

ROUTING AND TRANSMITTAL SLIP

Date 2-14-92

TO: (Name, office symbol, room number, building, Agency/Post)	Initials	Date
1. <u>Michael White</u>		
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As Requested	For Correction	Prepare Reply
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Comment	Investigate	Signature
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REMARKS

IBR material for Oklahoma SIP
(FRL 4105-9)

OK: 2-18-92

Thanks

Sub:

(C)(42)

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FROM: (Name, org. symbol, Agency/Post) <u>Vickie</u>	Room No.—Bldg.
	Phone No.

5041-102

* U.S. GPO: 1990 - 262-060

OPTIONAL FORM 41 (Rev. 7-76)
Approved by GSA
FPMR (41 CFR) 101-11.606

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

[OK-7-1-5348]

FR-4105-4

6560.50

Approval and Promulgation of Air Quality Implementation Plans;
Oklahoma; Sulfur Dioxide Emissions Trade
for the Conoco, Incorporated, Ponca City Refinery

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final Rule.

SUMMARY: This notice approves a source-specific revision to the Oklahoma State Implementation Plan (SIP) for the Conoco, Incorporated, Ponca City Refinery. The revision consists of a sulfur dioxide (SO₂) emissions trade for the construction and operation of a sulfur recovery unit (SRU) and a cogeneration unit. On September 25, 1991, EPA proposed approval of the Conoco SO₂ emissions trade (56 FR 48472). The intended effect of this action is to approve a SO₂ emissions trade consistent with the requirements of the Environmental Protection Agency's (EPA) Emissions Trading Policy Statement (ETPS), published December 4, 1986 (51 FR 43814).

DATES: This rule will become effective on ^{Insert date} (30 days from the date of this publication).

ADDRESSES: Copies of the documents relevant to this action are available for public inspection during normal business hours at the following locations: Environmental Protection Agency, Region 6, Air Programs Branch (6T-A), 1445 Ross Avenue, Dallas, Texas 75202; Oklahoma State Department of Health, Air Quality Service (0201), 1000 Northeast 10th Street, Oklahoma City, Oklahoma 73117-1299; and Public Information Reference Unit, Environmental Protection Agency, 401 M. Street S.W., Washington,

D.C. 20460.

FOR FURTHER INFORMATION CONTACT: Robin M. Sullivan, Air Programs Branch, EPA Region 6, telephone (214) 655-7214 or (FTS) 255-7214.

SUPPLEMENTARY INFORMATION:

I. Background

EPA described the facts surrounding this SIP revision in its notice of proposed rulemaking on September 25, 1991, at 56 FR 48472. The Agency will not repeat that information in this notice, but will summarize the major issues and respond to comments received on the notice of proposed rulemaking. EPA recommends that interested readers examine that notice for a complete understanding of today's action.

On November 7, 1989, the Governor of Oklahoma submitted a request to revise the Oklahoma SIP. This request would make federally-enforceable a sulfur dioxide emissions trade for Conoco's Ponca City Refinery (Conoco) involving a construction permit and an operating permit approved by the Oklahoma State Department of Health (OSDH). On July 3, 1990, the Oklahoma Air Quality Service (AQS) submitted an operating permit, number 88-117-O, for a sulfur recovery unit (SRU) and a construction permit, number 88-116-C, for a cogeneration unit. The operating permit for the SRU was approved by the State under Oklahoma Air Pollution Control Regulation 1.6, "Alternate Emissions Reduction Permits". Regulation 1.6 is not part of Oklahoma's approved SIP, therefore, EPA approval of this permit is necessary to make it

federally-enforceable.

The construction is to take place in two phases. The first phase involves the construction and operation of a SRU that will remove up to 20 long tons of sulfur per day from refinery fuel gas streams. The increase in SO₂ emissions from operation of the SRU will occur contemporaneously with an SO₂ emissions reduction from seven refinery furnaces, which will switch from operating on sour fuel gas to sweetened gas. The sweetened gas is generated from gas sweetening facilities utilizing amine contactors. The SRU receives off-gas from the gasoline sweetening facilities, performing the function of a pollution control device. Without the SRU, this off-gas would have to be flared, resulting in much higher SO₂ emissions.

In the second phase of the project, two cogeneration units will be constructed. The cogeneration units will result in increased SO₂ emissions, however, additional SO₂ reductions will occur from the shut down of four boilers currently fueled by sour refinery gas, and the curtailment of two boilers which will then be fired with partially sweetened refinery fuel gas. The actual SO₂ emissions increases and reductions are further discussed in the next section.

II. Sulfur Dioxide Emissions Trade

In the Oklahoma SIP, Regulation 3.4(c)(1)(C)(ii) limits the emissions of SO₂ from sulfur recovery plants to 20 pounds per ton of sulfur processed. This is equivalent to a minimum sulfur recovery efficiency of 99.5%. The emissions trade allows the new

SRU to deviate from this Oklahoma SIP requirement and instead meet the requirements of Regulation 3.4(c)(1)(C)(i) which pertains to natural gas processing. This results in the SRU meeting a 94.5% SO₂ emissions reduction efficiency as allowed by Regulation 3.4(c)(1)(C)(i) rather than a 99.5% reduction as allowed by Regulation 3.4(c)(1)(C)(ii). Conoco contended that the 99.5% reduction efficiency requirement posed a substantial economic hardship for the SRU. The 94.5% reduction efficiency will allow the SRU to emit an additional 865 tons per year (TPY) more than it would at 99.5% efficiency.¹ Thus, an offset of at least 865 TPY was required for the emissions trade.

The State of Oklahoma does not allow the banking of emissions reduction credits (ERCs). Therefore, excess ERCs associated with the trade go to the benefit of the environment and may not be used by Conoco for future purposes.

Table 1 outlines the SO₂ emissions associated with the SRU/cogeneration project. The first phase, or interim phase (post-SRU/pre-cogen), SO₂ reductions occur when seven existing furnaces within the refinery begin to operate on sweetened fuel gas from the new SRU. The increase in emissions from the SRU are compensated by a 2,320 tons per year (TPY) reduction in SO₂ from furnaces, H-5001, H-48A, H-48B, H-48C, H-48D, H-48E, and H-28. The sweetened fuel gas for the furnaces will result in a net

¹ It should be noted that the SRU was designed to operate at 20 tons per day of elemental sulfur processed. This size SRU is exempt from EPA New Source Performance Standards (NSPS) for SRUs. (See 40 CFR Part 60 Subpart J).

refinery-wide SO₂ emissions reduction of 1,368 TPY. Of the total SO₂ emissions reductions, 325 TPY must be allocated to fulfill the requirements of a 1987 consent decree. Therefore, a net SO₂ emissions reduction of 1,043 TPY will be realized from the interim phase.

Table 1

SO₂ Emissions (TPY) for Conoco's Sulfur Recovery Unit and Cogeneration Project

Affected Unit	Pre Emissions (pre-SRU/pre-cogen)	Interim Emissions (post-SRU/pre-cogen)	Post Emissions (post-SRU/post-cogen)
SRU	0	952 (865) ^a	952
Cogeneration	0	0	109
Boilers			
B-1	555	555	0
B-2	681	681	0
B-4	629	629	0
B-5	624	624	0
B-6	1009	1009	594
B-7	1352	1352	1014
Heaters			
H-28	831	30	30
H-48A	438	20	20
H-48B	283	15	15
H-48C	206	11	11
H-48D	167	13	13
H-48E	193	8	8
H-5001	321	22	22
Total	7289	5921	2788
		1368	
		- 325 consent decree	
Net Emissions Reduction		1043	3133

^a The required offset is 865 TPY; however the net emissions reduction is calculated in terms of total SO₂ increases and is thus more conservative.

Upon startup of the cogeneration units, the post phase (post-SRU/post-cogen), four existing boilers, B-1, B-2, B-4, and B-5, will be permanently retired from service, while the use of two other boilers, B-6 and B-7, will be curtailed. The startup of the cogeneration units will increase SO₂ emissions by 109 TPY and the reductions from boilers B-1, B-2, B-4, B-5, B-6, and B-7 will result in a reduction of 3,242 TPY of SO₂ emissions. Thus, the net reduction from the post phase will be 3,133 TPY of SO₂ emissions.

III. Ambient Equivalence Modeling

Conoco performed both Level II and Level III modeling consistent with the requirements of the ETPS to ensure that the emissions associated with the SRU and cogeneration project would not cause or contribute to a violation of the NAAQS for SO₂. EPA discussed this modeling in detail in its notice of proposed rulemaking on September 25, 1991 (56 FR 48472). The Agency will not repeat that discussion here, but recommends that interested readers refer to that notice for information on the modeling.

IV. Response to Comments

One comment letter was received in response to EPA's notice of proposed rulemaking; that letter was submitted by a representative of the Conoco, Inc., Ponca City Refinery. Conoco stated that it fully supports EPA's approval of the SO₂ emissions trade as a source-specific revision to the Oklahoma SIP. The comments were meant to provide clarification to some of the statements made in the notice of proposed rulemaking.

Comment: The notice of proposed rulemaking stated that an SO₂ emissions reduction would be achieved from seven refinery furnaces which will switch from operating on sour fuel gas to sweetened fuel from the SRU. Conoco clarified that the sweetened gas is generated from gas sweetening facilities utilizing amine contactors. The SRU receives off-gas from the gasoline sweetening facilities, performing the function of a pollution control device; without the SRU, this off-gas would have to be flared, resulting in much higher SO₂ emissions.

Response: EPA agrees with the clarification to this wording and has revised the language, as recommended, in the Background section of this notice.

Comment: In the discussion of the Level III modeling, the notice of proposed rulemaking stated that all point sources within a 50 kilometer (km) radius of the area of significant impact were explicitly modeled. Conoco provided clarification that all point sources within a 50 km radius were included in the analysis, but not explicitly modeled. As further discussed in the proposal, some sources were excluded from the modeling by applying EPA's "20-D Rule". Consequently, sources outside the area of significant impact, but within 50 km of that area, were excluded from the modeling if the entire facility's emissions were less than 20 times the distance from the facility to the area.

Response: EPA agrees with Conoco's clarification that all point sources within a 50 km radius of the area of significant

impact were considered, but were not necessarily modeled, as explained above.

Comment: Conoco provided comments further supporting the use of 1974-1978 Ponca City meteorological data in the Level III modeling, rather than the use of more recent data from other areas in the State.

Response: As stated in the proposal, EPA believes that the 1974-1978 meteorological data are the most representative available for Ponca City. The 1974-1978 data are the most recent available for the Ponca City area; the use of these data for the Level III modeling is more representative of the climatic conditions of the Ponca City area than more current data from other areas in the State.

Comment: Conoco's final comments pertain to the proposal's discussion of SO₂ ambient air quality in Kay County. Conoco reiterated that the modeling conducted for the emissions trade proved that the trade would not cause or contribute to a violation of the SO₂ NAAQS. Conoco stated that it believes the general issue of NAAQS compliance should be addressed as a separate issue. Conoco further noted that the OSDH/AQS has addressed EPA's concerns related to NAAQS compliance in the Kay County area and that EPA recognized that the area should not be designated nonattainment. In a September 30, 1991, letter from Mr. Robert E. Layton, Jr, P.E., Regional Administrator, EPA Region 6, to Mr. Mark S. Coleman, Commissioner for Environmental Health Services, OSDH, EPA stated its position that the Kay

County area should not be designated nonattainment for the SO₂ NAAQS.

Response: EPA believes that a discussion of the ambient air quality in Kay County was indeed warranted in the notice of proposed rulemaking, even though the Level III modeling demonstrated that the SO₂ emissions trade would not cause or contribute to a violation of the NAAQS. The proposal explained that, based on monitoring data and supplementary modeling, EPA had taken the position that Kay County appeared to be violating the SO₂ NAAQS (see the April 22, 1991, Federal Register notice at 56 FR 16274). Since that time, however, the OSDH/AQS has submitted additional information supporting an attainment designation. Based on EPA's evaluation of this information, the Agency has decided to retain the area's attainment designation. This position was stated in the September 30, 1991, letter cited above and will be further addressed in a forthcoming Federal Register notice.

V. Final Action

Today, EPA is approving the SIP revision submitted by the Governor of Oklahoma on November 7, 1989, which includes permits number 88-117-O and 88-116-C. These permits allow the Conoco refinery to operate a sulfur recovery unit and to construct a cogeneration facility. EPA has determined that the emissions trade is consistent with the ETPS and that the emissions associated with the trade will neither cause nor contribute to a violation of the NAAQS for SO₂. By this action, EPA approves the

SO₂ emissions trade resulting from the SRU and cogeneration project as a revision to the Oklahoma SIP.

Regulatory Process

Nothing in this action should be construed as permitting or allowing or establishing a precedent for any future request for revision to any State implementation plan. Each request for revision to the State implementation plan shall be considered separately in light of specific technical, economic, and environmental factors and in relation to relevant statutory and regulatory requirements.

This action has been classified as a Table 3 action by the Regional Administrator under the procedures published in the Federal Register on January 19, 1989 (54 FR 2214-2225). On January 6, 1989, the Office of Management and Budget (OMB) waived Table 2 and 3 SIP revisions (54 FR 2222) from the requirements of Section 3 of Executive Order 12291 for a period of two years. EPA has submitted a request for a permanent waiver for Table 2 and 3 SIP revisions. OMB has agreed to continue the temporary waiver until such time as it rules on EPA's request.

Under Section 307(b)(1) of the CAA, petitions for judicial review of this action must be filed in the United States Court of Appeals for the appropriate circuit by (60 days from date of publication). Filing a petition for reconsideration of this final rule by the Administrator does not affect the finality of this rule for the purposes of judicial review nor does it extend the time within which a petition for judicial review may be

filed, and shall not postpone the effectiveness of such rule or action. This action may not be challenged later in proceedings to enforce its requirements (see Section 307(b)(2)).

The Agency has reviewed this request for revision of the federally approved SIP for conformance with the provisions of the 1990 Amendments enacted on November 15, 1990. The Agency has determined that this action conforms with those requirements irrespective of the fact that the adoption of the revision by the State preceded the date of enactment.

List of Subjects in 40 CFR Part 52^e ✓

VR

Air pollution control, Incorporation by reference, Intergovernmental relations, Reporting and recordkeeping requirements, Sulfur oxides.

February 10, 1992

Date:

Winkler
~~B. J. Wynne~~ Joe D. Winkle
Regional Administrator
Acting

VR

40 CFR Part 52, Subpart LL, is amended as follows:

SUBPART LL - OKLAHOMA

1. The Authority citation for Part 52 continues to read as follows:

AUTHORITY: 42 U.S.C. 7401-7642

2. Section 52.1920 is amended by adding paragraph (c)(42) to read as follows:

§ 52.1920 Identification of ~~plan~~,

* * * * *

VR

(c) * * *

(42) On November 7, 1989, the Governor of Oklahoma submitted a revision to the SIP consisting of a constuction permit, number 88-116-C, for a cogeneration unit and an operating permit, number 88-117-O, for a sulfur recovery unit. The revision involves a sulfur dioxide emissions trade for the Conoco, Incorporated, Ponca City Refinery.

(i) Incorporation by reference :

(A) Permit number 88-116-C, as adopted by the Oklahoma State Department of Health (OSDH) on May 23, 1989. ✓

(B) Permit number 88-117-O, as adopted by the Oklahoma State Department of Health (OSDH) on June 22, 1990. ✓

(ii) Additional material,

(A) The document issued by Conoco Ponca City Refinery, titled, "Level II Modeling Analysis in Support of Alternate Emissions Reduction Permit for Sulfur Recovery Plant" dated April 1990.

(B) The document issued by Conoco Ponca City Refinery, titled, "Level III Remodeling for an SO₂ Bubble Trade" dated June 3, 1991 (revised July 8, 1991).



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

MEMORANDUM

SUBJECT: Submission of a Revision to the Oklahoma State Implementation Plan (SIP) for Incorporation by Reference; Sulfur Dioxide Emissions Trade for the Conoco, Incorporated, Ponca City Refinery

FROM: Federal Register Office, EPA

TO: Office of the Federal Register

Please add this document to the "State of Oklahoma Air Quality Control Implementation Plan" file and tab it in the appropriate sequence.

Identification of Document

40 CFR Part 52, Subpart LL, is amended as follows:

SUBPART LL - OKLAHOMA

1. The Authority citation for Part 52 continues to read as follows:

AUTHORITY: 42 U.S.C. 7401-7642

2. Section 52.1920 is amended by adding paragraph (c)(42) to read as follows:

* * * * *
(c) * * *

(42) On November 7, 1989, the Governor of Oklahoma submitted a revision to the SIP consisting of a constuction permit, number 88-116-C, for a cogeneration unit and an operating permit, number 88-117-O, for a sulfur recovery unit.

(i) Incorporation by reference

(A) Permit number 88-116-C, as adopted by the Oklahoma State Department of Health (OSDH) on May 23, 1989.

(B) Permit number 88-117-O, as adopted by the Oklahoma State Department of Health (OSDH) on June 22, 1990.



PERMIT

AIR QUALITY SERVICE
ENVIRONMENTAL HEALTH SERVICES
OKLAHOMA STATE DEPARTMENT OF HEALTH
OKLAHOMA CITY, OKLAHOMA 73152

Date May 23, 19 89 Permit No. 88-116-C

Conoco, Inc., Ponca City Refinery, having complied
with the requirement of the law, is hereby granted permission to install a
52-megawatt (nominal) Gas Turbine Combined Cycle Cogeneration Facility at
Conoco, Inc.'s Ponca City Petroleum Refinery, Ponca City, Kay County,
Oklahoma,

subject to the following conditions, attached:

- Standard Conditions
- Standard Conditions for EPA New Source Performance Standards
- Specific Conditions

John Drake

Chief, Air Quality Service

Mark Cohen

Deputy Commissioner
for Environmental Health Services

Jan K. Leavitt, M.D.

Commissioner of Health

AIR POLLUTION CONTROL FACILITY
(continued)

SPECIFIC CONDITIONS

Permit No. 88-116-C

The permittee is authorized to construct a combined-cycle gas turbine electric-power generating facility in conformity with the specifications submitted to Oklahoma Air Quality Service (OAQS) October 27, 1988 (the Permit Application) and supplementary information received January 10, 13, and March 17, 1989, and analyzed in OAQS' Evaluation of Construction Permit Application 88-116-C, March 30, 1989. Authorization to construct shall be subject to the following permit conditions:

1. Point-source emission limitations: (Where emission limits with different bases are given for a particular emission point and pollutant, none of the specified limits shall be exceeded at any time.)

		Maximum Allowable Mass Emission Rates ⁽¹⁾					Opacity
		Nitrogen Oxides (NO _x)	Carbon Monoxide (CO)	Volatile Organic Compounds (VOC)	Particulate Matter (PM)	Sulfur Dioxide ⁽⁴⁾ (SO ₂)	
GT-1	34,850-hp Westinghouse W251 Gas Turbine Exhaust	118 lb/hr peak 394 tons/yr 0.785 lb/MMBtu 55 ppm _{dv}	50 lb/hr peak ⁽²⁾ 165.6 tons/yr 0.120 lb/MMBtu 38 ppm _{dv} ⁽³⁾	8.3 lb/hr peak 27.7 tons/yr 0.020 lb/MMBtu	1.1 lb/hr peak 3.7 tons/yr 0.003 lb/MMBtu	14.9 lb/hr peak 50 tons/yr 0.034 lb/MMBtu	NA
GT-2	34,850-hp Westinghouse W251 Gas Turbine Exhaust	118 lb/hr peak 394 tons/yr 0.285 lb/MMBtu 55 ppm _{dv}	50 lb/hr peak ⁽²⁾ 165.6 tons/yr 0.120 lb/MMBtu 38 ppm _{dv} ⁽³⁾	8.3 lb/hr peak 27.7 tons/yr 0.020 lb/MMBtu	1.1 lb/hr peak 3.7 tons/yr 0.003 lb/MMBtu	14.9 lb/hr peak 50 tons/yr 0.034 lb/MMBtu	NA
DB-1, GT-1, Duct Burner, Ref. Fuel Gas, 325 Mlb/hr Steam Max.		61.4 lb/hr peak 18 tons/yr 0.150 lb/MMBtu	20.5 lb/hr peak 6 tons/yr 0.050 lb/MMBtu	12.3 lb/hr peak 3.6 tons/yr 0.030 lb/MMBtu	1.2 lb/hr peak 0.4 tons/yr 0.003 lb/MMBtu	15.9 lb/hr peak 4.5 tons/yr 0.039 lb/MMBtu	10%
DB-2, GT-2, Duct Burner, Ref. Fuel Gas, 325 Mlb/hr Steam Max.		61.4 lb/hr peak 18 tons/yr 0.150 lb/MMBtu	20.5 lb/hr peak 6 tons/yr 0.050 lb/MMBtu	12.3 lb/hr peak 3.6 tons/yr 0.030 lb/MMBtu	1.2 lb/hr peak 0.4 tons/yr 0.003 lb/MMBtu	15.9 lb/hr peak 4.5 tons/yr 0.039 lb/MMBtu	10%
B-6 & 7, Steam Boilers (Existing), Ref. Fuel Gas, 300 Mlb/hr. Steam Max.		151 lb/hr peak 224 tons/yr 0.359 lb/MMBtu	62 lb/hr peak 91.2 tons/yr 0.146 lb/MMBtu	0.7 lb/hr peak 1.1 tons/yr 0.002 lb/MMBtu	2.0 lb/hr peak 3.0 tons/yr 0.005 lb/MMBtu	736 lb/hr peak 1091 tons/yr 1.752 lb/MMBtu	20%
TKs 101, 114 & 115 Hydrocarbon Storage Tanks, IF Roofs		-- --	-- --	1.0 lb/hr 4.4 tons/yr	-- --	-- --	NA

1. Including:

ppm_v = parts per million by volume, dry basis.
lb/MMBtu = pounds of emitted pollutant per million Btu
heat input, lower heating value basis.

(2) Before duct burner. Rate to be reduced 5% when merged with operating duct burner exhaust.

(3) Dry basis.

(4) Based on total conversion of sulfur in fuel gas to SO₂.

2. Fuel-burning process units shall be fired only with fuel specified as follows:

a) Gas turbines GT-1 and GT-2: Gas mixture of 75 volume percent refinery fuel gas, 25 volume percent natural gas with typical lower heating value of 746 Btu/SCF containing no more than 0.1 gr/dscf of sulfur as hydrogen sulfide. Gas mixture may vary, but emission limits shall be met for all gas mixtures.

b) Duct burners DB-1 and DB-2: Refinery fuel gas with typical lower heating value of 695 Btu/SCF containing no more than 0.1 gr/dscf of sulfur as hydrogen sulfide.

c) Boilers B-6 and B-7: Refinery fuel gas with typical lower heating value of 820 Btu/SCF containing no more than 0.85 volume percent sulfur as hydrogen sulfide.

Fuel usage at each fuel-burning process unit shall be metered (±5 percent accuracy) with records of consumption on a daily basis to be maintained for retrieval by the permittee for a period of two (2) years following usage.

3. Prior to conducting performance tests to verify compliance with the combined cycle operating limitations listed in Specific Condition 1, performance tests shall be conducted for the gas turbines GT-1 and GT-2 without supplemental heat input for the pollutants nitrogen oxides (NO_x) and sulfur dioxide (SO₂) in accordance with the test procedures specified under Standards of Performance for Stationary Gas Turbines, Subpart GG, at 40 CFR 60.335.

These performance tests shall include establishment of the required ratio of steam injection/fuel rate for the gas turbines. The permittee shall install and operate a continuous monitoring system to monitor and record the fuel consumption and the ratio of steam to fuel

being fired in each turbine. This system shall be accurate to ±5.0 percent and shall be approved by the Director of Permits and Enforcement, Air Quality Service, prior to issuance of an operating permit. Using results generated for at least five (5) distinct steam/fuel test points to define the operating boundary conditions, a correlation of steam injection rate/fuel input rate versus NO_x concentration in the turbine exhaust gas stream shall be established and maintained as an operating guide at the site. Records of the steam/fuel operating rate shall be maintained at the plant by the permittee for a period of two (2) years and made available to any authorized regulatory agency representative upon request.

4. In accordance with the methods and procedures set out in 40 CFR 60.13, 40 CFR 60.47a and 40 CFR Appendix B, the permittee shall install, calibrate and place in operation continuous monitoring systems for measuring and recording nitrogen oxides (NO_x) emissions, sulfur dioxide (SO_2) emissions, and the oxygen or carbon dioxide content of the flue gases in the discharge stacks of both heat recovery boilers.
5. Within 60 days after achieving the maximum/design operating rate of the proposed facility, but in no case later than 180 days after initial start-up, compliance with the maximum allowable rates for the pollutants carbon monoxide (CO) and volatile organic compounds (VOC) and including any stack plume opacity limitations listed in Specific Condition 1 for items GT-1, GT-2, DB-1 and DB-2 shall be demonstrated by the permittee in initial performance tests. Operating loads during testing should at a minimum equal the capacities for which permitting authorization is sought, while firing specified fuel gas and utilizing steam injection to the turbines. Emission rates/opacities shall be determined in accordance with the following EPA test methods and procedures as set out in 40 CFR Part 60, Appendix A:

Method 1, Sample and Velocity Traverse

Method 2, Stack Gas Velocity and Volumetric Flow Rate

Method 3 or 3A, Carbon Dioxide, Excess Air and Dry Molecular Weight

Method 4, Moisture in Stack Gases

Method 9, Visual Determination of Opacity

Method 10, Carbon Monoxide Emissions

Method 25 or 25A, Volatile Organic Compound Emissions

6. The combined-cycle gas turbine/steam generator systems are subject to Standards of Performance for Electric Utility Steam Generating Units, Subpart Da, 40 CFR 60.40a, et. seq. and the applicable compliance provisions of that standard for the pollutants particulate matter, sulfur dioxide and nitrogen oxides. Compliance with the nitrogen oxides (NO_x) and sulfur dioxide (SO_2) emission limitations in Specific Condition 1 is based on the average emission rate measured over 30

successive boiler operating days following start up. A separate performance test for these pollutants is completed at the end of each boiler operating day following the initial performance test, and a new 30-day average emission rate for both nitrogen oxides and sulfur dioxide is calculated to demonstrate compliance with the standards. Compliance with the 0.20 lb/MMBtu nitrogen oxides emission limitation constitutes compliance with the 25 percent reduction of potential combustion concentration requirement (§60.44a). There is no potential combustion concentration reduction requirement for sulfur dioxide when emissions are less than 0.20 lb/MMBtu. There is no potential combustion concentration reduction requirement for particulate matter when combusting gaseous fuel. The combined-cycle gas turbines shall be performance tested for particulate matter, nitrogen oxides and sulfur dioxide using the procedures of EPA Method 19 (40 CFR Appendix A). The nitrogen oxides and sulfur dioxide emission rates from the gas turbines used in Method 19 calculations will be those determined when the gas turbines are performance tested under Subpart GG procedures (Specific Condition 3).

7. Upon confirmation to the Director that the components and design of the dual turbine-burner-boiler systems are essentially duplicates, the permittee shall be allowed to conduct the performance/correlation tests required by Specific Conditions 3 and 5 for only one of the trains, the unit for testing to be selected by the Director. If only one train is tested, the permittee shall apply the performance test results to establish the operating parameters for the corresponding untested unit. The test procedures described in Specific Condition 6 shall be conducted for both trains, however, since each system will include stack monitors specific to the individual train.
8. Gas turbines GT-1 and GT-2 are not subject to federal Standard of Performance for Stationary Gas Turbines, Subpart GC, 40 CFR 60.330, et. seq. However, Subpart GG procedures will be used for performance testing.
9. Gas turbines GT-1, GT-2, and duct burners DB-1 and DB-2 are subject to federal Standards of Performance for Petroleum Refineries, Subpart J, 40 CFR 60.104(a)(1), and shall meet this specification by burning fuel gas containing hydrogen sulfide at no more than 0.1 gr/dscf. These units are also subject to 40 CFR §60.105(a)(3)/(4) for the continuous monitoring of sulfur in fuel combustion gases. This standard shall be met by the provision of a continuous monitor for SO₂ in the stack gas.
10. In addition to the performance test results required in Specific Conditions 3 and 5, the permittee shall report performance test results for nitrogen oxides, sulfur dioxide and particulate matter

SPECIFIC CONDITIONS -

Conoco, Inc.

88-116-C

Page 5

missions, including the performance evaluation of continuous monitors, is described in Specific Conditions 4 and 5, no later than 180 days after initial start-up. The permittee shall submit the written reports required under Subpart Da, §60.49a and Subpart A to Air Quality Service every calendar quarter.

11. Prior to or concurrent with full on-line operation of the proposed new cogeneration facility, the permittee shall demonstrate to the satisfaction of the Director of Permits and Enforcement, Air Quality Service, that existing Boilers B-1, B-2, B-4, B-5 and Furnace H-10 have been retired from service.
12. Upon issuance of an operating permit, the permittee shall be authorized to operate the facility 24 hours per day, 365 days per year.

**PERMIT TO CONSTRUCT
AIR POLLUTION CONTROL FACILITY
(continued)**

Standard Provisions for New Source Performance Standards, Environmental Protection Agency, Title 40 Code of Federal Regulations Part 60

- 1. Notification of the date construction is commenced postmarked no later than 30 days after such date.**
- 2. Notification of the anticipated date of initial startup postmarked no more than 60 days nor less than 30 days prior to such date.**
- 3. Notification of the actual date of initial startup postmarked within 15 days after such date.**
- 4. If a continuous emission monitoring system is included in this construction, notification of the date upon which test demonstration of the system performance commences, along with submittal of the pretest plan. This notification and pretest plan shall be postmarked not less than 30 days prior to such date.**
- 5. Performance test(s) shall be conducted by the owner or operator within 60 days after achieving the maximum production rate at which the facility will be operated, but not later than 180 days after the initial startup. At least 30 days prior notice of the performance test date shall be provided and a pretest plan submitted.**

PERMIT TO CONSTRUCT
AIR POLLUTION CONTROL FACILITY
(continued)

Standard Conditions

1. This permit is void 18 months after date of issue unless construction on this project has started on or prior to that date, or if the work involved in the construction is suspended for 18 months or more after it has commenced.
2. The recipient of this permit shall apply for a permit to operate within 60 days following the first day of operation.
3. If any statement or representation in the application is found to be incorrect, this permit may be revoked and the permittee thereupon waives all rights thereunder; however, the application may be amended and a supplemental written permit issued therefor.
4. There shall be no deviation from the approved plans and specifications unless additional or revised plans are submitted to the Air Quality Service and approved.
5. During or after the construction or the installation of the equipment for which this permit was issued, any agent of the State Department of Health shall have the right and authority to inspect such work and operation.
6. If source emission testing of stacks or process vents is determined necessary, the holder of this permit is responsible for providing sampling facilities and conducting the sampling test at his own expense.
7. When applicable, any records necessary to ascertain continued compliance shall be maintained by the permit holder and made available at the request of personnel from Air Quality Service.
8. That the Air Quality Service of the Oklahoma State Department of Health shall be kept informed on occurrences which may affect the eventual performance of the facility or that will unduly delay the progress of the project.
9. The permit incorporates by reference all statements or representatives of limitations addressed by the applicant in the application and supplemental supporting data and further incorporates any and all limitations calculated or established in the Air Quality Analysis resulting in the issuance of this permit.
10. This permit incorporates by reference all approved air quality control regulations in effect at the issuance of this permit including affirmative actions herein or hereafter required by the Commissioner and all emission limits established in the several control regulations subject only to more stringent limits specifically or generally contained in this permit.

PERMIT TO CONSTRUCT
AIR POLLUTION CONTROL FACILITY
(continued)

Standard Conditions

1. This permit is void 18 months after date of issue unless construction on this project has started on or prior to that date, or if the work involved in the construction is suspended for 18 months or more after it has commenced.
2. The recipient of this permit shall apply for a permit to operate within 60 days following the first day of operation.
3. If any statement or representation in the application is found to be incorrect, this permit may be revoked and the permittee thereupon waives all rights thereunder; however, the application may be amended and a supplemental written permit issued therefor.
4. There shall be no deviation from the approved plans and specifications unless additional or revised plans are submitted to the Air Quality Service and approved.
5. During or after the construction or the installation of the equipment for which this permit was issued, any agent of the State Department of Health shall have the right and authority to inspect such work and operation.
6. If source emission testing of stacks or process vents is determined necessary, the holder of this permit is responsible for providing sampling facilities and conducting the sampling test at his own expense.
7. When applicable, any records necessary to ascertain continued compliance shall be maintained by the permit holder and made available at the request of personnel from Air Quality Service.
8. That the Air Quality Service of the Oklahoma State Department of Health shall be kept informed on occurrences which may affect the eventual performance of the facility or that will unduly delay the progress of the project.
9. The permit incorporates by reference all statements or representatives of limitations addressed by the applicant in the application and supplemental supporting data and further incorporates any and all limitations calculated or established in the Air Quality Analysis resulting in the issuance of this permit.
10. This permit incorporates by reference all approved air quality control regulations in effect at the issuance of this permit including affirmative actions herein or hereafter required by the Commissioner and all emission limits established in the several control regulations subject only to more stringent limits specifically or generally contained in this permit.



PERMIT

AIR QUALITY SERVICE
ENVIRONMENTAL HEALTH SERVICES
OKLAHOMA STATE DEPARTMENT OF HEALTH
OKLAHOMA CITY, OKLAHOMA 73152

Date June 22, 1990 Permit No. 88-117-0

The Conoco, Inc., having
complied with the requirements of the law, is hereby granted permission to operate, as
authorized by Oklahoma Air Pollution Control Regulation 1.6, Alternate Emissions
Reduction Permits, a 20-long-tons-per-day refinery fuel gas sweetening and sulfur
recovery plant at the Conoco Ponca City Petroleum Refinery, Ponca City, Kay County,
Oklahoma, in exchange for net emission reduction trade-offs from existing refinery
sources, and

subject to the following conditions, attached:

- Standard Conditions
- Standard Conditions for EPA New Source Performance Standards
- Specific Conditions

John Drake Chief, Air Quality Service

Maull Leber Deputy Commissioner
for Environmental Health Services

James R. Leavitt, M.D. Commissioner of Health

**PERMIT TO OPERATE
AIR POLLUTION CONTROL FACILITY**

SPECIFIC CONDITIONS: Permit No. 88-117-O

The permittee is authorized to operate in conformity with the specifications submitted to the Oklahoma Air Quality Service October 27, 1988, with supplementary information received January 10, January 13, March 17, and September 28, 1989, and February 15 and March 13, 1990, and as analyzed in AQS's Evaluation of Operating Permit Application No. 88-117-O, June 20, 1990. Authorization to operate is subject to the following permit conditions:

1. Conoco, Inc., has petitioned to operate in conformity with the alternate permitting provisions of Oklahoma Air Pollution Control Regulation 1.6. These provisions conform to the latest EPA Emissions Trading Policy Statement of December 4, 1986, but because these rules have not yet been approved for adoption in the Oklahoma State Implementation Plans, approval of the petition by EPA as an individual SIP revision shall be obtained.

2. Points of emissions and emission limitations:

<u>Source</u>	<u>Sulfur Dioxide *</u>		<u>Hydrogen Sulfide</u>	
	<u>lb/hr</u>	<u>TPY</u>	<u>lb/hr</u>	<u>TPY</u>
Sulfur Recovery Unit Tail Gas Stack, 24 inch diameter by 200 ft.	217.3	952	0.3	1.3
Heater H-28	6.8	30		
Heater H-5001	4.9	22		
Heater H-48A	4.5	20		
Heater H-48B	3.5	15		
Heater H-48C	2.6	11		
Heater H-48D	3.0	13		
Heater H-48E	1.8	8		
Boiler B-6	135.7	594		
Boiler B-7	231.5	1014		

* Including reduced sulfur compounds as SO₂ equivalents.

Emissions limitations for Boiler B-6 and B-7 will become effective upon operational start-up of the cogeneration plant. At that time, the two boilers will be operated at reduced rates and fueled with partially-sweetened fuel gas or pipeline-grade natural gas.

3. Except during periods of start-up, shut-down, or malfunction, the sulfur recovery unit shall meet the continuous sulfur dioxide emission reduction efficiency specified by Oklahoma Air Pollution Control Regulation 3.4(e)(1)(C)(i):

$$Z = 92.34 X^{0.0074}$$

where Z = minimum reduction efficiency and X = sulfur feed rate to the recovery unit, expressed in LT/D and rounded to one decimal place. At the maximum plant processing capacity of 20 LT/D (21.16 LT/D sulfur in feed), a minimum reduction efficiency of 94.5% shall be achieved.

4. Within 60 days of achieving the maximum design operating capacity of the proposed facility, not to exceed 90 days from initial start-up, compliance of the sulfur recovery unit tail gas stack emissions with the maximum allowable rate for the pollutants sulfur dioxide (SO₂), total reduced sulfur compounds (TRS), hydrogen sulfide (H₂S), and stack plume opacity shall be demonstrated by performance testing. Operating loads during the performance test should, at a minimum, be within 10% of the capacity for which permitting authorization has been granted. Feed gas of representative composition shall be processed. Test methods shall be those set forth in 40 CFR 60, Appendix A, and other related procedures incorporated by reference; performance test procedures shall be those specified by NSPS Subpart LLL, Onshore Natural Gas Processing: SO₂ Emissions, at 40 CFR 60.444:

Method 1: Sample and Velocity Traverses

Method 2: Stack Gas Velocity and Volumetric Flow Rate

Method 3 or 3A: Carbon Dioxide, Excess Air, and Dry Molecular Weight

Method 4: Moisture in Stack Gases

Method 6 or 6C: Sulfur Dioxide Emissions

Method 9: Opacity

Method 16A: Total Reduced Sulfur Compounds

Tutwiler Method/ASTM E-260: H₂S Concentration in Acid Gas

5. Following start-up, the procedures for continuous monitoring of emissions and operations shall be those specified in NSPS Subpart LLL, 40 CFR 60.646(a), except that 60.646(a)(5) shall be revised to read "...sulfur dioxide emission reduction efficiency specified by Oklahoma Air Pollution Control Regulation 3.4(e)(1)(C)(i):

$$Z = 92.34 X^{0.0074}$$

where Z = minimum reduction efficiency and X = sulfur feed rate to the recovery unit, expressed in LT/D and rounded to one decimal place." Records of daily test measurements/calculations shall be retained for a period of two (2) years following the date of observations.

6. The permittee shall install and maintain a temperature indicating-recording instrument, certified accurate to +/- 3% of the temperature measured, to monitor the temperature of the gas leaving the combustion zone of the tail gas processing unit. This temperature shall be maintained at or above the temperature at which the unit operated during the initial performance testing. Any temperature recorded below this level shall be reported with the semiannual report required by Specific Condition No. 7.

7. Following start-up, the permittee shall submit a written report of excess emissions to AQS semiannually. For the purpose of these reports, excess emissions are defined as emissions for any 24-hour period having an average sulfur dioxide reduction efficiency less than the minimum required by Specific Condition No. 3. Negative declaration reports shall be submitted for any semiannual period during which no excess emission occurred.

8. A means shall be provided for logging the time, rate, and quantity of SO₂ emissions produced by flaring devices during periods of start-up, shutdown and malfunction periods when the SRU feed input is shunted to the acid gas flare. Following start-up of the facility, a summary of such flaring events shall be included in the semiannual excess emissions reports required by Specific Condition No. 7.

9. Incineration and emissions of sulfur dioxide during periods of acid gas flaring shall be subject to the reporting requirements of Oklahoma Air Pollution Control Regulation 1.5, "Reports Required: Excess Emissions During Start-up, Shutdown, and Malfunction of Equipment." Such flaring shall be subject to the prevailing state regulatory policy on excess emissions with regard to the time/quantity of such emissions allowable.

10. The permittee shall install and maintain a continuous emissions monitoring system for sulfur dioxide emissions in the event that the material balance method indicates either (1) calculated exceedances of the SO₂ emission rate limit specified in the permit, or (2) apparent failure to meet the 94.5% minimum reduction efficiency specified in the permit, on 3 or more days during any running 180-day period. If a continuous monitoring system is installed, the system shall be calibrated, certified, and quality-assured using the methods and procedures of 40 CFR 60, Appendices B and F.

11. Concurrent with full on-line operation of the new fuel gas sweetening and sulfur recovery unit and the combined cycle cogeneration facility (currently under construction) authorized by Permit No. 88-116-C, the permittee shall demonstrate to the satisfaction of the Director of Permits and Enforcement, Air Quality Service, that existing refinery boilers B-1, B-2, B-4, and B-5 have been retired from service, and that boilers B-6 and B-7 will be operated within the parameters specified in this permit and Permit No. 88-116-C for the cogeneration plant.

12. The permittee shall monitor the H₂S content of fuel gas burned in heaters H-28, H-48(A-E), and H-5001 to insure compliance with the allowable emission rates specified in Specific Condition No. 2. Fuel H₂S content shall be monitored either at the fuel mix drums or on the fuel gas supply lines to the respective sources. Monitoring may be conducted by Draeger tube testing of the fuel supply every four (4) hours until July 15, 1990, and shall be monitored by a continuous monitoring system thereafter. The permittee shall submit an approvable Draeger tube testing procedure describing testing methods and documenting at what H₂S concentration in the fuel gas compliance is achieved.

13. The permittee shall be authorized to operate the facility 24 hours per day, 365 days per year, 8,760 hours per year.

14. No smoke, vapor, gases, aerosol, particulate matter, or any combination thereof, of a shade or density greater than 20% opacity shall be emitted except for short-term occurrences not to exceed five minutes in any 60-minute period nor 20 minutes in any 24-hour period.

15. All emission reduction credits upon which this permit is based for heaters H-28, H-48 (A-E), and H-5001 shall not be used for any other emission reduction credit purpose at any time in the future.

PERMIT TO OPERATE AIR
POLLUTION CONTROL FACILITY
(continued)

Standard Conditions

1. If any statement or representation in the application is found to be incorrect, this permit may be revoked and the permittee thereupon waives all rights thereunder; however, the application may be amended and a supplemental written permit issued therefor.
2. Any modification of operating procedures from those for which this permit was issued which results in an increase in emission of air contaminants without notification of Air Quality Service, Oklahoma State Department of Health, shall be grounds for revocation of this permit.
3. Any agent of the Oklahoma State Department of Health shall have the right and authority to inspect at reasonable times the operation of the equipment for which this permit is issued.
4. This permit shall not be considered in any manner affecting the title of the premises upon which the equipment is located, does not release the permittee from any liability for damage to persons or property caused by or resulting from the maintenance or operation of the equipment for which this permit is issued, and does not release the permittee from compliance with other applicable rules, regulations and statutes of Oklahoma or with applicable local laws, rules, regulations or ordinances.
5. This permit is subject to periodic review and change as deemed necessary to fulfill the intent and purposes of the Oklahoma Clean Air Act and rules and regulations promulgated in accordance therewith.
6. In compliance with Section 11.1 of Regulation No. 11 (Malfunction of Control Equipment), written notice containing the information required by this section shall be submitted to Air Quality Service of the Oklahoma State Department of Health.
7. In compliance with Section 11.2 of Regulation No. 11, the operator of the equipment for which this permit is issued will notify Air Quality Service, Oklahoma City, Oklahoma, phone (405) 271-5220, and when the emergency has been controlled, submit to Air Quality Service, Oklahoma State Department of Health, the information required in this section within 30 days of the occurrence.