amendments had been enacted on No-

November 16, 1977, and stated that it would hold public hearings on January 9, 1978. 42 FR 52020.

On December 23, 1978, EPA extended, from January 3, 1978, to January 31, 1978, the deadline for submitting written comments on the November 3 proposals and on the Air Quality Modeling Conference held on December 14-15, 1978. 42 FR 64378. The conference was announced at 42 FR 58542 and 58561 (November 10, 1977). EPA noted in the December 23, 1977 notice that it might not be able to promulgate the new PSD regulations by March 1, 1978, and that it nevertheless intended to maintain "the previously announced 'permit deadline' of March 1, 1978, for determining whether sources will be subject to the new PSD rules"

On January 9, 1978, public hearings on the proposals took place in Washington, Chicago and Denver and are included as part of the written record. Transcripts have been made of the oral comments. On January 31, the comment period ended. EPA received more than 250 written comments on the proposals. EPA has considered in preparing the final regulations not only the oral and written comments on the proposals, but also the comments submitted in connection with the modeling conference. EPA has also had occasion to measure the proposals against concrete problems arising during and after the comment period.

The discussion which follows focuses on the important issues raised by the proposed amendments to the pre-existing regulation, summarizes the comments relating to each issue, and presents EPA's resolution. Elsewhere in today's *FEDERAL REGISTER*, EPA is announcing the promulgation of the necessary requirements for the preparation, adoption and submittal of State PSD programs. Since those regulations parallel these, both preambles should be read together. States should submit their SIP revisions no later than nine months from today.

HIGHLIGHTS

The regulations made final today apply to any source in any of 28 categories with a potential emissions increase of 100 tons per year or more of any pollutant regulated under the Act and to any source with a potential emissions increase of 250 tons per year or more of any pollutant regulated under the Act, including a source which would have been in one of the 28 categories if it were not under the applicable size cutoff. Potential emissions mean uncontrolled emissions.

Not all covered sources will receive full PSD review. Only those which would have allowable emissions equal to or greater than 50 tons per year, 1,000 pounds per day, or 100 pounds per hour, or would impact a Class I

area or an area where the increment is known to be violated, will receive such review. However, the combined impact of sources not receiving full review will be determined periodically.

In general, only those sources with allowable emissions of 50 tons per year, 1,000 pounds per day, or 100 pounds per hour or more will undergo case-by-case review for BACT, and then only as to those pollutants regulated under the Act for which the source would be major.

To avoid duplicating State new source review, EPA will in general review a source which has allowable emissions under an enforceable SIP permit of less than 50 tons per year, 1,000 pounds per day or 100 pounds per hour, and which would impact no Class I area or area where an increment is known to be violated, only to the extent of ensuring that it would meet any applicable emission limitation and has undergone adequate public scrutiny.

Where PSD and nonattainment reviews both apply, the State must act first before EPA can issue final construction approval under PSD.

PSD applies irrespective of where a source would locate, except that it does not apply to any source which with respect to a particular pollutant is subject to the nonattainment requirements and would impact no clean air area.

The PSD increments must be protected through both preconstruction review and the SIP review process. If an increment is exceeded, the applicable plan must be revised. SIP relaxations submitted after today that would cause significant deterioration cannot be approved.

A Governor can upon written request exempt certain emission increases from consuming an applicable increment while EPA implements the PSD program. The State must submit an approvable PSD SIP revision incorporating the exemption within 9 months to retain the exemption.

Additional guidance is provided on what constitutes commencement of construction, particularly for sources constructing in several distinct phases.

PSD sources submitting applications after August 7, 1978, may have to provide extensive air quality monitoring data.

SOURCE APPLICABILITY

A. TRANSITION

In passing the 1977 Amendments, Congress left standing contradictory indications as to when it intended the new PSD requirements to be effective. On the one hand, Section 168 of the Act provides that the pre-existing PSD regulations, with amendments conforming them only to Section 162(a), 163(b) and 164(a), are to remain in

effect as to a particular area until the applicable SIP is revised to include the rest of the new requirements. Section 406(b) of the 1977 Amendments reinforces Section 168. It provides in pertinent part:

All . . . regulations . . . duly issued . . . pursuant to the Clean Air Act as in effect immediately prior to the date of enactment of this Act . . . shall continue in full force and effect after the date of enactment of this Act until modified or rescinded in accordance with the Clean Air Act as amended by this Act.

See also 1977 Amendments section 406(c). In effect, Section 168, and Section 406(b), say that, until EPA or the States revise the SIP's to include the new requirements, construction may commence after August 7, 1977, so long as it meets the requirements of the pre-existing regulations, as amended.

On the other hand, Section 165(a) can be read as prohibiting, until its requirements were met, most of the post-enactment construction that Section 168 would permit. It provides in pertinent part that "no major emitting facility on which construction is commenced after the date of the enactment of this part, may be constructed in any area to which this part applies, unless" all of the new permit requirements are met. Also, Section 165(a) would have imposed a lengthy moratorium on new construction, since Sections 165(a)(2) and (e) require an analysis in accordance with regulations that as of August 7, 1977, had not even been proposed. Section 168 would not have imposed such a moratorium.

Because of the contradiction between Section 165 and 168, EPA had no choice but to fashion a reasonable program for the transition from the old to the new requirements. Accordingly, on November 3, 1977, it announced its final decision not to implement the requirements of Section 165 as of August 7, 1977, and its promulgation of the Section 168 amendments to the pre-existing regulations. Then, in the subsequent November 3 proposal and the December 8 supplement, it proposed to apply the requirements of Section 165 as of March 1, 1978. Under the proposal, the requirements would apply to construction of a major stationary source or major modification occurring on or after March 1, 1978, unless the source or modification had received certain permits before March 1 and construction commenced before December 1, 1978. The permit that a source subject to the pre-existing regulations would have to get was a permit under those regulations. A source not subject to the pre-existing regulations would have to get the permit or permits required under the applicable SIP.

In their comments on this proposal, industries asserted that EPA was with-

out legal justification to implement any regulations prior to the submittal of SIP revisions. At the other extreme, some environmental groups contended that EPA was acting improperly in not making Section 165 effective as of August 7, 1977. State agencies generally indicated approval of the proposal.

Today, EPA is announcing that it has promulgated the proposed program with only a minor change. For the December 1, 1978 date, it has substituted a date nine months from today.

Three major considerations have shaped this transition program. One is that the rate of consumption of the increments should be minimized. A paramount goal of both the House and the Senate was to give the States a full opportunity to revise and implement their own PSD programs. The value and significance of this opportunity diminishes as the increments are consumed during the period from August 7, 1977, to the time EPA has approved any PSD revisions to the SIP. Hence, during that period, the rate of consumption of the increments should be minimized. The other two major considerations are that economic disruption should be minimized and that orderly administration of the new requirements should be maximized.

The first of the relevant considerations pulls sharply in the direction of implementing the new requirements as of August 7, 1977. The more sources that must apply BACT, the slower the rate of consumption of the increments. The new PSD requirements might subject up to twenty-four times¹ as many sources to a more restrictive control technology review as did the old requirements. In doing so, the new requirements will capture approximately 230,000 tons of PM₁₀ and 570,000 tons of SO₂ per year, beyond what the old requirements would have captured.² While such capture is clear-

ly significant to increment consumption on a national basis, it could be even more significant to individual localities where more than one of the affected sources might construct and consume a large portion of the available increment. Hence, the sooner EPA implements the new requirements, the slower will be the rate of increment consumption. Other less compelling considerations pull in that direction, too. Until the new requirements are implemented, mandatory Class I areas will not have the protection Section 165(d) affords nor will variances to the Class I increments be available. In addition, until then, Federal Land Managers will continue to have the power to reclassify Federal lands, and EPA will continue to be able to disapprove reclassifications on other than procedural grounds.

The other two major considerations, however, suggest the opposite conclusion. Immediate implementation of the new requirements would have resulted in severe economic disruption. As stated above, Section 165(a) would have imposed, because of Sections 165(a)(2) and (e), a moratorium on new construction equal to the length of time required to promulgate the necessary regulations.³ Even if Sections 165(a)(2) and (e) were ignored, undue economic disruption would have resulted from sudden imposition of the new requirements. Applicants had designed major construction projects to meet the old PSD requirements and the State new source review requirements as applicable. Many of them had not commenced construction by August 7, 1977, but had either obtained a permit or were about to obtain one. Reevaluation under the new requirements would have meant that construction could not have commenced until long after the time originally planned. The applicant would often have had to repropose control technology and provide analyses of the direct and indirect total environmental effects of the source. EPA would then have had to redetermine the necessary control equipment and open any redeterminations to public comment, including a public hearing.

Immediate implementation also would have promoted disorderly administration, since it would have precluded normal notice and comment and the attending opportunity to better understand the statute, anticipate its effects and establish generic ground rules. Each issue would have been rethought with each new application. In the absence of generic rules, inconsistency and confusion in the

treatment of applications throughout the country might well have occurred.

The transition program promulgated today is reasonable. It has equitably accommodated these competing considerations. It has allowed informed development of generic rules and minimized economic disruption by avoiding entirely a lengthy moratorium on new growth and amply forewarning the public of the time when the new requirements would have to be met. At the same time, the program has minimized the period of time during which the new requirements were not working to slow consumption of the increments. It has also minimized the time during which mandatory Class I areas lacked the protection of Section 165(d), Class I increment variances were unavailable. Federal Land Managers were able to reclassify Federal lands, and EPA was able to disapprove reclassifications on other than procedural grounds.

Four aspects of the program require further explanation. First, why is EPA implementing the new requirements as of March 1, 1978, rather than the date of promulgation? In effect, EPA has suspended the issuance of PSD permits from March 1 to the date of promulgation. The consequence of implementing them as of promulgation would have been that sources would have consumed the increments a much greater extent than they e. In addition, the public has received early and ample warning of the March 1 deadline and therefore an adequate opportunity to plan for this short-term impact on construction schedules. Finally, in accordance with a directive dated February 22, 1978, from the Assistant Administrator for Air and Waste Management and the Assistant Administrator for Enforcement, EPA has upon request reviewed certain applications as to their approvability under the proposed regulations.

Second, why exempt from the new requirements those sources which have received a PSD permit before March 1, 1978, even though construction on the source may not have commenced by then? Arguably, to exempt only those sources on which construction had commenced before this date would have paralleled the approach in Section 165, better served the policy of slowing increment consumption and not disserved the policy of ensuring an adequate opportunity for public comment. It would not, however, have minimized economic disruption. In October of 1977, many sources for which PSD applications had been completed and were pending could not have both received a permit and commenced construction before March 1, 1978. The potential consumption of the increment beyond what they would have consumed under the new requirements was not so great as to warrant denying

¹The pre-existing regulations applied to sources belonging to any of nineteen specified categories, or approximately 165 per year. The new requirements apply to any source in any of 28 specified categories which has the potential to emit 100 tons per year or more of any pollutant regulated under the Act and to any other source which has the potential to emit 250 tons per year or more of any such pollutant. Defining "potential to emit" as maximum capacity in the absence of control equipment, as do these regulations, the annual number of covered sources is estimated to be about 4,000 with approximately 1,600 sources being subject to a detailed BACT and ambient air quality review.

²Under the old requirements, annual emissions from all new and modified sources, whether covered or not, totalled approximately 770,000 tons of PM and 1,220,000 tons of SO₂. EPA estimates that for these same sources under the new requirements annual emissions will be reduced to 540,000 tons for PM and 650,000 tons for SO₂.

³The legislative history contains strong indications that Congress intended not to impose a moratorium on development. See H.R. Rep. No. 98-294, at 171 (1977); Congressional Record—House, August 4, 1977.

them an opportunity for exemption. Hence, EPA proposed, and has decided, to exempt sources for which a PSD permit had been obtained before March 1, 1978, so long as construction commences by the time SIP revisions are due.

Third, EPA as previously proposed has also decided to exempt sources not subject to the pre-existing regulations if they have received before March 1, 1978, all permits required under the applicable SIP, even though construction may not have commenced by then. Not to exempt these sources, arguably, would have better served the policy of slowing increment consumption. Nevertheless, there were many such sources in circumstances not significantly different from those of sources with PSD permits pending in October of 1977. Hence, out of fairness, EPA has decided to exempt such sources, so long as construction commences by the time SIP revisions are due.

Finally, in establishing a deadline for commencement of construction, why is EPA using a date nine months from today, instead of December 1, 1978, as proposed? EPA originally set the deadline nine months from March 1, not because March 1 was the date of implementation, but rather because it was the anticipated date of promulgation. EPA selected the nine month period after promulgation because it provided ample opportunity to commence construction and it is the period within which Section 406(d) in effect requires States to submit their SIP revisions. Consequently, the Administration has revised the December 1, 1978, date to coincide with a date nine months from promulgation of these regulations.

B. EDF V. COSTLE

On February 17, 1978, the Environmental Defense Fund, Inc. (EDF) brought an action in the District Court for the District of Columbia challenging EPA's November 3, 1977 decision not to implement the new PSD requirements as of August 7, 1977. On February 24, 1978, the Court issued an order which governed the further processing of pending applications to EPA for PSD permits under the pre-existing regulations and will affect the application of the March 1, 1978, and commence construction deadlines. The order expired on March 28, 1978. It provided in pertinent part:

2. EPA shall process all applications for PSD permits that do not comply with the requirements of Section 165 according to its existing procedures except that, in the case of any permit which EPA concludes it would issue (but for the existence of this order), EPA shall, on the date on which EPA so concluded, mark every such permit:

This permit would issue this date (date), but for the order entered in *Environmental De-*

sense Fund v. Douglas M. Costle, No. 78-281 (D.D.C.) (Entered on February 24, 1978).

EPA shall give prompt notice of the above action to the permittee and all appropriate State and local authorities. The above action shall not constitute permission to commence construction, nor shall it constitute final action for purposes of judicial review.

3. If and when any permit marked as described in paragraph 2 is issued, such permit shall be effective and considered to have been issued as of the date on which it was so marked and shall be subject to the relevant regulations applicable on such date.

4. In addition, any deadline which determines the applicability of EPA regulations under the Clean Air Act to any facilities receiving such permits shall be extended by a period of time equal to the number of days between the time EPA marks the permit as described in Paragraph 2 and the date when EPA releases the permit as described in Paragraph 7.

In accordance with paragraph 3 of the order, EPA will treat any permit marked pursuant to paragraph 2 and released after the order expired as having been issued as of the date it was marked for the purpose of determining whether the source is exempt from the new PSD requirements under the March 1, 1978, program. Also, in accordance with paragraph 4, construction on a source which has received or will receive a marked permit need commence, not within nine months from today, but rather within a period equal to nine months from today plus the number of days between the time the permit was marked and the time it was released.

C. SPECIAL EXEMPTIONS

In the March 8, 1978, FEDERAL REGISTER (42 FR 9529), EPA announced a final decision, made on February 28, 1978, to exempt from the new PSD requirements any source the evaluation of which EPA would have completed before March 1, 1978, but for an extension of the public comment period pursuant to a meritorious request for such an extension. The Administrator communicated this final decision to each of the Regional Administrators. His statement to them, which appeared in the FEDERAL REGISTER on March 8, 1978, follows:

As some of you are aware, significant public comment has been generated in the case of certain sources that have submitted applications for PSD permits. In some of these cases, interested persons have requested additional time to comment on the propriety of granting the permit. While I do not believe that the situations are many, I am concerned about the completion of any PSD review of any case where an extension of the comment period has been requested on meritorious grounds. Accordingly, by this notification I am announcing a policy change regarding the March 1 PSD deadline. This policy change will be applicable only to those situations where the normal public comment period has ended and EPA review of a permit would have been com-

pleted by March 1, were it not for a request for additional comment time requested by interested parties.

In the case of any such situation, described above, the comment period involved may be extended as provided by EPA's current PSD regulations. Where such an extension is granted, the March 1 date now designated as the effective date of the new PSD requirements will not apply to that permit application. Instead, the permit application may continue to be processed (and granted or denied) under EPA's current PSD regulations.

I intend to put a notice in the FEDERAL REGISTER to the above effect. I wish to reemphasize that the policy set forth above only applies to those situations where review would have been completed by March 1 absent our action granting a request for additional comment time.

D. POTENTIAL EMISSIONS

Section 165 of the Act requires that each new or modified "major emitting facility" undergo preconstruction or premodification review for PSD. Section 169(1) defines "major emitting facility" in terms of a source's "potential to emit." On November 3, 1977, EPA proposed to define "potential emissions" as "those emissions expected to occur without control equipment * * * 42 FR 57479, 57483.

Virtually every comment spoke to the issue of subjecting sources to PSD review on the basis of their uncontrolled emissions. Industry and State pollution control agency comments noted that the Agency's interpretation would needlessly force through PSD review several sources whose allowable emissions would be relatively insignificant. Allowable emissions are those that would occur after the application of the controls required under any air pollution control laws and regulations or more stringent controls under an enforceable permit. Many State and local agencies expressed a deep concern that subjecting sources to the PSD requirements solely on the basis of uncontrolled emissions would result in an unmanageable number of detailed and costly reviews. The organization representing State air pollution control agencies, State and Territorial Air Pollution Program Administrators (STAPPA), urged the Agency to consider both uncontrolled emissions and allowable emissions in determining which sources would be subject to review. It suggested that EPA assess the air quality impact of only those sources whose allowable emissions would be significant. Industry comments uniformly urged the Agency to interpret "potential to emit" as referring to allowable emissions.

The Agency has decided to apply PSD solely on the basis of what a source might emit without control. The final regulations published today define "potential to emit" as the "capability at maximum capacity to emit a pollutant in the absence of air pollu-

tion control equipment." See § 52.21(b)(3).

The Agency has concluded that Congress intended "potential to emit" to refer to uncontrolled, not allowable, emissions. If Congress had intended PSD to apply on the basis of allowable emissions, it would not have included Section 165(b) in the Act. Section 165(b) provides that an applicant for a PSD permit for a modification to certain major emitting facilities need not show that the modification will not cause or contribute to a violation of a Class II increment, if the "allowable emissions" of SO₂ and PM from the modification would after the application of BACT "be less than fifty tons per year" and would not cause or contribute to a violation of the applicable NAAQS. Section 169(1) defines "major emitting facility" as a source with the "potential to emit" either, depending on its type, 100 or 250 tons per year or more. If Section 169(1) were read to subject to PSD only those modifications with allowable emissions equal to or greater than 100 or 250 tons per year before the application of BACT, no owner or operator whose modification would emit less than 50 tons per year after BACT would need the relief Section 165(b) provides. This is because, if BACT or some less stringent control could reduce the emissions of the modification to less than 50 tons per year, the owner or operator would apply it in order to reduce the emissions of the modification to below the applicable 100 or 250 ton cutoff and thereby avoid PSD altogether. Congress, however, did include Section 165(b). Hence, it appears that Congress did not intend PSD to apply on the basis of allowable emissions. See also Sen. Rep. No. 95-127, at 33 (1977) (last paragraph). Since the only other concept to which Congress could have been referring is that of uncontrolled emissions, it must have intended PSD to apply on the basis of such emissions.

There is another similar reason for reaching that conclusion: if Congress had intended PSD to apply on the basis of emissions after controls, it would not have used the phrase "potential to emit" in Section 169(1). First, Congress would not have used two different phrases to refer to the same concept, and it had already used "allowable emissions" in Section 165(b). Second, Congress knew that EPA had already established in its offset policy for nonattainment areas (41 FR 55524 (December 21, 1976)) the phrase "allowable emissions" as denot-

ing emissions after controls. Pub. L. 95-95, section 129(a)(1), 91 Stat. 745 (1977). Indeed, Congress has been careful to distinguish "allowable emissions" from at least one other concept. Prior to the enactment on November 16, 1977, of technical and conforming amendments to the 1977 Amendments, Section 165(b) contained the phrase "actual allowable emissions." Id. section 127(a), at 736. The November 16 amendments deleted the word "actual" in order to "eliminate an apparent inconsistency." 123 Cong. Rec. H11955, H11957 (November 1, 1977). Finally, the legislative history indicates that Congress knew that in the air pollution field the phrase "potential emissions" has traditionally been understood to denote uncontrolled emissions. See e.g. Sen. Rep. No. 95-127, at 45, 96-97 (1977).

The Agency has decided to apply PSD on the basis of uncontrolled emissions also for an important practical reason. In enforcement programs, reporting systems have been and must be based on uncontrolled emissions. Otherwise a source with controls to capture 90 percent of the potential emissions might well be below the cutoff for reporting, but could virtually turn off the control equipment, emit 10 times the allowed level and not be tracked.

In its November 3 definition of "potential emissions," EPA indicated that, in determining the potential emissions of a source, it would not take into account emissions that "necessary" or "integral" control equipment would capture. Equipment was "necessary" or "integral" if business or production consequences would follow, independently of applicable air pollution laws and regulations, from removing or not using the equipment. Several comments pointed out that such a general credit could not realistically be implemented, since the permitting authority would be faced frequently with having to make difficult case-by-case factual determinations. Considerable time would be lost by both the applicant and the permitting authority in making such case-by-case decisions.

In view of these comments, the Agency will interpret the phrase "air pollution control equipment" in the definition of "potential to emit" as referring to control equipment which is not, aside from air pollution control requirements, vital to production of the normal product of the source or to its normal operation. The Agency will consider equipment vital if the source could not produce its normal product or operate without it.

E. TWO-TIERED REVIEW

By the proposed regulations, EPA indicated its intention to subject each new major stationary source and major modification to full PSD review.

Full review would have consisted of (1) a case-by-case BACT determination to each pollutant regulated under the act for which the source or modification would be considered major, (2) ambient impact analyses of whether the source or modification would cause or contribute to a violation of the applicable increments and NAAQS, (3) an assessment of the direct and indirect effects of the source or modification on visibility, soils, and vegetation, and (4) public comment, including an opportunity for a public hearing, on each material determination. Full review might also have entailed an analysis of the effects of the source or modification on air quality related values in a class I area. Finally, full review might have required the applicant to submit extensive air quality monitoring data and to commit to post-construction monitoring.

As noted above, STAPPA predicted that the States would find PSD applications too numerous, and their review too costly, to manage. STAPPA and others asserted that full PSD review would contribute unduly to the construction costs experienced by small, otherwise well-controlled sources.

In response to these comments, EPA attempted to quantify the effects of full PSD review under the proposal. It estimated that the new requirements would cover approximately 4,000 sources and modifications per year. The old PSD regulations, by contrast, covered only 165 sources per year. EPA also projected that permitting authorities would have to devote approximately 279 more man-years of new source review effort to conduct full PSD review of these new sources (or an additional 65 percent of their present effort on new source review), and that applicants would have to spend up to \$8 million on modeling and \$24 million on monitoring (or \$30 million in total) to obtain PSD permits for these sources.

Applicants would also have to spend additional time and money meeting the requirements of a detailed PSD review. Considerable delay costs are expected from the increased planning and construction costs as well as the foregone return on investment from delaying start-up for a new source. Although it is not possible to accurately quantify the amount of these costs due to their site-specific nature, such costs could be greater than the monitoring and modeling costs of \$30 million. In addition the changeover from reviewing 165 sources to 4,000 sources per year would probably lead to delays in the start-up of new sources.

Section 165(b) of the act shows that Congress shared the concern of STAPPA and the other comment. As noted above, section 165(b) exempts certain modifications with allowable emissions of less than 50 tons

*Part D of the Act parallels Part C in its usage of the phrases "allowable emissions" and "potential to emit." Section 173(1)(A) refers to "allowable emissions," whereas the section defining those sources to which Part D applies, Section 120(j), uses the phrase "potential to emit."

per year after the application of BACT from demonstrating that they would not cause or contribute to a violation of any applicable class II increment, and thus from substantial expenditures on modeling and monitoring. The Senate Committee explained:

Section 165(b) exempts smaller, well-controlled sources which are expansions of existing facilities from having to demonstrate compliance with the class II increments. Many such sources which are *small and relatively insignificant with respect to air quality* would otherwise be brought under the requirements of [Part C] by the "major emitting facility" definition of 100 tons per year potential emissions of any pollutant.

Sen. Rep. No. 95-127, at 33 (1977) (emphasis added).

Following Congress lead, EPA attempted to quantify the effects of expanding the exemption in section 165(b) to all new sources and modifications with less than 50 tons per year allowable emissions. Analysis revealed that under such an exemption only 1,600 of the 4,000 sources per year are likely to undergo full PSD review, that permitting authorities would need to devote only an additional 112 man-years to the effort of reviewing those 1,600 sources fully if the remaining 2,400 are first reviewed under the State new source review program, and that applicants might now have to spend only about \$2 million on modeling and \$7 million on monitoring (or \$9 million in total).

Delay costs would also be reduced significantly. The sources exempted from the full PSD review would typically be small. The average size of the investment for these sources is thought to be about \$1 million. If delays of two months occur for each of these 2,400 sources, this could lead to delay costs from foregone returns on investment of about \$16 million. (This is based on an estimated four percent difference between the rate of return for a new source and the investor's next best alternative, an average two-month delay and an average new source investment of \$1 million.) Delay costs would be higher in those cases where the delay leads to increased construction and planning costs.

Subsequent analysis indicated that the costs of making a case-by-case BACT determination each year for each of the 2,400 sources with allowable emissions under an enforceable SIP construction permit of less than 50 tons per year far outweighed the benefits of such a determination. EPA estimated that the applicable SIP would in many cases impose its own BACT requirement. To conduct a PSD BACT review of those sources would be pointless. In the other cases, applicants would incur the expense of preparing a BACT proposal and the asso-

ciated delay for review and approval by the permitting authority. Permitting authorities would have to expend the necessary time and effort to make the BACT determination. For EPA, this determination would in general require it to duplicate much of the effort that the State permitting authority had already expended in becoming knowledgeable about the source. The benefits, in contrast, are relatively insignificant. EPA estimates that BACT applied by virtue of PSD review to the 2,400 50-ton sources would capture annually only 300 tons more of SO₂ and 8,000 tons more of PM than what those controls that the source would install in order to meet the 50 tons per year cutoff would capture. 300 tons is less than 1 percent of the estimated total new emissions of SO₂ per year, while 8,000 tons is less than 2 percent of the estimated total new emissions of PM per year.

In light of section 165(b) and these findings, EPA has decided generally to exempt from full PSD review any new major stationary source or major modification (hereafter, a "major new source") which would have allowable emissions of less than 50 tons per year, 1,000 pounds per day, or 100 pounds per hour, whichever is more restrictive (hereafter, a "50-ton source"). The 100 pounds per hour criterion, it should be noted, would apply only with respect to a pollutant for which an increment or standard for a period less than 24 hours had been established. For example, the criterion would apply to a source with respect to SO₂, but not PM.

In accordance with the decision, under § 52.21(j), no 50-ton source need apply BACT in order to get a PSD permit. An applicant must demonstrate, however, that the source would meet all applicable emission limitations under the SIP and all applicable emission standards and standards of performance under 40 CFR part 60 and part 61. An applicant may demonstrate that the source would meet those limitations and standards by presenting an enforceable SIP permit under which the source would have to meet them. Any major new source with allowable emissions equal to or greater than 50 tons per year, 1,000 pounds per day, or 100 pounds per hour would be subject to the case-by-case BACT requirement.

Under § 52.21(k), no applicant for a PSD permit for a 50-ton source would have to demonstrate that the source would not cause or contribute to a violation of an applicable increment or NAAQS, to assess the direct and indirect effects of the source on visibility, soils and vegetation, and to provide monitoring data, unless the source would impact a class I area or an area where an applicable increment is known to be violated.

To ensure that air quality does not deteriorate beyond the level of any increment, EPA will periodically assess increment consumption in an area. For the same purpose, it has, in the part 51 regulations also published today, imposed on each State the same obligation as well as the obligation to revise its SIP to cure the violation of any increment. It should be noted, too, that the assessment of increment consumption must be subject to public comment and an opportunity for a public hearing.

Finally, under § 52.21(r), the issuance of a PSD permit to a 50-ton source would be subject to public scrutiny only if and to the extent that the underlying determinations had not been previously subject to public scrutiny. For example, if the State in granting a SIP permit provided an opportunity for only written comment on whether the source would meet the applicable emission limitations and standards, then EPA would require an opportunity for a public hearing on those questions and an opportunity for written comment and a public hearing on whether the source would impact a class I area or an area where the increment is known to be violated. The purpose of this public participation exemption is to avoid duplication of effort. Applicants should be prepared to prove to what extent the public had an opportunity to scrutinize the issuance of the SIP permit.

The general exemption for 50-ton sources is consistent with the relevant purposes of the new PSD requirements as set forth in sections 101(b)(1) and 160 of the act: to prevent significant deterioration of air quality, to "preserve, protect and enhance" air quality over class I areas, and to assure that any decision to permit increased air pollution is made only after careful evaluation and informed public participation. Nondeterioration is assured since increment consumption will be assessed periodically and SIPs revised to cure any violation. Class I areas are fully protected, since the exemption does not apply as to them. Finally, each material determination behind the issuance of a PSD permit will be subject to at least one round of public participation.

The exemption, moreover, is within the spirit of section 165(b). Each year it will avoid imposing an unnecessary expenditure of up to \$21 million on approximately 2,400 controlled sources of relatively insignificant air quality impact. It will, in addition, conserve substantial Federal and State resources for other, more important air pollution control tasks. Finally, the exemption will encourage improvements in control technology, since potential applicants will strive to reduce their emissions below 50 tons per year in order to be eligible for the streamlined review process.

EPA has included the short-term criteria of pounds per day or per hour to ensure that seasonal or intermittent operation of sources which have significant short-term emissions will be subject to review. Industries which commented uniformly felt that the Agency was without legal ability to implement the short-term criteria. The act does not, however, preclude the use of short-term criteria and, in fact, seems to require their use in those cases where short-term increments and NAAQS have been established. The short-term criteria would not apply under the regulations where no counterpart increment or standard had been established. State agency comments agreed that short-term criteria would be an important and necessary mechanism to assist in the protection of short-term increments and national ambient air quality standards.

F. OTHER EXEMPTIONS

The regulations promulgated today incorporate several other review exemptions. These exemptions will streamline the review process so that the review will focus on those sources of real air quality significance.

The exemptions are effective only when the public has been afforded an opportunity to comment on any material determinations. Also, protection of increment is assured by, first, not allowing a review exemption that might affect a class I area or an area where an applicable increment is known to be violated and, second, by EPA (or the State when implementing PSD) periodically reviewing the aggregate air quality impacts of unreviewed sources. Such periodic reviews of aggregate impacts, as mentioned above, shall be subject to public comment and an opportunity for public hearing. Additionally, the relevant impact of emissions of all previously unreviewed sources must be included in the review of any source subject to ambient air impact analysis.

Under the first exemption, any major source subject to nonattainment offset requirements for a particular pollutant which would impact no clean air area is not subject to PSD review for that pollutant. Review of such a source would be pointless. The nonattainment requirements would impose LAER, a limitation more stringent than BACT, and would ensure that the source would not contribute to a violation of any applicable NAAQS. Since the source would impact no clean air area, ambient review would be unnecessary to forestall any significant deterioration.

Temporary sources are also exempt from full PSD review, since their ambient air impacts are short-lived. Temporary emissions include, but are not limited to, those from a pilot plant, portable facility, construction or ex-

ploration. Emissions occurring for less than 2 years at one location would generally be considered temporary. Emissions for longer periods of time might also be considered to be temporary (such as the emissions related to the construction of power plants or other large sources), but should be dealt with on a case-by-case basis. Additionally, once a portable facility has received a PSD permit, it may relocate without undergoing PSD review. *Provided*, That the source notifies the reviewing agency of such relocation 30 days in advance, the proposed relocation would impact no class I area and no area where the increment is known to be violated, and emissions from the facility would not exceed allowable emissions.

The Agency's proposed PSD regulations stated that if an emitting unit within a source were modified so as to increase potential emissions by 250 tons per year (100 tons for certain listed source types), the unit be required to install best available control technology even if accompanying emission reductions within the source totally offset the new emissions. Industry roundly criticized this proposal as an unauthorized extension of the PSD program to situations where no threat of worsening air quality would exist. After a careful review of the meaning of "modification" in the PSD provisions of the act and consideration of the potential air quality effects of intrasource pollutant tradeoffs, the Agency has decided to adopt a regulatory scheme that in part accommodates industry's expressed concerns.

The regulations apply the definition of "modification" to the entire source (plant), with the result that if net emissions from the source do not increase when an existing unit is revamped, the source would not require full PSD review. This exemption would not be applicable as to BACT in situations where a major facility is added to or is reconstructed at a source, whether the addition is to replace previous production capacity or for growth.

The Agency believes that this approach is consistent with Congress' use of the term "modification" in section 169(2)(C). In adopting that section, one of the November 1977 "technical and conforming amendments" to the 1977 amendments, Congress said that it was honoring the conference agreement by conforming the terminology to its use in section 111, the provision on new source performance standards. At the time the conferees reached agreement and at the time the technical amendments were enacted, "modification" in section 111 had been interpreted by EPA regulation to allow source owners and operators to avoid the application of new source performance standards to

changed existing facilities whose emissions would increase, if that increase were totally offset elsewhere in the source. Although the EPA interpretation was overturned by a United States court of appeals in early 1978 (*ASARCO v. EPA*, 11 EPC 1129 (D.C. Cir.)), there is no reason to believe that the Congress in late 1977 did not regard the definition, which had existed as law since 1975, as being well-suited to its purposes in the PSD program.

Under the regulations, source owners or operators who claim to be undertaking a modification exempt from the PSD program because of intrasource tradeoffs will typically not be allowed to obtain credit for reducing emissions from stacks while increasing emissions from roof monitors or other low-level emission points. Stack and nonstack emissions generally have very different impacts on air quality in areas near a source. Since the PSD program is ultimately concerned with effects on air quality, EPA does not feel bound to apply mechanically the pre-*ASARCO* case definition of "modification" in section 111, a section directed toward technology, so as to frustrate the air quality protection purpose of PSD.

The effects of treating "modifications" as discussed above will be that modifications to existing facilities will not require installation of best available control technology determined on a case-by-case basis, if the owner or operator demonstrates that zero net emissions would attend the change. The delay and expense involved in those determinations will, therefore, be avoided. Any applicable new source performance standards will, however, apply to modified facilities in accordance with the *ASARCO* decision.

The Administrator intends to use the following criteria in determining whether a no net increase exemption for a modified facility from the BACT requirement would apply: (1) All emission reductions from sources included in the baseline will be credited in terms of actual emissions using reasonable assumptions for operating conditions, except in two cases. Where a SIP revision was pending as of August 7, 1977, the applicable SIP as later relaxed would represent the baseline for crediting emission reduction. Changes in allowable emissions will also be used to credit reductions from major construction which commenced before January 6, 1975, but was not yet operating by August 7, 1977. For emission reductions from major construction previously approved to consume portions of an increment, allowable emissions as expressed in the PSD permit will be the basis for determining reduction credit. (2) All reductions must be enforceable (e.g., contained in the permit) and proposed in conjunc-

tion with the source undergoing preconstruction review. Proposed reductions must occur or have occurred before construction is complete. In determining whether no net increase would occur, credit will be given only for emission reductions accomplished in conjunction with the proposed modification. (3) The reduction(s) must equal or exceed those allowable emissions approved for the proposed construction. This determination will generally be made on a pounds-per-hour basis when all facilities involved are operating at their maximum expected production rate. When reductions are proposed on a tons-per-year basis, actual annual operating hours for the previous 1- or 2-year period will be used, as appropriate. (4) All proposed emission reductions must not be otherwise needed to provide for additional growth already approved. Finally, (5) air quality need not improve at every location affected by the proposed construction but on balance the affected area should not be adversely impacted.

The Administrator further believes that all new or modified facilities within sources without a net emission increase should generally be exempt on a pollutant-specific basis from the detailed ambient review requirements. In most cases no useful purpose is served by requiring an air quality impact review of sources that would obviously not degrade air quality. This exemption is not intended to apply when the source would impact a class I area or an area where the increment is known to be violated. The Administrator generally intends to use the same criteria as mentioned above for BACT exemptions in determining if a zero emission increase exemption for ambient review would apply. However, in contrast to the analysis required in the case of modified facilities seeking exemption from BACT review, the no net emission increase analysis employed for purposes of exemption from the ambient review shall take into account all emission increases and decreases occurring at the source since August 7, 1977.

G. FUGITIVE DUST

Several comments from representatives of strip mine and other surface mining interests questioned whether Congress intended dust emissions from surface mines resulting from mobile source activity and the action of the wind on exposed surfaces to be taken into account in reviewing the mines for PSD. The commentators contended that Congress only intended PSD review to apply to "stationary" sources and that mobile source activity and the action of the wind were not stationary sources. While Congress apparently did intend PSD to apply to stationary sources only, surface mines

are stationary sources. Consequently, dust emanating from them should not be excluded from PSD review merely on the basis of what causes it to become airborne.

It was also argued that surface mines should receive some relief from strict consideration of ambient particulate concentrations associated with surface mining activities. A number of arguments were presented: that a large majority of the associated particulate matter is nonrespirable; that mining activity occurs in areas with limited population; that the particulate matter arises at ground level and falls out within very short distances; that visibility is not affected because the light scattering which hinders visibility is caused by smaller particles; and that even after the application of BACT, short-term particulate standards for NAAQS and PSD increments might not be met.

In view of these comments and other studies,¹ EPA has decided to exclude from any air quality impact assessment of a source or modification any fugitive dust that would emanate from it. "Fugitive dust", as defined in the regulations, consists of particles of native soil which is uncontaminated by pollutants resulting from industrial activity. Fugitive dust may come from haul roads or exposed surfaces through the action of man or the wind or both.

Additional support for this exclusion can be found in the legislative history. It points to the utilization of "administrative good sense" regarding fugitive dust (see S. Rep. No. 95-127, at 98 (1977)) and suggests that Congress did not intend PSD to prohibit surface mines of an economically viable size (see H. Rep. No. 95-294, at 165-66 (1977)). In addition, accurately assessing the short-term ambient impact of fugitive dust is often not possible. The Agency will continue its efforts to develop better short-term modeling techniques for fugitive dust.

Certain aspects of this exclusion for fugitive dust should be noted. First, the burden of showing to what extent emissions from the proposed source or modification would be made up of fugitive dust rests with the applicant. Second, the regulations do not exclude fugitive dust from the determination of potential emissions. Any source or modification which, taking into account emissions of fugitive dust, would have potential emissions equal to or greater than 250 tons per year would be subject to the applicable PSD re-

quirements, especially in many instances the BACT requirement. Finally, EPA will treat emissions of fugitive dust as not consuming increment for the purpose of evaluating other sources under PSD.

The Administrator would like to emphasize that EPA intends to implement the above policy of excluding the fugitive dust only on an interim basis. EPA will reassess the implications of the policy and any possible technical improvements in modeling fugitive dust, and will adjust the policy as appropriate.

H. COMMENCE CONSTRUCTION

It is important in many cases to determine whether a source has commenced construction by a certain date. If a source commenced construction before June 1, 1975, it would be exempt (or "grandfathered") from PSD review altogether. 40 CFR 52.21(d). If a source commenced construction before August 7, 1977, it would be exempt from the amendments that EPA promulgated on November 3, 1977. 42 FR 57459. Finally, certain major stationary sources or major modifications will be exempt from today's final regulations if they obtained all applicable air pollution permits by March 1, 1978, and commence construction before 9 months from today.

In determining whether construction has "commenced," as that term is defined in section 169(2) of the act, it is first necessary to determine whether the owner or operator has obtained and continues to hold all necessary preconstruction approvals or permits required by Federal, State, or local air pollution emissions and air quality laws or regulations under the applicable State implementation plan. If all such permits have not been obtained or maintained, the inquiry can stop; this requirement is a prerequisite for finding that construction has commenced.

Assuming that the permit requirement is satisfied, it is still necessary to determine whether the source meets one of two additional requirements. The first requirement is that a continuous, physical on-site construction program has begun by the date in question and will be completed within a reasonable time. The words "continuous" and "on-site" are key to this test. It will not suffice merely to have begun erection of auxiliary buildings or construction sheds unless there is clear evidence (through contracts or otherwise) that construction of the entire facility will definitely go forward in a continuous manner (no breaks greater than 18 months). Nor will it suffice that erection of certain components began off-site.

The second requirement is that by the date in question binding agree-

¹NW Colorado Environmental Impact Statement, Department of Interior, 1976; Survey of Fugitive Dust from Coal Mines, EPA 908/1-78-003, February, 1978; Impact of Significant Deterioration Proposals Upon Western Surface Coal Mining Operations, Federal Energy Administration, May 3, 1976.

ments were established for construction of the facility to be completed within a reasonable time. From the legislative history, it is clear that boiler contracts, even those with penalty clauses, will typically not suffice. See S. Rep. No. 95-127, at 32-33 (1977). The source must enter into a site-specific commitment through contracts.

The act specifies that the agreements must be ones "which cannot be cancelled or modified without substantial loss". The word "substantial" is clearly key to this test. EPA proposed for public comment on November 3, 1977, a "10 percent" test. Under this test, if the amount the owner would have had to pay to cancel construction agreements as of the date in question would have totalled more than 10 percent of the total project cost, the loss would be deemed "substantial."

Several comments were received, particularly from industry, on the "10 percent" test. Many of the commentators thought that the 10 percent rule was arbitrary since they regarded even smaller percentage losses on a \$100,000,000 project as clearly being substantial. In response to these comments, EPA has abandoned the proposed 10 percent test as a firm rule. However, in order to help minimize administrative burdens and to provide some certainty, the Administrator will consider a loss as being substantial if it would be more than 10 percent of the total project cost. Whether a loss equal to or less than 10 percent is substantial will be determined on a case-by-case basis. The dominant consideration will be whether the "source has so committed itself, financially and otherwise, to the use of a particular site for a particular facility that relocation is not an option and delay or substantial modification would be severely disruptive." *Id.* at 32.

For a phased construction project for which a permit has been given for a number of phases (additional guidance below), EPA will apply the 10 percent guide to each phase of the project. Thus, if the loss for a phase would exceed 10 percent of the total cost of the phase, then EPA will treat the substantial loss criterion as having been met for that phase.

I. PHASED CONSTRUCTION PROJECTS

Multifacility sources approved for construction in distinct phases require special guidance. In general, if the phases of the major facilities involved are mutually dependent and one of

"The dependence of facilities within a source will be determined on an individual basis. Two or more facilities will generally be considered dependent if the construction of one would necessitate the construction of the other facility(ies) at the same site in order to complete a given project or provide a given type (not level of) service. A kraft

the major facilities has, by an applicable grandfather date, commenced construction, then all other dependent facilities specifically approved for construction at the same time will also hold such status. Conversely, each independent facility must individually commence construction by the prescribed grandfather date(s). For example, if a power company commenced construction on the first boiler of a three-boiler project in 1977 and plans to commence construction on the second in 1980, and on the third in 1982, the fact that there may be a phased construction process at the same general site does not mean that the boilers to be constructed in 1980 and 1982 can escape the new PSD requirements promulgated today.

The Administrator is concerned about the issuance of permits for phased construction projects that would have the effect of "reserving" the increment for a single source, thereby limiting growth options in the area. The options are to not issue phased construction permits at all or to limit the conditions under which a phased construction may reserve an increment well into the future. The Administrator intends to implement the latter option when plans for a phased project are certain and well-defined. One mechanism to be used is to reassess the BACT determination for the later phases of the project prior to construction to ensure that the most up-to-date control technology will be used. The Administrator will specify at the time that the original permit is issued which BACT determinations will be reassessed. The Administrator may also adopt regulations in the future to deal with this issue more comprehensively.

Also, for phased construction projects, the Administrator does not generally intend to limit the time for construction of the project. However, the first phase must be commenced within 18 months after permit approval, and each construction phase thereafter must commence within 18 months of the date approved in the permit and must not have breaks exceeding 18 months. The Administrator will further evaluate the 18 month criteria as it applies to breaks in construction to determine if a shorter time period (e.g., 6 months) should be used.

J. MISCELLANEOUS SOURCE APPLICABILITY QUESTIONS

EPA also sought comments as to the applicability of PSD to proposed sources below the stated size cutoffs present on the list of 28 source types. The Administrator specifically asked

pulp mill is an example of a source with dependent facilities, whereas a three-boiler power plant is a typical example of a source with major independent facilities.

in the December 8, 1977 supplement to the November 3 proposal if fossil-fuel fired steam electric plants rated at below 250 million British thermal units per hour heat input, municipal incinerators charging not more than 250 tons per day of refuse, fossil-fuel boilers rated at or below 250 million British thermal units per hour heat input, and petroleum storage and transfer units with a capacity of 300,000 barrels or less should be subject to PSD review under the general 250 tons per year potential emission applicability criterion.

EPA has decided that the 250 tons per year criterion should apply even though a source may be below a stated size cutoff. For example, a modification that increases capacity by more than 300,000 barrels for a petroleum storage unit would be subject to review if it has 100 tons per year potential emissions. Also, if a modification increases capacity by only 290,000 barrels but would have more than 250 tons per year potential emissions, then it, too must be reviewed. It should also be noted that the capacity size cutoff like the increased potential emission criteria for defining major modification is cumulative in nature. This approach prevents the "sized" sources from avoiding PSD review merely by limiting an increase to just below the size cutoff. It also ensures that all sources with potential emissions of 250 tons per year or more are treated equally.

In the November 3, 1977 proposal, EPA proposed not to treat a voluntary switch to an alternative fuel or raw material as a modification. If, prior to January 6, 1975, the source were capable of accommodating such fuel or material, Environmentalists opposed this treatment of voluntary fuel switches on the ground that Congress intended all such switches to be treated as modifications. EPA disagrees with this contention. Section 169(2)(C) of the Act by its reference to Section 111(a) in effect adopts the definition of "modification" under Section 111(a) for the purposes of PSD. In adding Section 169(2)(C) to the Act, Congress indicated that it intended to conform the meaning of "modification" to "usage in other parts of the Act." 123 Cong. Rec. H11955, 11957 (November 1, 1977). At the time, regulations promulgated under Section 111 had defined "modifications" to exclude voluntary fuel switches when the source, "prior to the date any standard under this part becomes applicable to that source type . . . [w]as designed to accommodate that alternative use." 40 CFR 60.14(e)(4) (1977). Apparently, Congress intended voluntary fuel switches to be treated similarly for PSD purposes. The PSD regulation first became applicable on January 1, 1975. Consequently, it would appear

that Congress did not intend voluntary fuel switches to be treated as modifications for PSD purposes, if the source could have accommodated the fuel prior to January 6, 1975. In any event, the proposed treatment of voluntary fuel switches has been an integral part of the PSD regulations since their original promulgation in 1974. See 39 FR 42510 (December 5, 1974) § 52.01(d)(2)(iii)).

Since the proposed treatment of voluntary switches is consistent with Congressional intent and since that treatment was already a part of the pre-existing regulations, EPA has retained it in the revisions promulgated today. It should be noted, however, that although such switches will not be subject to PSD review, they will consume increment.

EPA also asked on November 3 whether it should treat a conversion to an alternative fuel by reason of an order under the Energy Supply and Environmental Coordination Act of 1974 or a natural gas curtailment plan pursuant to the Federal Power Act as a modification or not. Shortly thereafter, Congress answered this question. On November 16, it enacted technical and conforming amendments to the 1977 Amendments. Among those amendments was Section 169(2)(C). It in effect defined a modification as not including such conversions. See Clean Air Act Sections 111(a)(8) and 169(2)(C) (the latter added by Pub. L. 95-190, Sections 14(a)(54), 91 Stat. 1393, 1402 (November 16, 1977)).

In order to conform the final regulation to the Act and avoid confusion, EPA has further qualified the definition of "major modification" by adding the provision that a switch to an alternative fuel by reason of an order or rule under Section 125 of the Act is not a modification. See Clean Air Act Section 125(e).

BEST AVAILABLE CONTROL TECHNOLOGY

The November 3, 1977 proposal solicited comment on the use of a de minimis level of 100 tons per year potential emissions for each pollutant for triggering the BACT requirement. The Agency stated the issue:

For example, if a source is subject to PSD review either because it is one of the named sources or because it has potential emissions of 250 tons per year of a given pollutant, BACT would be required only for those pollutants whose potential emissions exceed 100 tons per year.

Comments received indicated that if a source were subject to PSD on the basis of the 250 tons per year criterion, then the BACT de minimis level should be made consistent for such sources (i.e., BACT would be required only for those pollutants for which the potential emissions exceed 250 tons per year). The Administrator agrees with this argument and appro-

priate changes are made in the regulations set forth below.¹

Some questions have been raised regarding what "subject to regulation under this Act" means relative to BACT determinations. The Administrator believes that the proposed interpretation published on November 3, 1977, is correct and is today being made final. As mentioned in the proposal, "subject to regulation under the Act" means any pollutant regulated in Subchapter C of Title 40 of the Code of Federal Regulations for any source type. This then includes all criteria pollutants subject to NAAQS review, pollutants regulated under the Standards of Performance for new Stationary Sources (NSPS), pollutants regulated under the National Emission Standards for Hazardous Air Pollutants (NESHAP), and all pollutants regulated under Title II of the Act regarding emission standards for mobile sources.

BACT determinations are to be made on a case-by-case basis by the reviewing authority, taking into account several factors, including cost, energy, and technical feasibility. Efforts are now underway within EPA to assist States (and EPA itself in the interim) in making BACT determinations when they assume responsibility for implementing the PSD program. The Agency is preparing and will distribute a guidance document to assist reviewing authorities in implementing the BACT requirement. In addition, the Agency, in response to numerous comments, will establish a national clearinghouse for distributing BACT determinations. The Administrator intends that such a clearinghouse will serve to advise reviewing authorities of each other's determinations and thereby promote a consistent basis of experience. The clearinghouse is not, however, intended to substitute for a case-by-case analysis on the part of the reviewing authority to assess what control technology is required under BACT for the specific source undergoing review.

Other questions have arisen concerning the possibility for requiring control technology transfer for installing control technology to meet the BACT requirement. In general, the BACT requirement does not preclude consideration of technology used in other types of sources but not yet demonstrated for the specific source type undergoing review. However, due consideration of the other factors (economic costs, energy, etc.) must also be given before requiring such technology transfer in order to comply with the BACT requirement.

¹It should be remembered that a 50-ton source is exempt from BACT review only as to the pollutant for which it is such a source.

In addition, some questions, predominantly from the industrial sector, were raised during the public comment period concerning EPA's ability to impose a design, equipment, work practice, or operational standard under the review for BACT. The Administrator continues to believe that using such a standard is well within the intent of Congress. Under Section 111 (Standards of Performance for New Stationary sources (NSPS)) such a standard, or a combination of such standards, can be promulgated by the Administrator if in his judgment such a standard is achievable and a conventional standard of performance is not feasible. Since an applicable NSPS forms the minimum BACT requirement, it follows that the Administrator should be able to prescribe a design, equipment, work practice, or operational standard for BACT. In addition, EPA's Interpretative Ruling of December 21, 1976 (41 FR 55524) to Section 110 governing new source review in nonattainment situations includes an opportunity for the Administrator to prescribe such a standard where emission limits are not feasible. The Administrator should also have this ability under PSD. It should be emphasized that the Administrator will prescribe a design, equipment, work practice, or operational standard only when technological or economic limitations on the application of measurement methodology to a particular class of sources would make the imposition of an emission standard infeasible.

Finally, it has come to the Administrator's attention that it may be appropriate to make the innovative technology waiver for NSPS under Section 111(j) of the Act applicable to BACT determinations under the PSD program. Briefly, Section 111(j) allows additional time for a source to comply with an applicable NSPS if: (1) The source plans to use innovative technology which has a substantial likelihood of meeting the NSPS at lower cost in terms of energy, economic, or non-air quality environmental impacts; and (2) the source would not cause an unreasonable risk to public health or welfare in its operation or malfunction. The addition of similar provisions to the PSD regulations would seem consistent with Congressional intent under NSPS and perhaps necessary to avoid the BACT determinations from negating the provisions of Section 111(j). Comments are solicited on this issue.

GEOGRAPHIC APPLICABILITY

The regulations made final today require any major source that affects air quality in areas with air quality cleaner than NAAQS (both internal and external to areas designated as nonattainment under Section 107) to meet

the applicable preconstruction requirements of Section 165. In this respect, the Section 107 designations are not binding on source obligations. This reflects a continuation of EPA's policy of reviewing sources in nonattainment areas to prevent the transport of any emissions which would cause significant deterioration in an affected clean area. Conversely, any source which can make a specific demonstration, subject to public comment and opportunity for public hearing, that no impact will occur in a clean area (whether the area in question is designated as attainment or nonattainment) is exempt from PSD preconstruction review for the applicable pollutant.

Due to several comments received regarding the applicability of the PSD review in rural areas impacted by dust consisting of native soil, the Administrator wishes to reaffirm Agency policy that PSD preconstruction review generally applies to these areas. In general, a new major source to be located in a rural area with infrequent short-term violations of the total suspended particulate matter NAAQS should be allowed to construct after applying the required controls provided that the dust in question is uncontaminated by pollutants from industrial activity and the emissions of the source in conjunction with emissions from other sources in the vicinity (excluding such dust) would not cause a violation of the applicable increment(s) or the applicable NAAQS, assuming as to the NAAQS an appropriate "non-urban" background concentration.

MODELING

In the regulations published today, EPA's assessment of the air quality impacts of new major sources and modifications will be based on EPA's "Guideline on Air Quality Models," OAQPS 1.2-080, U.S. Environmental Protection Agency, Research Triangle Park, N.C. 27711, April, 1978. This guideline is incorporated by reference into the regulations. Sources may request approval from the Administrator to use air quality dispersion models other than those noted in the "Guideline." If the Administrator determines that the model recommended in the "Guideline" and the model proposed by a source are comparable, the proposed model may be used. Methods outlined in EPA's "Workbook for the Comparison of Air Quality Models," U.S. EPA, Research Triangle Park, N.C. 27711, November 1977, may be used to determine comparability of models.

"Guideline on Air Quality Models, OAQPS 1.2-080, U.S. Environmental Protection Agency, Research Triangle Park, N.C. 27711, 1978.

The comments on the "Guideline" received in connection with the November 3 proposal and the Modeling Conference addressed three basic policy issues regarding implementation of the modeling guidelines. The first is whether a preliminary screening technique should be used to determine if full scale modeling would be necessary for preconstruction review. The second is whether the modeled estimate of source impact should be limited to a certain distance or a minimum numerical impact or both. Finally, the need to create an arbitration board to resolve modeling disputes was raised.

Industry and State agency comments on the first issue favored the use of some type of screening technique to alleviate resource burdens, i.e., the costs and time involved in sophisticated computer modeling of ambient air impacts. For screening purposes, conservative estimates of emission characteristics and ambient impacts would be modeled using relatively straightforward mathematical formula. However, industry comments stated that the specific screening techniques proposed on November 3, 1977, would be of little real value because of what they considered undue conservatism in the techniques. Environmental groups, however, felt screening techniques would improperly allow deterioration beyond increment allowances.

EPA intends to retain the screening procedures set forth in "Guidelines for Air Quality Maintenance Planning and Analysis, Vol. 10 (Revised), Procedures for Evaluating Air Quality Impact of New Stationary Sources," (October 1977, U.S. EPA, Office of Air

Quality Planning and Standards, Research Triangle Park, N.C. 27711). The purpose of such procedures is to reduce resource burdens where there is little or no threat to the PSD increments or NAAQS. However, as the threat to the increment increases, more sophisticated techniques would be used. If these procedures indicate that the ambient concentration increase would exceed one-half of the remaining ambient increment or ceiling allowance, then refined analytical techniques would be used. Thus, as the available increment becomes smaller, sources that can be quickly estimated as impacting less than half the remaining increment will necessarily be those with smaller and smaller impacts.

As a result of comments received on the second policy issue, the Administrator intends to limit generally the application of air quality models to a downwind distance of no more than 50 kilometers. This is because dispersion parameters commonly in use are based on experiments relatively close to sources, and extending these parameters to long downwind distances results in great uncertainty as to the accuracy of the model estimates at such distances. Also, since the air quality impact of many sources falls off rapidly to insignificant levels, EPA does not intend to analyze the impact of a source beyond the point where concentrations from the source fall below certain levels (which are generally based on the Class I increments). These levels shown below are therefore interpreted by the Administrator as representing the minimum amount of ambient impact that is significant.

Pollutant	Annual	Averaging time			
		24-Hour	8-Hour	1-Hour	1-Hour
SO ₂	1 ug/m ³	3 ug/m ³		25 ug/m ³	
TSP	1 ug/m ³	3 ug/m ³			
NO _x	1 ug/m ³				
CO			0.5 mg/m ³		2 mg/m ³

However, since the 1977 Amendments provide special concern for Class I areas, any reasonably expected impacts for these areas must be considered irrespective of the 50 kilometer limitation or the above significance levels.

Comments were also received urging the creation of an arbitration board to resolve disputes in situations where refined assessment techniques are not readily available and where significant professional judgment must be made on a case-by-case basis, such as those involving fugitive dust and complex

terrain problems, and long range transport. The Agency feels that such an approach would serve to unduly delay the decision making process. The Agency realizes that special concern will have to be addressed to these situations and that EPA Regional Office consistency will have to be assured. EPA intends to use the requirements under section 301(a)(2) of the Act as the mechanism for ensuring Regional consistency. Additional Agency intends to establish a national advisory group to review periodically the modeling guidance and rec-

commend proposed changes as necessary.

Many other comments of a technical nature were made regarding the Agency's modeling guidance. In many cases, solutions to the issues raised must rely on further scientific development. Some inherently must rely on case-by-case technical judgments by qualified scientists. EPA is actively working in the areas of model validation and improvement, turbulence characterization and the use of representative meteorological data and will provide additional guidance on these areas as it becomes available. Any proposed revisions to the currently issued "Guideline on Air Quality Models" will be subjected to review by the scientific community and interested and affected parties. Procedural mechanisms for effecting a thorough review are currently being investigated. It is anticipated that the "Guideline on Air Quality Models" will be reviewed and updated every 18-24 months. Notice of any proposed revisions will at a minimum be published in the *FEDERAL REGISTER* for review and comment prior to final issuance.

MONITORING REQUIREMENTS

Another issue frequently raised in the comments was that of the proposed monitoring requirements. Through sections 165 (a)(2) and (e) of the Act, Congress imposed on the owner or operator of a proposed major source who submits an application after August 7, 1978, the task of gathering and analyzing air quality monitoring data for inclusion in the application. Such data must be related to and gathered over the year preceding submittal of the complete application. In addition, through section 165(a)(7), the owner or operator may be required to conduct such post-construction monitoring as may be necessary to determine the effect the source or modification may have or is having on air quality in any area it might affect. It is apparent that Congress included the monitoring requirements as a means of checking the accuracy of the modeling results. However, in many cases, monitoring data may not provide an adequate "real world" check on the accuracy of modeling as it applies to increment consumption.

As proposed, EPA has decided generally not to require preconstruction or postconstruction ambient monitoring to determine how much of the increment has been used up. First, the year-to-year variability of air quality data limits the usefulness of certain data collected. Next, the increments are generally consumed by new or modified sources on the basis of allowable emissions, whereas ambient monitoring will measure air quality as it is affected by changes in actual emissions. Moreover, several emission

changes that would be detected by an ambient monitor may not consume increment. That is because certain emissions which do or will affect air quality levels do not count against the increments (e.g., emissions from any source commencing construction prior to January 8, 1975, but completed at some later date; emissions resulting from compliance with an order under section 125). In addition, the State may exempt certain emission changes which otherwise would consume a portion of the available PSD increment (e.g., Federally-ordered fuel switches, temporary emissions, and new sources outside the United States). Finally, the stack height provisions of section 123 of the Act require in any case where a source uses a stack the height of which exceeds good engineering practice that dispersion modeling efforts assume a good engineering practice stack height. In actual practice, assessment of the available increment will normally be accomplished through an accounting procedure whereby atmospheric modeling of individual sources will be used to keep track of changes in actual and allowable emissions as appropriate.

Although increment consumption must of necessity be tracked through modeling, EPA does not intend that there be no "real world" checks on the accuracy of modeling. If an applicant or other party believes that a model used by EPA has either overpredicted or underpredicted the air quality impact of a source, EPA welcomes the submission of data which will more precisely define the impact of the source. For isolated sources, air quality monitoring may be sufficient for this purpose. However, model validation using air quality monitoring is generally expensive, since a complex monitoring network is usually required to ensure that maximum concentrations are measured. Other model validation methods may be less expensive and more reliable (e.g., tracer studies and wind tunnel experiments), especially where more than one source may contribute to the increment consumption. In any case, where subsequent data demonstrate to EPA's satisfaction that the modeling is in error, EPA will make appropriate adjustments so as to provide more (or less) of the increment for future use.

Since PSD review now includes a review against the applicable NAAQS, EPA intends to focus the preconstruction and postconstruction monitoring requirements on obtaining the necessary data for this purpose. To that end existing air quality data will be used to the maximum extent practicable and preconstruction monitoring will only be required as necessary. Also, if preliminary modeling or other data indicate that the new source would not pose a threat to a NAAQS, EPA will

exempt the source from the preconstruction monitoring requirements altogether. For example, if an SO₂ source plans to construct in an area with no other SO₂ sources, no preconstruction monitoring for SO₂ would be required. On the other hand, because of the long range transport of oxidants, if a major source of volatile organic compounds intends to locate in an attainment or unclassified area for photochemical oxidant, EPA will routinely require that the source submit oxidant monitoring data. Finally, since certain sources with allowable emissions of less than 50 tons per year, 1,000 pounds per day, or 100 pounds per hour, are exempt from an air quality impact analysis, air quality monitoring would not be required for such sources.

All air quality monitoring must adhere to EPA's monitoring procedures in effect at the time of the monitoring. Currently, these requirements include criteria for siting monitors and instrument probes, the specification of reference methods and equivalent methods, and a minimum quality assurance program. EPA will implement the monitoring requirements promulgated in this rulemaking primarily through guidance found in "Ambient Air Monitoring Guidelines for Prevention of Significant Deterioration," OAQPS 1.2-096, U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, N.C. 27711, May 1978. EPA encourages permit applicants to consult with the reviewing authority regarding the need for and implementation of the monitoring requirements.

The number of monitors will be based on a case-by-case determination considering source emission characteristics, terrain and meteorology. In some cases, one instrument per pollutant may be adequate. The source will be permitted to use existing data where appropriate. Judgments on the representativeness of existing data taken near the source must be made on a case-by-case basis.

Twenty-four hour samples for SO₂ (bubbler method) will not be acceptable, since 3-hour values would not be available for comparison with the 3-hour secondary NAAQS standard and increment. Also, if bubblers were to be used, detailed quality assurance requirements would be required because of known temperature instability problems with the bubbler methods. In most situations, the cost of running a bubbler may not be significantly different from a continuous analyzer due to the more rigid quality assurance procedures and the need for laboratory support.

Existing 24-hour particulate samples on 6-day intervals will generally be acceptable. In many areas, such data have been collected for a period of

years. As to such areas, additional monitoring will generally be unnecessary. However, the Administrator may require sample collection more often than every sixth day.

BASELINE CONCENTRATION

The term "baseline concentration" is used in an abstract sense to establish the starting point for defining significant deterioration. This term is applicable for only sources of SO₂ and PM. Changes in the emission levels of these pollutants from sources contributing to the baseline concentration will in turn affect the amount of air quality increment that remains available to accommodate additional growth.

On November 3, 1977, EPA proposed a definition of baseline concentration that reflected a January 6, 1975, starting date for most sources. Additionally, this proposal contained specific guidance on how a baseline concentration might be established in a given area. Due to several implementation and legal concerns raised during the public comment period, the proposal of November 3 has been amended in three respects. The regulations promulgated today reflect an August 7, 1977, baseline date, place primary emphasis on tracking emission changes rather than on establishing a baseline concentration, and provide additional guidance as to what emission levels contribute to the baseline concentration.

Section 169(4) of the Act generally defines baseline in terms of the ambient concentration existing at the time of the first application for a permit in an area. However, major construction commencing after January 6, 1975, is specifically acknowledged to consume increment and cannot be considered as contributing to the baseline concentration. Both the November 3 proposal and the regulations promulgated today recognize the severe technical and administrative problems with implementing a definition of baseline concentration that relates to the date of first permit application in an area. The Administrator believes that a strict interpretation of the Act's language would create thousands of different areas each with different baseline starting points. Moreover, these areas would eventually overlap as more and more sources applied for PSD permits. The final regulations and those proposed on November 3, 1977, resolve those problems by establishing a uniform starting date for defining the baseline concentration in all areas. The November 3 proposal, however, differs with the final regulations as to what the starting date should be.

The Administrator believes that an August 7, 1977, baseline date rather than one of January 6, 1975, better fulfills the requirements of the Act and is the earliest possible time that

could be used as a uniform starting date. This date coincides with the time that PSD review under some of the new Act provisions could have taken place and with the time that States were given affirmative responsibility to protect the applicable PSD increments in their plans. As required by the Act, major source construction commencing after January 6, 1975, is not included in the baseline. Such activities consume increments as discussed below.

The November 3, 1977, proposal also contained guidance for establishing a baseline concentration through the use of existing air quality data. That proposal also suggested an alternative means to construct a baseline concentration using air quality dispersion modeling when appropriate air quality data did not exist. The regulations promulgated today no longer suggest that the baseline concentration be formally established. The Administrator feels that increment consumption can be best tracked by tallying changes in the emission levels of sources contributing to the baseline concentration and increases in emissions due to new sources. Data to establish baseline air quality in an absolute sense would be needed only if increment consumption were to be tracked using ambient measurements. Thus, to implement the air quality increment approach set forth in the Act, the reviewing authority needs to verify that all changes from baseline emission rates (decreases or increases as appropriate) in conjunction with the increased emissions associated with approved new source construction will not violate an applicable increment or NAAQS. However, before this concept can be carried out, some additional guidance must be given regarding the type of emission changes that must be tracked.

EPA generally intends to use an actual emissions concept in implementing the above baseline approach. The concept of an actual emissions baseline has been used in implementing EPA's previous PSD regulations, and the Administrator believes that the Act intends for this concept to be continued. Section 169(4) defines baseline concentration in terms of existing air quality. In carrying out an actual emissions baseline, EPA will use reasonable assumptions for various factors affecting the level of source operation. 1977 values will generally be used for hours of operation, capacity utilization, and the types of materials combusted, processed and/or stored, unless another previous year would be more representative or such use would not be allowed under established permit conditions. Actual emissions also includes into the baseline any future increases in hours of operation or capacity utilization as they occur if such are allowed to the source as of

August 7, 1977, and if the source could have been reasonably expected to make these increases on this date. This policy is consistent with the intent of the Act to base increment consumption on all emission increases from new and modified sources, but to allow consumption of the increment to occur from only certain non-modification activities (e.g., some fuel-switches) of existing sources. Thus, with the exceptions mentioned below, the Administrator will implement an actual emissions baseline in the regulations promulgated today.

An actual emissions baseline would be inappropriate to address situations where a SIP relaxation had been submitted to EPA, and was still pending, on August 7, 1977. Application of an actual emissions baseline would penalize those States that required sources which the SIP relaxation would affect to comply with the allowable rates under the existing SIP while EPA was in the process of reviewing the proposed SIP revision. Such States should not be forced to lose substantial portions of the applicable increments when other States allowed their sources to emit at the relaxed SIP level in advance of formal EPA approval. Therefore, the regulations promulgated today require that contributions to the baseline concentration from existing sources affected by a SIP relaxation pending as of August 7, 1977, would be based on the allowable emissions under the SIP as revised.

In addition, the actual emissions concept does not apply to those sources on which construction commenced before January 6, 1975, but which were not in operation by August 7, 1977. In such cases, the allowable emissions as defined in the construction approval will be used to define the contribution of those sources to baseline.

INCREMENT CONSUMPTION

The comments raised a number of specific issues related to the consumption of PSD increments. The Administrator wishes to clarify first that increment consumption occurs in general as a result of new major stationary sources and major modifications commencing construction after January 6, 1975. The degree of such consumption is in general determined on the basis of approved allowable emissions. This procedure is consistent with the Act language of Part C to restrict increases in ambient concentration above baseline levels less than certain specified increments. Increases in the baseline emissions of sources contributing to the baseline concentration will also consume increment (dis-cussion on baseline concen). Conversely, reductions in the baseline emissions of sources existing in 1977 generally expand the available PSD

increment(s). As indicated above, the degree of increment expansion that is creditable will generally be determined through air quality dispersion modeling of the source's emission clean-up beyond its 1977 actual emissions level. For a new source permitted under PSD before August 7, 1977, any renegotiated emission limits more restrictive than those previously permitted will count toward expanding the PSD increment available for other new source construction. States are free to choose the mechanisms for allocating the allowable increment to sources, including reversing any expansion of the increment achieved by control of existing sources for those sources which have installed additional controls.

In addition, offsets (i.e., additional control of existing sources) may be permitted in order to allow the construction of a new source in an area where the increment would not otherwise permit the construction of the source. Such offsets have always been acceptable under the Agency's PSD regulations, and the regulations promulgated below do not change this policy. To be acceptable, such reductions must be expressed in terms of actual emissions when the offsetting source has its emissions included in the baseline. An exception to this would be a major source commencing construction prior to January 6, 1975, but not yet operating by August 7, 1977. For such sources and for situations involving reductions from major construction projects commencing construction after January 6, 1975, offsets are to be transacted on the basis of allowable emissions.

In an area where the PSD increments are known to be exceeded, then the plan must be revised to correct any such violation. Applicable SIP revisions may include the use of economic incentives such as emission charges or the development of offset markets. In such areas major construction cannot continue to be approved unless all increment violations significantly impacted by the proposed emission increase are corrected prior to operation of the proposed source. Accordingly, if acceptable offsets are secured by the proposed source, then such source can be approved for construction. Alternatively, the SIP can be revised by the State to restore an increment and thus accommodate the new construction. Where a proposed major construction project would cause a new violation of the applicable increment, offsetting reductions must be obtained that are sufficient to avoid causing the violation.

The Administrator intends that any increment analysis as appropriate include the effects of growth and reduction in emissions of other sources in the area affected by the proposed

source occurring since the date of the effective baseline. Sources will be generally required to obtain such information, but the information will be available from the State air pollution control agency.

Questions have also arisen regarding how SIP relaxations are to be taken into account in terms of consuming available PSD increments. As stated above, increments are consumed as allowable emissions are increased, and this is true whether those increases are a result of new source growth or SIP relaxations. The regulations promulgated elsewhere in today's FEDERAL REGISTER require that any SIP relaxation that would affect a PSD area must include a determination that the applicable increment will not be exceeded. Whether a plan relaxation would consume the available increment would be typically determined through modeling the difference between the allowable emissions resulting from the new relaxed SIP limit and the emissions of the applicable source(s) which were included in the baseline.

SIP relaxations received by EPA after August 7, 1977, but before today's FEDERAL REGISTER do consume increment. However, EPA believes that such revisions require special consideration due to the uncertainty of how the new Act would apply to such SIP relaxations. To review these proposed revisions as to the degree of anticipated increment consumption without advance notice would have caused considerable delay and economic disruption. Therefore, the Administrator feels that these SIP relaxations need not be individually assessed to determine the precise amount of consumed increment before such relaxations may be approved. The periodic assessment requirement to verify that the applicable increments have not been exceeded is thought to be sufficient protection. This assessment would result in revisions to the SIP if an increment were found to have been violated. All SIP relaxations received after today will be individually reviewed against the available PSD increments. If deterioration beyond that allowed under the available increments would occur under a SIP relaxation, then such a SIP revision would be disapproved to the extent that it would cause significant deterioration.

The Administrator is concerned that while States are developing their own PSD regulations and EPA is implementing the PSD program, EPA should not make decisions which would have a significant impact upon future growth options of the States. In the interim, EPA generally will allocate use of the increments on a first-come, first-served basis as has been done under the previous PSD regulations. The Administrator recognizes

that this approach may not be adequate on a long-term basis to achieve the purposes of the Act. Other options are available and should be pursued by the States in the development of their plans for PSD. Under 40 CFR 51.24, published today, States are required to develop a program for increment allocation and a number of program options are suggested for their consideration. EPA will be assessing the merits and feasibility of several allocation options (including first-come, first-served) and thereafter issue guidance for the submission of revised State implementation plans. This evaluation will consider alternatives in which carefully designed economic incentives serve as an adjunct to or a replacement for an administrative permitting procedure. The economic incentive programs to be considered include marketable permits, emission fees, and emissions density zoning.

While EPA is administering the PSD permit program, the Administrator will solicit and give careful consideration during the permit process to the views of State and local officials regarding the impact of proposed permit decisions on an area's potential for economic development. Additionally, where a source is expected to consume the entire remaining increment, the Administrator will notify the Governor of this proposed action.

In response to comments from the Department of Energy, EPA while implementing the PSD program will exclude, if so requested by a Governor, certain concentrations in calculating increment usage as provided in section 163(c) of the Act. These concentrations include ambient impacts from federally ordered fuel switches, fuel switches caused by gas curtailment plans, temporary emissions and new sources outside the United States. The Administrator will assume that all fuel conversion operations consume portions of the available increment unless otherwise requested by the Governor.

The Governor's ability to effect exclusions under section 163(c) will not automatically extend beyond nine months from today. No exclusion beyond this time will occur unless the Governor has submitted a plan which meets all requirements of 40 CFR 51.24 (published elsewhere in today's FEDERAL REGISTER). The Administrator would also like to point out that exclusions under section 163(c) are not always of a permanent nature. Exclusions from increment consumption for stationary sources affected by a natural gas curtailment plan or by orders under the Energy Supply and Environmental Coordination Act of 1974 may occur no later than 5 years after the effective date of the applicable plan or order. A Governor should realize that full use of such exclusions may lead to plan revisions in the future in order to

preserve the PSD increment. The exclusions will allow more sources to be approved than could be otherwise in the interim. Consequently, when the exclusions expire, the excluded concentrations may well cause exceedances.

To allow the Governor to make use of section 163(c) prior to plan approval reflects a change from the Agency's preliminary position. In the November 3, 1977, proposal, the Agency stated that the Act does not appear to make such exclusions available as to a particular State until EPA has approved a PSD SIP revision for that State. Behind that position was the Agency's perception that Congress had conditioned the availability of the exclusions on approval of such revisions in order to give the States added incentive for submitting them. The Agency still believes that that was Congress' purpose. It has concluded, however, that making the exclusions unavailable nine months from today to States which have failed to submit an approvable PSD revision will serve that purpose as well as making them available at that time only to States which have submitted such a revision. A State will have as much reason to submit a plan revision under the present rule as it would have had under the old. In addition, making the exclusions available now will give the States more flexibility than they would have had for permitting growth.

Another issue related to increment consumption and EPA involvement concerns the review of major construction that would impact interstate areas. The Administrator is pursuing various mechanisms to allocate the amount of increment consumption to such sources when affected States are in disagreement. If an interstate dispute arises before more definitive guidance can be prepared, the Administrator intends to restrict increment consumption to equal amounts at the State line. In other words, when two States are involved in an interstate dispute over increment consumption, no source or series of sources in either State can be approved for construction if they would consume over one-half of the total applicable increment at the State line. Applicable increment here refers to that increment applying in the State where such construction would occur.

FEDERAL LANDS

A number of comments suggested that EPA prepare and publish guidance on determining the impacts a source may have on "air quality related values." Such general guidance is not currently available and, until such time as it is, determinations should be made on a case-by-case basis. Sources which may impact Federal Class I areas should consult with the EPA Re-

gional Offices on questions concerning the possibility of adverse impacts on air quality values and the type of analysis that must be included with the permit application.

Environmental groups pointed out that the proposed regulations did not specifically require Federal Land Managers to protect "affirmatively" air quality related values in Federal Class I areas. Federal Land Managers do have such a responsibility, and the regulations now say so explicitly. It was also suggested that a Federal Land Manager is obligated to withhold any other permits for which he or she is the issuing authority or over which he or she may have control, if EPA did not concur with the Federal Land Manager's determination that air quality related values would be adversely impacted. Part C of the Act and therefore the regulations promulgated today do not require this, but neither do they prohibit a Federal Land Manager from withholding a permit.

Section 165(d)(2)(C)(ii) of the Act would bar the issuance of a PSD permit "(i) in any case where the Federal Land Manager (of lands in a Class I area) demonstrates to the satisfaction of the State" that the proposed source or modification would adversely impact the air quality related values of such lands. Section 165(d)(2)(C)(iii), on the other hand, would allow the "State" to issue a permit if the Federal Land Manager were to certify that the source or modification would not adversely impact such values, even though it would cause or contribute to a violation of the applicable Class I increments. Both sections presuppose that the "State" would be the permitting authority. The final regulations published today contain provisions (§ 52.21(q) (3) and (4)) which for the most part parallel Sections 165(d)(2)(C) (ii) and (iii). The regulations, however, treat the "Administrator" as the permitting authority, not the "State". This is appropriate. Congress must have recognized that there would be instances in which EPA, and not a State, would be the permitting authority. Furthermore, Congress would have expected, in such instances, that the safeguard of Section 165(d)(2)(C)(ii) and the variance of Section 165(d)(2)(C)(iii) would be available.

NATIONAL AMBIENT AIR QUALITY STANDARDS

Under the regulations published today, no PSD permit for a source whose increased allowable emissions are equal to or greater than 50 tons per year, 1,000 pounds per day, or 100 pounds per hour may be granted without assurance that emissions from the source will not cause or contribute to a violation of a NAAQS. If an initial de-

termination shows that such a source may interfere with an applicable ambient standard, the owner or operator must reduce emissions or secure appropriate emission offsets from other nearby sources. While EPA is implementing the PSD program, it does not intend to be involved directly in approving emission offsets for a proposed source except where EPA is also implementing a State new source review program. Thus, the owner or operator would first have to obtain offsets through the State agency new source review program before EPA could approve the source under PSD. An EPA permit cannot be issued until the State permit is granted. Sources are encouraged to seek concurrent review from the State when applying for a PSD permit to minimize review delays. Such action will assist the source to commence construction or schedule as required under the PSD permit.

OTHER ISSUES

A number of other important concerns were raised by comments, including undue review delays, the effects of pending reclassifications on preconstruction reviews, guidance on other impact analyses, the definition of source and the high costs of required newspaper advertisements.

Several comments raised the concern that PSD review might be unduly long, especially for those sources which would have only minimal air quality impacts. The Administrator will take steps to expeditiously evaluate permit applications and will inform applicants as to the completeness of their submittals within 30 days or less of receiving the application. In addition, the exemption for 50-ton sources discussed above will greatly reduce the permit delays that were possible under the proposed regulation. The Administrator expects that such sources will satisfy most, if not all, their PSD requirements by going through the State new source review programs. Although such a source must still obtain a PSD permit the Administrator does not intend generally to duplicate the analyses and determinations made during the State new source review. In reviewing a 50-ton source, every effort will be made to complete the required analyses within 30 days after receiving a complete application and the public participation process to the extent necessary within 45 days thereafter. If a public comment period is necessary, it will run for 30 days from the first day of the 45-day period. On that day EPA will give due notice of the Agency's determinations and tentative decision. At this time, EPA will also solicit comment on the need to conduct a hearing, if one is necessary. A response to the latter is received by de-

24 hour period, as appropriate, has been established.

(ii) In determining whether and to what extent a modification would increase allowable emissions, there shall be taken into account no emission reductions achieved elsewhere at the source at which the modification would occur.

(3) In the case of a modification, the requirement for best available control technology shall apply only to each new or modified facility which would increase the allowable emissions of an applicable pollutant.

(4) Where a facility within a source would be modified but not reconstructed, the requirements for best available control technology, notwithstanding paragraph (j)(2) of this section, shall not apply to such facility if no net increase in emissions of an applicable pollutant would occur at the source, taking into account all emission increases and decreases at the source which would accompany the modification, and no adverse air quality impact would occur.

(5) For phased construction projects the determination of best available control technology shall be reviewed, and modified as appropriate, at the latest reasonable time prior to commencement of construction of each independent phase of the proposed source or modification.

(k) *Exemptions from impact analyses.* (1) The requirements of paragraphs (l), (n), and (p) shall not apply to a major stationary source or major modification with respect to a particular pollutant, if—

(i) The increase in allowable emissions of that pollutant from the source or modification would impact no Class I area and no area where an applicable increment is known to be violated; and

(ii) The increase in allowable emissions of that pollutant from the source or modification would be less than 50 tons per year, 1000 pounds per day, or 100 pounds per hour, whichever is more restrictive; or

(iii) The emissions of the pollutant are of a temporary nature including but not limited to those from a pilot plant, a portable facility, construction, or exploration; or

(iv) A source is modified, but no increase in the net amount of emissions for any pollutant subject to a national ambient air quality standard and no adverse air quality impact would occur.

(2) The hourly and daily rates set in paragraph (k)(1)(ii) of this section shall apply only with respect to a pollutant for which an increment, or national ambient air quality standard, for a period of less than 24 hours or for a 24 hour period, as appropriate, has been established.

(3) In determining for the purpose of paragraph (k)(1)(ii) of this section

whether and to what extent the modification would increase allowable emissions, there shall be taken into account no emission reduction achieved elsewhere at the source at which the modification would occur.

(4) In determining for the purpose of paragraph (k)(1)(iv) of this section whether and to what extent there would be an increase in the net amount of emissions for any pollutant subject to a national ambient air quality standard from the source which is modified, there shall be taken into account all emission increases and decreases occurring at the source since August 7, 1977.

(5) The requirements of paragraphs (l), (n) and (p) of this section shall not apply to a major stationary source or to a major modification with respect to emissions from it which the owner or operator has shown to be fugitive dust.

(l) *Air quality review.* The owner or operator of the proposed source or modification shall demonstrate that allowable emission increases from the proposed source or modification, in conjunction with all other applicable emissions increases or reductions, would not cause or contribute to air pollution in violation of:

(1) Any national ambient air quality standard in any air quality control region; or

(2) Any applicable maximum allowable increase over the baseline concentration in any area.

(m) *Air quality models.* (1) All estimates of ambient concentrations required under this section shall be based on the applicable air quality models, data bases, and other requirements specified in the "Guideline on Air Quality Models" (OAQPS 1.2-080, U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, N.C. 27711, April 1978). This document is incorporated by reference. On April 27, 1978, the Office of the Federal Register approved this document for incorporation by reference. A copy of the guideline is on file in the Federal Register library.

(2) Where an air quality impact model specified in the "Guideline on Air Quality Models" is inappropriate, the model may be modified or another model substituted. Such a change must be subject to notice and opportunity for public comment under paragraph (r) of this section. Written approval of the Administrator must be obtained for any modification or substitution. Methods like those outlined in the "Workbook for the Comparison of Air Quality Models" (U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, N.C. 27711, May, 1978) should be used to determine the comparability of air quality models.

(3) The documents referenced in this paragraph are available for public inspection at EPA's Public Information Reference Unit and at the libraries of each of the ten EPA Regional Offices. Copies are available as supplies permit from the Library Service Office (MD-35), U.S. Environmental Protection Agency, Research Triangle Park, N.C. 27711. Also, copies may be purchased from the National Technical Information Service, 5235 Port Royal Road, Springfield, Va. 22161.

(n) *Monitoring.* (1) The owner or operator of a proposed source or modification shall, after construction of the source or modification, conduct such ambient air quality monitoring as the Administrator determines may be necessary to establish the effect which emissions from the source or modification of a pollutant for which a national ambient air quality standard exists (other than non-methane hydrocarbons) may have, or is having, on air quality in any area which such emissions would affect.

(2) As necessary to determine whether emissions from the proposed source or modification would cause or contribute to a violation of a national ambient air quality standard, any permit application submitted after August 7, 1978, shall include an analysis of continuous air quality monitoring data for any pollutant emitted by the source or modification for which a national ambient air quality standard exists, except non-methane hydrocarbons. Such data shall relate to, and shall have been gathered over, the year preceding receipt of the complete application, unless the owner or operator demonstrates to the Administrator's satisfaction that such data gathered over a portion or portions of that year or another representative year would be adequate to determine that the source or modification would not cause or contribute to a violation of a national ambient air quality standard.

(o) *Source information.* The owner or operator of a proposed source or modification shall submit all information necessary to perform any analysis or make any determination required under this section.

(1) With respect to a source or modification to which paragraphs (j), (l), (n) and (p) of this section apply, such information shall include:

(i) A description of the nature, location, design capacity, and typical operating schedule of the source or modification, including specifications and drawings showing its design and plant layout;

(ii) A detailed schedule for construction of the source or modification;

(iii) A detailed description as to what system of continuous emission reduction is planned for the source or modification, emission estimates, and any other information necessary to deter-

mine that best available control technology would be applied.

(2) Upon request of the Administrator, the owner or operator shall also provide information on:

(i) The air quality impact of the source or modification, including meteorological and topographical data necessary to estimate such impact; and

(ii) The air quality impacts, and the nature and extent of any or all general commercial, residential, industrial, and other growth which has occurred since August 7, 1977, in the area the source or modification would affect.

(p) *Additional impact analyses.* (1) The owner or operator shall provide an analysis of the impairment to visibility, soils and vegetation that would occur as a result of the source or modification and general commercial, residential, industrial and other growth associated with the source or modification. The owner or operator need not provide an analysis of the impact on vegetation having no significant commercial or recreational value.

(2) The owner or operator shall provide an analysis of the air quality impact projected for the area as a result of general commercial, residential, industrial and other growth associated with the source or modification.

(q) *Sources impacting Federal Class I areas—additional requirements.*—(1) *Notice to Federal Land Managers.* The Administrator shall provide notice of any permit application for a proposed major stationary source or major modification the emissions from which would affect a Class I area to the Federal Land Manager, and the Federal official charged with direct responsibility for management, of any lands within any such area. The Administrator shall provide such notice promptly after receiving the application. The Administrator shall also provide the Federal Land Manager and such Federal officials with a copy of the preliminary determination required under paragraph (r) of this section, and shall make available to them any materials used in making that determination, promptly after the Administrator makes it.

(2) *Federal Land Manager.* The Federal Land Manager and the Federal official charged with direct responsibility for management of such lands have an affirmative responsibility to protect the air quality related values (including visibility) of such lands and to consider, in consultation with the Administrator, whether a proposed source or modification will have an adverse impact on such values.

(3) *Denial—impact on air quality related values.* The Federal Land Manager of any such lands may demonstrate to the Administrator that the emissions from a proposed source or modification would have an adverse impact on the air quality-related

values (including visibility) of those lands, notwithstanding that the change in air quality resulting from emissions from such source or modification would not cause or contribute to concentrations which would exceed the maximum allowable increases for a Class I area. If the Administrator concurs with such demonstration, then he shall not issue the permit.

(4) *Class I variances.* The owner or operator of a proposed source or modification may demonstrate to the Federal Land Manager that the emissions from such source or modification would have no adverse impact on the air quality related values of any such lands (including visibility), notwithstanding that the change in air quality resulting from emissions from such source or modification would cause or contribute to concentrations which would exceed the maximum allowable increases for a Class I area. If the Federal Land Manager concurs with such demonstration and he so certifies, the State may authorize the Administrator. *Provided,* That the applicable requirements of this section are otherwise met, to issue the permit with such emission limitations as may be necessary to assure that emissions of sulfur dioxide and particulate matter would not exceed the following maximum allowable increases over baseline concentration for such pollutants:

	Maximum allowable increase (micrograms per cubic meter)
Particulate matter:	
Annual geometric mean	19
24-hr maximum	37
Sulfur dioxide:	
Annual arithmetic mean	20
24-hr maximum	91
3-hr maximum	125

(5) *Sulfur dioxide variance by Governor with Federal Land Manager's concurrence.* The owner or operator of a proposed source or modification which cannot be approved under paragraph (q)(4) of this section may demonstrate to the Governor that the source cannot be constructed by reason of any maximum allowable increase for sulfur dioxide for a period of twenty-four hours or less applicable to any Class I area and, in the case of Federal mandatory Class I areas, that a variance under this clause would not adversely affect the air quality related values of the area (including visibility). The Governor, after consideration of the Federal Land Manager's recommendation (if any) and subject to his concurrence, may, after notice and public hearing, grant a variance from such maximum allowable increase. If such variance is granted, the Administrator shall issue a permit to such source or modification pursuant to the requirements of paragraph (q)(7) of this section: *Provided,* That

the applicable requirements of this section are otherwise met.

(6) *Variance by the Governor with the President's concurrence.* In any case where the Governor recommends a variance in which the Federal Land Manager does not concur, the recommendations of the Governor and the Federal Land Manager shall be transmitted to the President. The President may approve the Governor's recommendation if he finds that the variance is in the national interest. If the variance is approved, the Administrator shall issue a permit pursuant to the requirements of paragraph (q)(7) of this section: *Provided,* That the applicable requirements of this section are otherwise met.

(7) *Emission limitations for Presidential or gubernatorial variance.* In the case of a permit issued pursuant to paragraph (q) (5) or (6) of this section the source or modification shall comply with such emission limitations as may be necessary to assure that emissions of sulfur dioxide from the source or modification would not (during any day on which the otherwise applicable maximum allowable increases are exceeded) cause or contribute to concentrations which would exceed the following maximum allowable increases over the baseline concentration and to assure that such emissions would not cause or contribute to concentrations which exceed the otherwise applicable maximum allowable increases for periods of exposure of 24 hours or less for more than 18 days, not necessarily consecutive, during any annual period:

Maximum Allowable Increase (Micrograms per cubic meter)		
Period of exposure	Terrain areas	
	Low	High
24-hr maximum	36	62
3-hr maximum	130	221

(r) *Public participation.* (1) Within 30 days after receipt of an application to construct, or any addition to such application, the Administrator shall advise the applicant of any deficiency in the application or in the information submitted. In the event of such a deficiency, the date of receipt of the application shall be, for the purpose of this section, the date on which the Administrator received all required information.

(2) Within 1 year after receipt of a complete application, the Administrator shall make a final determination on the application. This involves performing the following actions in a timely manner:

(i) Make a preliminary determination whether construction should be approved, approved with conditions, or disapproved.

(ii) Make available in at least one location in each region in which the proposed source or modification would be constructed a copy of all materials the applicant submitted, a copy of the preliminary determination and a copy or summary of other materials, if any, considered in making the preliminary determination.

(iii) Notify the public, by advertisement in a newspaper of general circulation in each region in which the proposed source or modification would be constructed, of the application, the preliminary determination, the degree of increment consumption that is expected from the source or modification, and the opportunity for comment at a public hearing as well as written public comment.

(iv) Send a copy of the notice of public comment to the applicant and to officials and agencies having cognizance over the location where the proposed construction would occur as follows: State and local air pollution control agencies, the chief executives of the city and county where the source or modification would be located, any comprehensive regional land use planning agency and any State, Federal Land Manager, or Indian Governing Body whose lands may be affected by emissions from the source or modification.

(v) Provide opportunity for a public hearing for interested persons to appear and submit written or oral comments on the air quality impact of the source or modification, alternatives to the source or modification, the control technology required, and other appropriate considerations.

(vi) Consider all written comments submitted within a time specified in the notice of public comment and all comments received at any public hearing(s) in making a final decision on the approvability of the application. No later than 10 days after the close of the public comment period, the applicant may submit a written response to any comments submitted by the public. The Administrator shall consider the applicant's response in making a final decision. The Administrator shall make all comments available for public inspection in the same locations where the Administrator made available preconstruction information relating to the proposed source or modification.

(vii) Make a final determination whether construction should be approved, approved with conditions, or disapproved pursuant to this section.

(viii) Notify the applicant in writing of the final determination and make such notification available for public inspection at the same location where the Administrator made available preconstruction information and public comments relating to the source or modification.

(3) The requirements of paragraph (r) of this section shall not apply to any major stationary source or major modification which paragraph (k) would exempt from the requirements of paragraphs (l), (n), and (p), but only to the extent that, with respect to each of the criteria for construction approval under the applicable State implementation plan and for exemption under paragraph (k), requirements providing the public with at least as much participation in each material determination as those of paragraph (r) have been met in the granting of such construction approval.

(s) *Source obligation.* (1) Any owner or operator who constructs or operates a source or modification not in accordance with the application submitted pursuant to this section or with the terms of any approval to construct, or any owner or operator of a source or modification subject to this section who commences construction after the effective date of these regulations without applying for and receiving approval hereunder, shall be subject to appropriate enforcement action.

(2) Approval to construct shall become invalid if construction is not commenced within 18 months after receipt of such approval, if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable time. The Administrator may extend the 18-month period upon a satisfactory showing that an extension is justified. This provision does not apply to the time period between construction of the approved phases of a phased construction project; each phase must commence construction within 18 months of the projected and approved commencement date.

(3) Approval to construct shall not relieve any owner or operator of the responsibility to comply fully with applicable provisions of the State implementation plan and any other requirements under local, State, or Federal law.

(t) *Environmental impact statements.* Whenever any proposed source or modification is subject to action by a Federal Agency which might necessitate preparation of an environmental impact statement pursuant to the National Environmental Policy Act (42 U.S.C. 4321), review by the Administrator conducted pursuant to this section shall be coordinated with the broad environmental reviews under that Act and under Section 309 of the Clean Air Act to the maximum extent feasible and reasonable.

(u) *Disputed permits or redesignations.* If any State affected by the redesignation of an area by an Indian Governing Body, or any Indian Governing Body of a tribe affected by the redesignation of an area by a State,

disagrees with such redesignation, or if a permit is proposed to be issued for any major stationary source or major modification proposed for construction in any State which the Governor of an affected State or Indian Governing Body of an affected tribe determines will cause or contribute to a cumulative change in air quality in excess of that allowed in this part within the affected State or Indian Reservation, the Governor or Indian Governing Body may request the Administrator to enter into negotiations with the parties involved to resolve such dispute. If requested by any State or Indian Governing Body involved, the Administrator shall make a recommendation to resolve the dispute and protect the air quality related values of the lands involved. If the parties involved do not reach agreement, the Administrator shall resolve the dispute and his determination, or the results of agreements reached through other means, shall become part of the applicable State implementation plan and shall be enforceable as part of such plan. In resolving such disputes relating to area redesignation, the Administrator shall consider the extent to which the lands involved are of sufficient size to allow effective air quality management or have air quality related values of such an area.

(v) *Delegation of authority.* (1) The Administrator shall have the authority to delegate his responsibility for conducting source review pursuant to this section, in accordance with paragraphs (v) (2) and (3) of this section.

(2) Where the Administrator delegates the responsibility for conducting source review under this section to any agency other than a Regional Office of the Environmental Protection Agency, the following provisions shall apply:

(i) Where the delegate agency is not an air pollution control agency, it shall consult with the appropriate State and local air pollution control agency prior to making any determination under this section. Similarly, where the delegate agency does not have continuing responsibility for managing land use, it shall consult with the appropriate State and local agency primarily responsible for managing land use prior to making any determination under this section.

(ii) The delegate agency shall send a copy of any public comment notice required under paragraph (r) of this section to the Administrator through the appropriate Regional Office.

(3) The Administrator's authority for reviewing a source or modification located on an Indian Reservation shall not be redelegated other than to a Regional Office of the Environmental Protection Agency, except where the State has assumed jurisdiction over such land under other laws. Where the

State has assumed such jurisdiction, the Administrator may delegate his authority to the States in accordance with paragraph (v)(2) of this section.

(4) In the case of a source or modification which proposes to construct in a class III area, emissions from which would cause or contribute to air quality exceeding the maximum allowable increase applicable if the area were designated a class II area, and where no standard under section 111 of the act has been promulgated for such source category, the Administrator must approve the determination of best available control technology as set forth in the permit.

§ 52.01 [Amended]

2. In § 52.01, paragraph (f), which defines "best available control technology," is deleted and reserved.

3. In §§ 52.80 (AL), 52.96 (AK), 52.144 (AZ), 52.181 (AR), 52.270 (CA), 52.343 (CO), 52.383 (CT), 52.432 (DE), 52.499 (DC), 52.530 (FL), 52.581 (GA), 52.632 (HI), 52.683 (ID), 52.738 (IL), 52.793 (IN), 52.833 (IA), 52.884 (KS), 52.931 (KY), 52.986 (LA), 52.1029 (ME), 52.1116 (MD), 52.1165 (MA), 52.1180 (MI), 52.1234 (MN), 52.1280 (MS), 52.1339 (MO), 52.1382 (MT), 52.1436 (NB), 52.1485 (NV), 52.1529 (NH), 52.1603 (NJ), 52.1634 (NM), 52.1689 (NY), 52.1778 (NC), 52.1829 (ND), 52.1884 (OH), 52.1919 (OK), 52.1987 (OR), 52.2058 (PA), 52.2083 (RI), 52.2131 (SC), 52.2178 (SD), 52.2233 (TN), 52.2303 (TX), 52.2346 (UT), 52.2380 (VT), 52.2451 (VA), 52.2497 (WA), 52.2523 (WV), 52.2581 (WI), 52.2630 (WY), 52.2676 (GU), 52.2729 (PR), 52.2779 (VI), and 52.2827 (AMS),

paragraphs (a) and (b) are removed and read as follows:

(a) The requirements of sections 111 through 115 of the Clean Air Act are not met, since the plan does not include approvable procedures for preventing the significant deterioration of air quality.

(b) *Regulation for preventing significant deterioration of air quality.* The provisions of § 52.21 (b) through (v) are hereby incorporated and made a part of the applicable State plan for the State of _____.

[FR Doc. 78-16890 Filed 6-14-78; 4:15 pm]



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RECEIVED
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MAY 1 1978

MAY 5 3 15 PM '78

MEMORANDUM

OFFICE OF ENFORCEMENT

SUBJECT: Applicability of Section 169 of the Clean Air Act (PSD) in Respect to the Control of Hydrogen Sulfide Emissions from New Geothermal Power Plants in California

FROM: Director,
Division of Stationary Source Enforcement

TO: Clyde B. Eller, Director
Enforcement Division, Region IX

This is in response to your memo (Enf. 3-4-4) dated April 17, 1978, concerning the applicability of the prevention of significant deterioration (PSD) regulations to emissions of hydrogen sulfide from geothermal power plants.

Since the definition of major source does not specifically identify geothermal power plants, the size criteria which triggers a PSD review for this source category would be its potential to emit 250 tons per year or more of any pollutant regulated under the Clean Air Act. Potential to emit as defined in the latest draft of the PSD regulations, means the capability at maximum capacity to emit a pollutant in the absence of air pollution control equipment. Annual potential is based on the maximum annual rated capacity of the source, unless the source is subject to enforceable permit conditions which limit the annual hours of operation.

In the preamble to the latest draft of the PSD regulations (April 20, 1978) regulated under the Act means any pollutant regulated in Subchapter C of Title 40 of the Code of Federal Regulations for any source type. This then includes all criteria pollutants subject to the national ambient air quality standards (NAAQS) review, pollutants regulated under the Standards of Performance for New Stationary Sources (NSPS), pollutants regulated under the National Emission Standards for the Hazardous Air Pollutants (NESHAP), and all

pollutants regulated under Title II of the Act regarding emission standards for mobile sources. Since geothermal power plants are only subject to PSD when they have the potential to emit 250 tons per year or more of a pollutant, best available control technology (BACT) will only be required for those pollutants for which the potential emissions are equal to 250 tons per year or more.

Therefore, since hydrogen sulfide is regulated under NSPS, the geothermal power plants would be subject to PSD for that pollutant, if these power plants have the potential to emit at least 250 tons per year of hydrogen sulfide. The extent of the PSD analysis for hydrogen sulfide, would be the application of BACT and perhaps an analysis of the air quality related values as contemplated in §165 (d).

This response has been completed with the concurrence of the Office of General Counsel and the Office of Air Quality Planning and Standards. Should you have any additional questions or comments, please contact Rich Biondi (755-2564) of my staff.



Edward E. Reich

cc: Peter Wycoff - OGC
Mike Trutna - CPDD

EPA, Region IX
Prevention of Significant Deterioration
Application Requirements

An applicant for a Prevention of Significant Deterioration (PSD) Approval to Construct is required to submit information sufficient to enable EPA to determine that the proposed new source (1) will meet emission limits representative of the best available control technology, (2) will not cause any applicable ambient air quality increment to be violated, and (3) will not cause any National Ambient Air Quality Standard to be violated. The three determinations above are not required if allowable emissions from the source will be less than fifty tons per year. The following outline lists the information required by EPA for a complete PSD application. The information in parts E, F, G, and H is not required for pollutants for which allowable emissions from the source are less than fifty tons per year.

PSD Application Requirements

A. Applicant Information

List the name and mailing address (by street, city, state, zip code) of the applicant and the owner/operator, if different than the applicant's.

B. Project Location

Describe the project location by address (street, city, state), appropriate Air Quality Control Region, and the current use of the project site.

C. Project Description

Provide a detailed description of all processes, process equipment, storage units, fuels to be burned, emission control systems and any other information necessary to completely describe the proposed project and its air pollutant emission sources. Include a schematic drawing of the project which identifies each air pollution emission point.

D. Emissions from the Proposed Project

Estimate potential emissions and actual emissions of the five criteria pollutants (CO, HC, NO₂, SO_x and particulate matter) using EPA Document AP-42 emission factors, source test data for similar operations, mass balances or other approved methods. Include all calculations. Discuss potential fugitive emissions from the proposed project and the methods to be used to minimize such emissions.

E. Best Available Control Technology (BACT)

Describe the process, system or technique which will be applied to the source as BACT for each pollutant. The technology proposed as BACT must represent the maximum degree of emission reduction achievable for the specific pollutant and the specific source, taking into account energy, environmental and economic impacts, and other costs. Discuss the determination of BACT, including the rationale for not selecting alternate, more stringent systems. An EPA publication entitled "Guidelines for Determining Best Available Control Technology (BACT)" provides the framework for a consistent approach in determining BACT.

F. Air Quality Data

Describe the existing ambient air quality (for those air pollutants resulting from the proposed project) at the proposed site and in the Air Quality Control Region. Include such items as the source of the data presented and the number and location of monitoring stations consulted. Include a brief description of the local meteorological conditions which would affect concentration and transport of pollutants. Normally, twelve (12) months of pre-application monitoring data is required to establish existing ambient background levels. As an alternative to the twelve-month monitoring requirement, the air quality status of the area may in some cases be determined by modeling existing sources or by using existing air quality and representative meteorological data. Requirements concerning ambient air quality and meteorological data collection in support of PSD applications are defined in EPA Publication EPA-450/2-78-019, Ambient Monitoring Guidelines for Prevention of Significant Deterioration (PSD).

G. Air Quality Analysis

Analyze the effect of the proposed project on all applicable ambient air quality increments and on the National Ambient Air Quality Standards. Include in the analysis the impacts projected for the area of the proposed project as a result of growth associated with the project. Count against the maximum allowable increases in pollutant concentrations emissions of sulfur dioxide and particulate matter from any source in existence on August 7, 1977 and from any major source on which construction commenced after January 6, 1975. Discuss all simulation techniques used to estimate the project's ambient air quality impact and the emission and meteorological parameters associated with each. All estimates of ambient concentrations shall be based on the applicable air quality models, data bases and other requirements specified in the Guideline on Air Quality Models (OAQPS1.2-080, U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, NC 27711, April 1978). Where an air quality impact model specified in the Guideline on Air Models is not used, the modeling will be subject to notice and opportunity for public comment and will require written approval of the Administrator of EPA.

H. Additional Impact Analyses

Analyze the impairment to visibility, to soils, and to vegetation having significant commercial or recreational value that would occur as a result of the source or modification and general commercial, residential, industrial, and other growth associated with the source or modification.

I. Environmental Documents

Submit two copies of all appropriate EIR or EIS documents.

J. Compliance with Other Regulations

Summarize the status of all other environmental permits required, applied for and/or received for the proposed project. Describe the status of compliance of all existing facilities with all applicable environmental regulations.

K. Business Confidentiality Claims

You may, if you desire, assert a business confidentiality claim covering all or part of the information you submit in your application. To make a claim, label each page that contains the information covered by the claim with a typed or stamped legend such as "trade secret," "proprietary," or "company confidential." Any material for which confidentiality is asserted should be separated from non-confidential materials. If you assert a claim, the information covered by the claim will be disclosed by the EPA only to the extent, and by means of the procedures set forth in 40 CFR Part 2, Subpart B (41 FR 36906, September 1, 1976). If you do not assert a claim at the time you submit the information, the EPA may make the information available to the public without further notice to you.

L. Additional Information

Include any additional information which you feel may be pertinent.

EPA, Region IX
Prevention of Significant Deterioration
Procedures and Time Requirements

The following is a generalized outline of EPA's procedures and time requirements for processing an application for a Prevention of Significant Deterioration Approval to Construct (see 40 CFR 52.21). After the initial contact (usually a telephone call from the applicant to EPA regarding applicability of the regulations) the following procedures are followed:

A. Application Submittal

1. Pre-application meeting. Prior to an application being filed, a meeting between the applicant and EPA staff is often suggested in order to briefly discuss the appropriate regulations, EPA's authority under those regulations, and EPA's requirements and procedures. This meeting also provides an opportunity for the applicant to briefly discuss the specifics of his proposed project.

2. Application. See "Application Requirements" summary.

B. Application Review Procedures

1. Application Completeness

a. Upon receipt of an application, a letter acknowledging receipt will be mailed to the applicant.

b. Determination of application completeness: EPA will determine whether an application or addition to an application is complete and notify the applicant of any deficiency within thirty (30) days of receipt. Upon receipt of additional information requested by EPA, the thirty day period begins anew.

c. If an application is complete, the applicant will be notified within thirty days of receipt.

2. Review of Application and Preliminary Determination

After the receipt of a complete application, EPA will review the application package and make a preliminary determination concerning the approvability of the project. The preliminary determination will be supported by an Ambient Air Quality Impact Report (AAQIR).

3. Notification

a. Applicant: When the review is completed, EPA will notify the applicant of the preliminary determination by letter with a copy of the AAQIR enclosed.

b. Appropriate agencies: At the same time, copies of the letter and AAQIR will be sent to interested agencies.

c. Public: The public will be notified of the preliminary determination by means of an announcement in a local newspaper. The public will be notified of locations where the cover letter and AAQIR can be reviewed.

d. Time period: Comments will be accepted for a thirty (30) day time period, commencing on the day of publication of the newspaper Public Notice.

e. Public hearing: If significant comments are generated during the public notice time period, EPA may decide to hold a public hearing.

4. Final Action

After the close of the Public Notice period, EPA will take final action on an application, considering any public or other governmental agency comments generated by the Public Notice. The final action must be taken within one year after receipt of a completed application. The EPA will take one of three possible final actions: approve, approve with conditions, or deny. This final action takes the form of a letter with a signed permit attached to the applicant with copies to interested agencies.

OCT 26 1978

COUNTY OF LAKE

Air Pollution Control District

Courthouse — 255 N. Forbes Street

Lakeport, California 95453

Telephone 707/253-2391

Laboratory 707/253-2392

Burn Infol: 707/253-3121

FAYNE L. TUCKER
Air Pollution Control Director

78-N01-5

October 19, 1978

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OCT 27 1978

HEARING OR

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1111 Howe Avenue
Sacramento, California 95825
Station 26

Dear Mr. Burger,

I was unable to attend the October 17th Energy Commission meeting on the NCPA/Shell powerplant and would like to take this time to provide this District's input on what was discussed there.

Of particular interest to us is the tracer analysis of the powerplants air quality impact. Mr. Jeff Anderson of your facility siting Department has informed me that one approach considered during the meeting was to run a single tracer release from the powerplant site. This release would be for subsidence inversion. Impacts for other meteorological conditions would be assessed through analysis of tracer studies done for other projects in the Geysers.

I am concerned about the validity of this approach. Tracer studies by their very nature are site specific. These tests were designed to account for the unique meteorological and terrain characteristics existing at a specific site. The use of tracer study results from one location for analysis of impacts from another location defeats the purpose of the test. The fact that a separate tracer analysis for the powerplant is being required indicates that the tracer analysis done for the steam supply field was not considered representative of the powerplant site. If this is the case, then how can tracer studies done for much more distant sites be considered representative? We feel that any data used in the air quality impact analysis of the powerplant should originate from the plant site.

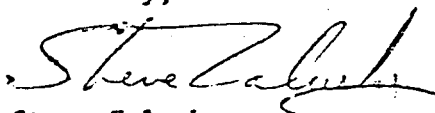
There are three sets of meteorological conditions that we feel may result in the most pronounced impacts in the Anderson Springs area.

These are:

1. Downwash with SSW winds between 3.6-7 m/sec.
2. Drainage with very slight westerly winds at the ridge top.
3. Lifting of a capping inversion by an approaching trough or front with subsequent cleansing of the Big Sulfur Creek area (as described in the Buick Model).

These conditions are common at the proposed powerplant site and we believe that a tracer analysis for the plant should include tracer releases for these conditions.

Sincerely,



Steve Zalusky
Deputy Director, LCAPCD

SZ/mlh

cc: Anderson, J.
Energy Commission

Tolmasoff, M.
NSCAPCD

APPENDIX E

Staff response to concerns evidenced in
letter from Lake County Air Pollution
Control Officer.

ENERGY RESOURCES CONSERVATION
DEVELOPMENT COMMISSIONDOWE AVENUE
SACRAMENTO, CALIFORNIA 95825

(916) 920-6104

November 9, 1978

Mr. Steve Zalusky
Deputy Director
Lake County Air Pollution
Control District
Courthouse - 255 N. Forbes St.
Lakeport, CA 95453

Dear Mr. Zalusky:

In response to your October 19, 1978 letter to the Commission regarding the NCPA/Shell geothermal project and plans for completion of the air quality analysis, we have prepared the following summary of the October 17th meeting. Conclusions reached at the meeting were based upon numerous consultations with NSCAPCD representatives, Lawrence Livermore staff, Air Resources Board staff and the Applicant.

The Applicant has been directed to utilize existing air impact analysis reports in the immediate area (i.e., Unit 13, Unit 16 and the Shell leasehold) and other "ridge-line" project analyses (Unit 17 Cobb Valley Study) to develop, if possible, a valid correlation of existing studies and the projected impacts of the NCPA/Shell project under five (5) potential worst case scenarios

- (a) nocturnal drainage;
- (b) subsidence inversion with an inversion base of not less than 3500 feet (MSL);
- (c) downwash;
- (d) those conditions present during the highest H₂S concentrations recorded at Anderson Ridge, Anderson Spring, and Middletown;
- (e) those conditions present during days having the highest number of H₂S exceeds at Anderson Ridge, Anderson Spring, and Middletown.

As indicated in your letter, these previous studies may be site specific and necessitate a more detailed NCPA/Shell site impact analysis. However, in light of the current expedited process of geothermal power plant projects, the Applicant was presented an opportunity to shorten the data gathering - analyzing process for some meteorological scenarios.

Page two

NSCAPCD contends that drainage will produce insignificant impacts because of the project's ridge-line location. The APCD further indicated sufficient data may exist to complete an analysis of a downwash condition. The maximum value and maximum duration scenario is available to the Applicant in their COES data tapes. If valid correlations cannot be derived from existing data for downwash and drainage, the Applicant has the ability to proceed with a tracer study in the fall or winter and analyze drainage and downwash scenario prior to filing an AFC. The Applicant is fully aware of the potential for a less than satisfactory correlation.

As indicated by staff and the NSCAPCD to the Applicant at the October 17th workshop, the "subsidence" scenario is questionable for "correlation-verification." Staff has been informed by Mr. Bob Webster of SAI Engineers on November 8, 1978, that NCPA has contracted for tracer releases under subsidence conditions.

It is the staff's and other agencies' opinion that considerable tracer study data exists in the immediate area and it may apply to this site for certain meteorological regimes.

However, if analysis of available data and/or evidence from recognized experts in the field of air impact analysis for the Caysers area refute these assumptions for any or all five meteorological regions, the Applicant must supply a valid impact analysis at or prior to submittal of the AFC.

We hope our response answers any questions you may have had in regards to the staff's approach to the NCPA/Shell power plant air quality impact analysis.

Sincerely,



FRANK J. HAHN
Deputy Executive Director

cc: M. Tolmasoff
NSCAPCD

George Lev.
Air Resources Board

APPENDIX F

Tentatively applicable laws and standards
re: NCPA Geothermal Project No. 2

TENTATIVELY
APPLICABLE LAWS AND STANDARDS
NCPA GEOTHERMAL PROJECT NO. 2

Category	Applicable Laws, Ordinances, Standards	Relevant Findings And Conclusions	Preliminary Conclusion Regarding Compliance
I. Need	1. Public Resources Code § 25309.	Findings 7 and 8 Conclusions 1 and 2	Complies, if constructed and operated in compliance with applicable local, regional, state, and federal standards, ordin- ances, and laws.
II. Biological Resources	1. Endangered Species Act of 1973 and implementing regulations.	Findings 1-13 Conclusions 1 and 2	Although additional data is to be submitted by NCPA, the construction and opera- tion of the project will comply with this standard.*
	2. Ecological Reserve Act of 1968 and implementing regulations.	Findings 1-13 Conclusions 1 and 2	Although additional data is to be submitted by NCPA, the construction and opera- tion of the project will comply with this standard.*
	3. California Endangered Species Act of 1970 and implementing regula- tions, Fish and Game Code sections 2050-2055.	Findings 1-13 Conclusions 1 and 2	Although additional data is to be submitted by NCPA, the construction and opera- tion of the project will comply with this standard.*

* In response to a Committee request, the Staff stated: At present, the studies and/or information do not bear on the question of compliance with the identified standards. The information which has already been submitted by the Applicant is adequate for the purposes of determining compliance with the applicable standards. The efforts to be undertaken in Findings 10, 12, and 13 are primarily directed toward identification and evaluation of the various mitigation measures which can and/or will be utilized to minimize the environmental impact to the proposed project. This information is expected by December and the Staff will review and respond to the information as is necessary.

Category	Applicable Laws, Ordinances, Standards	Relevant Findings And Conclusions	Preliminary Conclusion Regarding Compliance
II. Biological Resources Continued	4. Fully Protected Species Act, California Fish and Game Code sections 3511, 4700, 5000, 5050, 5515, and implementing regulations.	Findings 1-13 Conclusions 1 and 2	Although additional data is to be submitted by NCPA, the construction and operation of the project will comply with this standard.*
III. Noise	1. Lake County general plan Noise element limits noise to 55 dBA L _{dn} .	Findings 1, 4-7, and 9-11 Conclusions 2, 4, and 6	Complies.
	2. Sonoma County land use permit.	Findings 1, 4-7, and 9-11 Conclusions 1-7	Complies.
	3. CAL-OSHA, 8 Cal. Admin. Code sections 5095-5099, and Cal. Vehicle Code section 23130.	Findings 2, and 4-11 Conclusions 1-7	Complies.
	4. Occupational Health and Safety Act of 1970.	Findings 3, 4-7, and 9-11 Conclusions 1-7	Complies.
	5. USGS Geothermal Resources Operational Order #4.	Findings 3-7, and 9-11 Conclusions 1-7	Complies.

* In response to a Committee request, the Staff stated: At present, the studies and/or information do not bear on the question of compliance with the identified standards. The information which has already been submitted by the Applicant is adequate for the purposes of determining compliance with the applicable standards. The efforts to be undertaken in Findings 10, 12, and 13 are primarily directed toward identification and evaluation of the various mitigation measures which can and/or will be utilized to minimize the environmental impact to the proposed project. This information is expected by December and the Staff will review and respond to the information as is necessary.

Category	Applicable Laws, Ordinances, Standards	Relevant Findings And Conclusions	Preliminary Conclusion Regarding Compliance
IV. Water Quality	1. U.S. Environmental Protection Agency, "Water Quality Criteria" (1972).	Findings 4-8 Conclusions 1-3	Although more information is forthcoming, it is unlikely that this standard will be violated.
	2. U.S. Geological Survey, "Geothermal Resources Operational Order No. 4."	Findings 4-8 Conclusions 1-3	Although more information is forthcoming it is unlikely that this standard will be violated.
	3. California Water Quality Control Plan • Sacramento River Basin (5A) • North Coastal Basin (1B)	Findings 4-8 Conclusions 1-3	Although more information is forthcoming, it is unlikely that this standard will be violated.
	4. Porter-Cologne Water Quality Control Act.	Findings 4-8 Conclusions 1-3	Although more information is forthcoming, it is unlikely that this standard will be violated.
	5. California Administrative Code, Title 23, Chapter 3.	Findings 4-8 Conclusions 1-3	Although more information is forthcoming, it is unlikely that this standard will be violated.
	6. California Regional Water Quality Control Board, North Coast Region, Order No. 74-151.	Findings 5 and 8 Conclusion 3	More information is required.
V. Soils	1. The requirements contained in the Waste Discharge Requirements for Non-Sewerable Waste Disposal to Land-Disposal Site Design and Operation Information (January, 1978) by the California State Water Resources Control Board.	Findings 1-4 Conclusions 1-3	More information is required.

Category	Applicable Laws, Ordinances, Standards	Relevant Findings And Conclusions	Preliminary Conclusion Regarding Compliance
V. Soils Continued	2. Sonoma County Water Agency and Flood Control District Ordinances.	Findings 1-4 Conclusions 1-3	More information is required.
	3. U.S. Geological Survey, "Geothermal Resources Operational Order No. 4", paragraph 5.	Findings 1-4 Conclusions 1-3	More information is required.
VI. Hydrology And Water Resources		Findings 1-4 Conclusions 1 and 2	Fresh water resources will not be adversely affected by the construction and operation of the proposed plant.
VII. Structural Design	1. Uniform Building* Code (1976 ed.).	Findings 1-8 Conclusions 1-3	More information is required.
VIII. Transmission Line	1. PUC General Order No. 95.	Findings 1-5 Conclusion 1	The applicant has agreed to comply with this standard.
IX. Socio Economic	1. Sonoma County General Plan.	Findings 8, 9, and 10 Conclusion 4	Although no response from Sonoma County has been received, the proposal appears to be compatible with its land use plan.

* The Applicant has also agreed to comply with the applicable provisions of the American Institute of Steel Construction and the American Concrete Institute. While these are professional guidelines and specifications, they are not "applicable local, regional, state, and federal standards, ordinances, and laws" for which compliance is required pursuant to Public Resources Code section 25512. Accordingly, these professional specifications are not set forth in the body of this table. It also should be noted that the application of these specifications will be reviewed during the AFC. See Findings 1-8, and Conclusions 1-3.

Category	Applicable Laws, Ordinances, Standards	Relevant Findings And Conclusions	Preliminary Conclusion Regarding Compliance
X . Air Quality	1. NSCAPCD Rule 455(b) (applicable beginning 1/1/80) 100 grams/gross megawatt hour (gr/GMh) of hydrogen sulfide (H₂S). 2. NSCAPCD Rule 455(b) (applicable beginning 1/1/85) 50 gr/GMh H₂S. 3. NSCAPCD Rule 455(a), 1000 parts per million (ppm) or less of sulfur compounds, calculated as sulfur dioxide. 4. NSCAPCD Rule 420(d), limits emissions of particulate matter to the lesser of: 0.20 grains per cubic foot (gr/cf), or 40 lb/hr from a source with a process rate of 60,000 lb/hr.	Findings 3*, 5-15* 21*, 3-7**, and 13** Conclusions 1, 2, 4, and 5 Findings 4*, and 14* Conclusion 2 Findings 16*, 17*, 8**, and 9** Conclusions 2 and 5 Findings 18*, 19*, 10**, and 11** Conclusions 2 and 5.	More information required. More information required. Complies. Complies.

* These Findings on Air Quality are found under the subsection titled "Emission Limitations--Normal Power Plant Operation", beginning on page 39 of the Joint Prehearing Conference Statement.

** These Findings on Air Quality are found under the subsection titled "Emission Limitations--Steam Stacking", beginning on page 42 of the Joint Prehearing Conference Statement.

Category	Applicable Laws, Ordinances, Standards	Relevant Findings And Conclusions	Preliminary Conclusion Regarding Compliance															
X. Air Quality Continued	5. EPA Prevention of Significant Deterioration (PSD) for H ₂ S	Findings 20-24*, 12-16** Conclusions 3 and 6	More information required.															
	6. NSCAPCD Rules 220 and 230, new source review rules.	Findings 1-18*** Conclusions 1-4***	More information required with regard to H ₂ S.															
	7. NSCAPCO Rules 400(a) (Nuisance) and 540 (Control Breakdown).		More information required.															
	8. NSCAPCD Ambient Air Quality Standards																	
	<table><tr><td><u>Pollutant</u></td><td><u>California Standard</u></td><td><u>Averaging Time</u></td></tr><tr><td>H₂S</td><td>0.03 ppm</td><td>1 hour</td></tr><tr><td>SO₂</td><td>0.05 ppm .5</td><td>24 hours 1 hour</td></tr><tr><td>Sulfates</td><td>25 mg/m³</td><td>24 hours</td></tr><tr><td>TSP</td><td>60 mg/m³ 100 mg/m³</td><td>Annual geometric Mean 24 hours</td></tr></table>	<u>Pollutant</u>	<u>California Standard</u>	<u>Averaging Time</u>	H ₂ S	0.03 ppm	1 hour	SO ₂	0.05 ppm .5	24 hours 1 hour	Sulfates	25 mg/m ³	24 hours	TSP	60 mg/m ³ 100 mg/m ³	Annual geometric Mean 24 hours		
	<u>Pollutant</u>	<u>California Standard</u>	<u>Averaging Time</u>															
	H ₂ S	0.03 ppm	1 hour															
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	Sulfates	25 mg/m ³	24 hours															
	TSP	60 mg/m ³ 100 mg/m ³	Annual geometric Mean 24 hours															
		More information required.																
		Complies.																
		Appears to comply; confirmation date required.																
		Complies.																

* These Findings on Air Quality are found under the subsection titled "Emission Limitations--Normal Power Plant Operation", beginning on page 39 of the Joint Prehearing Conference Statement.

** These Findings on Air Quality are found under the subsection titled "Emission Limitations--Steam Stacking", beginning on page 42 of the Joint Prehearing Conference Statement.

*** These Findings on Air Quality are found under the section titled New Source Review, beginning on page 46 of the Joint Prehearing Conference Statement.

Category	Applicable Laws, Ordinances, Standards	Relevant Findings And Conclusions	Preliminary Conclusion Regarding Compliance
XI. Public Health*	1. ARB Rule 160, 0.030 ppm (1 hr. average)Hydrogen Sulfide	Findings 6 and 7 Conclusions 1-3 on H ₂ S	More information required.
	2. ARB Rule 1609 Sulfates 25 ug/m ³ (24 hour average)	Findings 9-12 and Conclusion 3 on Ammonia, Ammonium Compounds and Sulfates	Compliance is expected.
	3. California Department of Health, 17 CAC, Section 30355 Radon-222 (²²² Rn) 100 pCi/l in air for controlled area; 3 pCi/l above natural background in uncontrolled area.	Findings 1-12 and Conclusions 1 and 3 on Radionuclides	Compliance is expected.
	4. ARB Rule 160, 0.05 ppm (24 hr. average); Sulfur Dioxide; 0.5 ppm (1 hour average)	Findings 1-3 and Conclusion 1 on SO ₂	Complies.
	5. ARB Rule 160; Total Suspended Particulates (TSP) 60 ug/m ³ (Annual Geometric Mean); 100 ug/m ³ (24 hour average)	Findings 2-5 and Conclusion 1 on TSP	Complies.

* There are no enforceable standards for ammonia, arsenic, or mercury. There are, however, suggested public health standards for these substances, as well as industrial standards for ammonia and mercury. Therefore, the public health impacts of the emissions of these substances from the NCPA project will be assessed in light of various proposed recommended standards. See the proposed findings and conclusions, Sections IV. B. 3. and 4. of this Report, for treatment of these substances.

APPENDIX G

Glossary

Appendix G
SOME LEGAL TERMS COMMONLY USED IN
NOTICE OF INTENTION PROCEEDINGS

AFFIDAVIT

a written statement of facts sworn to be true before a notary public or other person authorized to administer oaths

BRIEF

a written summary of facts, points of law, and arguments filed for the information of the decision-maker

CROSS-EXAMINATION

questioning by one party of another party's witnesses in order to test the truth of the testimony or other evidence given, and for other purposes such as to gain additional information

DECLARATION

a written statement of facts declared to be true under penalty of perjury

DOCKET

the official repository of all correspondence and other information formally received by the Commission, as well as the hearing record, in a proceeding

DUE PROCESS

a legal concept which involves principles of fairness, including the right to notice, an opportunity to be heard and rebut opposing evidence, and a decision based upon the record

EVIDENTIARY HEARINGS

a proceeding in which testimony and other evidence is given under oath and may be subjected to cross-examination

EX PARTE CONTACT

unethical communication by or on behalf of one party alone to the decision-maker outside the hearing process which goes to the merits of the case

EXPERT EVIDENCE

testimony given in relation to some scientific, technical, or professional matter by one qualified to speak because of training, skill, education, or experience

FINDINGS

a decision on a necessary or disputed matter of fact reached by the decision-maker

HEARSAY

a statement made outside the proceeding, but used within the proceeding, to prove or disprove a matter in dispute

INFORMATIONAL HEARING

a Commission Committee sponsored meeting to permit: 1) the Applicant to publicly present its project; 2) the Staff to comment upon issues that arise from the Notice; and 3) the public to ask questions of the Applicant and Staff and make comments regarding the proposed project.

INTERVENOR

a person or public agency who voluntarily elects to formally participate in the proceedings; an intervenor has the full measure of rights afforded to a party

ISSUE WORKSHOPS

a meeting sponsored by the Commission staff for the purpose of discussing with the Applicant, intervenors, and interested public those matters which present issues for resolution by agreement or by Evidentiary Hearings

OFFER OF PROOF

the relevant points one expects to make through testimony offered or a request to cross-examine

ORDER

a direction given by the decision-maker

PARTY

a person who has been granted leave to intervene and therefore may formally take part in a legal proceeding. A party has the right to present evidence and cross-examine witnesses appearing for other parties. A party also refers to one of the principal participants in a proceeding, e.g. the Staff or Applicant.

PERSON

a natural being or artificial being treated as a natural being, such as a corporation; in Commission proceedings, person refers to one who may comment upon the proceedings without becoming a party or intervenor.

PREHEARING CONFERENCE

the time at which Evidentiary Hearings are organized--where matters in dispute and witnesses are identified