



FINAL DECISION OF ISSUANCE NO. 0035

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I. GENERAL INFORMATION

- a. ERC Owner/Percent Ownership: The Point Arguello Companies / 100%
- b. Primary Contact Name: Mr. Glenn Oliver
Primary Contact Company: The Point Arguello Companies
- c. ERC Application Date: June 23, 2004
- d. ERC Application Completeness Date: November 18, 2004
- e. ERC Stationary Source Name: The Point Arguello Project
ERC Stationary Source Number: 1325
- f. ERC Facility Name: Platform Harvest
ERC Facility Number: 8013
- g. ERC Source: ATC Permit Required. ATC/PTO Number: ATC 11246
 PTO Canceled. PTO Number: _____
 PTO Modification Required. PTO Mod No: _____
 Exempt. Cite: _____
- h. ERC Zone: South Zone
- i. ERC Source Type: Stationary

II. BACKGROUND

The creation of NO_x ERCs occur from the installation of separate selective catalytic reduction emission control devices on Turbine Compressors A, B, and C located on Platform Harvest. The NO_x emissions from the Turbine Compressors will be reduced to 5 ppmvd at 15% O₂ with the addition of the SCR unit limited to an ammonia slip of 5 ppmvd at 15% O₂. The turbines are fired on natural gas produced from the Point Arguello field.

III. EMISSION REDUCTION CREDIT QUALIFICATION

a. Total DOI ERCs Approved:

$$\text{NO}_x = 9.516 \text{ tpq} \quad (38.065 \text{ tpy})$$

b. Number of Emission Elements: 3

c. Emission Element Data

c.1 Emission Element Name: Cormetech SCR Unit/Turbine Compressor A

- EE/DOI Number: 01/0035

- Emission Element Description: A 4,330 shp turbine compressor used to compress natural gas produced from the Point Arguello field; unit 336-K-200-A, manufactured by Allison, model 501-KC.

- Undiscounted ERC Baseline (1):

$$\text{NO}_x = 2.752 \text{ tpq} \quad (11.010 \text{ tpy})$$

- Technical Uncertainty Factor Used? Yes No

- Technical Uncertainty Factor Description: n/a

- Undiscounted ERC Baseline (2) - TUF Adjusted

$$\text{NO}_x = 2.752 \text{ tpq} \quad (11.010 \text{ tpy})$$

- ERC Due To: Emission Controls: *Selective Catalytic Reduction Unit*
 Shutdown
 Reduction in Throughput
 Other:

- For Shutdowns/Reduction in Throughput (n/a)

BACT Discounted
 20 Percent Minimum Discount

- Amount of Shutdown/Reduction in Throughput Adjustment

$$\text{NO}_x = 0.00 \text{ tpq} \quad (0.00 \text{ tpy})$$

- RACT/SIP Discounted Yes No

- RACT/SIP Applicable Rules: N/A

- Amount of RACT/SIP Discount:

- Discounted Baseline (4) - RACT/SIP Adjusted

$$\text{NO}_x = 2.752 \text{ tpq} \quad (11.010 \text{ tpy})$$

- Special ERC Restrictions? Yes No

- ERC Termination Date: none (renewal required by April 2011 if not used)

- Are There Emission Element-Specific Conditions? Yes No

- Listing of Emission Element-Specific Conditions:

- (1) Shift In Load – Gas Compressors: In order to avoid creating a shift-in-load, all Platform Harvest gas, except for VRU gas which is sent directly to the gas lift compressor, shall be processed by the 336-K-200A, 336-K-200B, or 336-K-200C Turbine Compressors. No Platform Harvest gas shall be routed to other platforms without first being compressed by the 336-K-200A, 336-K-200B, or 336-K-200C Turbine Compressors.
- (2) NO_x Concentration Limit: Emissions from Turbine Compressor A shall not exceed 5 ppmvd NO_x at 15% O₂.
- (3) Ammonia Slip: Once compliance source testing per condition 4.e of ATC 11246, exhaust stack ammonia concentrations from the exhaust of the Turbine Compressor A shall not exceed 5 ppmv at 15% O₂. Compliance with this condition shall be assessed during source testing.
- (4) Emission Monitoring: The Point Arguello Companies is subject to a monitoring program to ensure that the emission reductions proposed in this DOI are real, permanent, and enforceable. This program consists of a Continuous Emissions Monitoring System (CEMS) in combination with a Predictive Emissions Monitoring System (PEMS) and source testing. Turbine Compressors A and B will be equipped with PEMS for ongoing compliance however, the source test frequency on these units may increase to quarterly if the CEMS on Turbine Compressor C indicates degradation of the identical SCR/catalytic control system. The monitoring requirements are specified in ATC 11246.

- Attachment Name(s): Attachment 1 (*ERC Calculations*)

c.2 Emission Element Name: Cormetech SCR Unit/Turbine Compressor B

- EE/DOI Number: 02/0035

- Emission Element Description: A 4,330 shp turbine compressor used to compress natural gas produced from the Point Arguello field; unit 336-K-200-B, manufactured by Allison, model 501-KC.

- Undiscounted ERC Baseline (1):

$$\text{NO}_x = 3.241 \text{ tpq} \quad (12.964 \text{ tpy})$$

- Technical Uncertainty Factor Used? Yes No

- Technical Uncertainty Factor Description: n/a

- Undiscounted ERC Baseline (2) - TUF Adjusted

$$\text{NO}_x = 3.241 \text{ tpq} \quad (12.964 \text{ tpy})$$

- ERC Due To: Emission Controls: *Selective Catalytic Reduction Unit*
 Shutdown
 Reduction in Throughput
 Other:

- For Shutdowns/Reduction in Throughput (n/a)

BACT Discounted
 20 Percent Minimum Discount

- Amount of Shutdown/Reduction in Throughput Adjustment

$$\text{NO}_x = 0.00 \text{ tpq} \quad (0.00 \text{ tpy})$$

- RACT/SIP Discounted Yes No

- RACT/SIP Applicable Rules: N/A

- Amount of RACT/SIP Discount:

- Discounted Baseline (4) - RACT/SIP Adjusted

$$\text{NO}_x = 3.241 \text{ tpq} \quad (12.964 \text{ tpy})$$

- Special ERC Restrictions? Yes No

- ERC Termination Date: none (renewal required by April 2011 if not used)

- Are There Emission Element-Specific Conditions? Yes No

- Listing of Emission Element-Specific Conditions:

- (1) Shift In Load – Gas Compressors: In order to avoid creating a shift-in-load, all Platform Harvest gas, except for VRU gas which is sent directly to the gas lift compressor, shall be processed by the 336-K-200A, 336-K-200B, or 336-K-200C Turbine Compressors. No Platform Harvest gas shall be routed to other platforms without first being compressed by the 336-K-200A, 336-K-200B, or 336-K-200C Turbine Compressors.
- (2) NO_x Concentration Limit: Emissions from Turbine Compressor B shall not exceed 5 ppmvd NO_x at 15% O₂.
- (3) Ammonia Slip: Once compliance source testing per condition 4.e of ATC 11246, exhaust stack ammonia concentrations from the exhaust of the Turbine Compressor B shall not exceed 5 ppmv at 15% O₂. Compliance with this condition shall be assessed during source testing.
- (4) Emission Monitoring: The Point Arguello Companies is subject to a monitoring program to ensure that the emission reductions proposed in this DOI are real, permanent, and enforceable. This program consists of a Continuous Emissions Monitoring System (CEMS) in combination with a Predictive Emissions Monitoring System (PEMS) and source testing. Turbine Compressors A and B will be equipped with PEMS for ongoing compliance however, the source test frequency on these units may increase to quarterly if the CEMS on Turbine Compressor C indicates degradation of the identical SCR/catalytic control system. The monitoring requirements are specified in ATC 11246.

- Attachment Name(s): Attachment 1 (*ERC Calculations*)

c.3 Emission Element Name: Cormetech SCR Unit/Turbine Compressor C

- EE/DOI Number: 03/0035

- Emission Element Description: A 4,330 shp turbine compressor used to compress natural gas produced from the Point Arguello field; unit 336-K-200-C, manufactured by Allison, model 501-KC.

- Undiscounted ERC Baseline (1):

$$\text{NO}_x = 3.523 \text{ tpq} \quad (14.091 \text{ tpy})$$

- Technical Uncertainty Factor Used? Yes No

- Technical Uncertainty Factor Description: n/a

- Undiscounted ERC Baseline (2) - TUF Adjusted

$$\text{NO}_x = 3.523 \text{ tpq} \quad (14.091 \text{ tpy})$$

- ERC Due To: Emission Controls: *Selective Catalytic Reduction Unit*
 Shutdown
 Reduction in Throughput
 Other:

- For Shutdowns/Reduction in Throughput (n/a)

- BACT Discounted
- 20 Percent Minimum Discount

- Amount of Shutdown/Reduction in Throughput Adjustment

NO_x = 0.00 tpq (0.00 tpy)

- RACT/SIP Discounted Yes No

- RACT/SIP Applicable Rules: N/A

- Amount of RACT/SIP Discount:

- Discounted Baseline (4) - RACT/SIP Adjusted

NO_x = 3.523 tpq (14.091 tpy)

- Special ERC Restrictions? Yes No

- ERC Termination Date: none (renewal required by April 2011 if not used)

- Are There Emission Element-Specific Conditions? Yes No

- Listing of Emission Element-Specific Conditions:

- (1) Shift In Load – Gas Compressors: In order to avoid creating a shift-in-load, all Platform Harvest gas, except for VRU gas which is sent directly to the gas lift compressor, shall be processed by the 336-K-200A, 336-K-200B, or 336-K-200C Turbine Compressors. No Platform Harvest gas shall be routed to other platforms without first being compressed by the 336-K-200A, 336-K-200B, or 336-K-200C Turbine Compressors.
- (2) NO_x Concentration Limit: Emissions from Turbine Compressor C shall not exceed 5 ppmvd NO_x at 15% O₂.
- (3) Ammonia Slip: Once compliance source testing per condition 4.e of ATC 11246, exhaust stack ammonia concentrations from the exhaust of the Turbine Compressor C shall not exceed 5 ppmv at 15% O₂. Compliance with this condition shall be assessed during source testing.

- (4) Continuous Emission Monitoring (CEM): The Point Arguello Companies is subject to a monitoring program to ensure that the emission reductions proposed in this DOI are real, permanent, and enforceable. This program consists of a Continuous Emissions Monitoring System (CEMS) in combination with a Predictive Emissions Monitoring System (PEMS) and source testing. Turbine Compressors C will be equipped with CEMS for ongoing compliance. If the CEMS on Turbine Compressor C indicates degradation of the SCR/catalytic control system, then source testing on Turbine Compressors A and B may increase to quarterly. The monitoring requirements are specified in ATC 11246.

- Attachment Name(s): Attachment 1 (*ERC Calculations*)

- d. Evaluation Criteria Summary: This application was submitted pursuant to the criteria listed in Rule 806. The ERCs meet the basic qualification criteria of being surplus, quantifiable, permanent and enforceable.

Surplus – In order for the ERCs to be valid, they must be surplus to the APCD’s Clean Air Plan. These turbine compressors are not subject to RACT provisions in Santa Barbara County.

Quantifiable – Attachment 1 shows the APCD approved ERC calculations. The proposed ERCs are considered quantifiable. For all turbine compressors subject to this DOI, source test data, and hours of operation were used to assess the actual emissions of NO_x.

Permanent – The Point Arguello Companies have committed to operate the turbine compressors with the SCR unit at all times. ATC 11246 will be issued for the installation of the SCR unit and an emissions monitoring program consisting of a combination of CEMS, PEMS and source testing. ATC 11246 and this DOI serves to ensure that the SCR unit is properly installed, operated, and maintained in coordination with the three turbine compressors for the life of the field and to also ensure that there is no shift in load to another compressor.

Enforceable – Platform Harvests’ permit has been revised (ATC 11246) to require the operation of the SCR unit at all times that any of the three turbine compressors are operating. An emission monitoring program consisting of a CEMS, in combination with a PEMS and source testing will be installed per ATC 11246 to ensure that the level of emission control approved in this DOI is maintained. In addition, this DOI and its conditions remain in effect for the life of the ERCs. The APCD will periodically inspect the facility to ensure the equipment is being operated in the manner applied for in the DOI application.

- e. Recommendation: Based on the ERC application and attachment contained within the DOI, the approval of the ERCs is recommended.

AQ Engineer

Date

Engineering Supervisor

Date

Air Pollution Control Officer

Date

Attachment:

1. ERC Calculations
2. Emission Factor Conversion from ppmv to lb/MMBtu
3. Source Test Data
4. Reported Hours of Operation

Attachment 1 ERC Calculations

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Emission Reduction Calculations for Addition of SCR to Turbine-Compressors

Stationary Source	The Point Arguello Project
Stationary Source ID	1325
Facility:	Platform Harvest
DOI #	DOI 0035
Attachment #	1

NOx Emissions	Source Test Baseline^(a)	With SCR^(b)	Amount of ERC's Approved
Turbine Compressor A			
Tons Per Quarter (TPQ)	3.370	0.618	2.752
Tons Per Year (TPY)	13.481	2.471	11.010
Turbine Compressor B			
Tons Per Quarter (TPQ)	3.933	0.692	3.241
Tons Per Year (TPY)	15.733	2.768	12.964
Turbine Compressor C			
Tons Per Quarter (TPQ)	4.291	0.768	3.523
Tons Per Year (TPY)	17.164	3.074	14.091
Total ERCs Approved			
ERC's (TPQ)			9.516
ERC's (TPY)			38.065

Notes:

(a) Baseline data taken from Source Tests completed between 2002 and 2004 & Hours of Operation from December 2001 through November 2004

(b) "With SCR" assumes NOx emissions are controlled to 5 ppmvd at 15% O₂

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Attachment 2 Emission Factor Conversion from ppmv to lb/MMBtu

Stationary Source	The Point Arguello Project
Stationary Source ID	1325
Facility:	Platform Harvest
DOI #	DOI 0035
Attachment #	2

Long Term Data

Parameter	Symbol	Value	Units	Reference
Engine Rating	BHP	4,330	(shp)	PTO 9103
BSFC (LHV based)	BSFCL	8,495	(Btu/shp-hr)	PTO 9103
Fuel Correction Factor	FCF	1.1	dimensionless	PTO 9103
BSFC (HHV based)	BSFCH	9,345	(Btu/shp-hr)	PTO 9103
F-Factor (F _D)	FD	8,571	(dscf/MMBtu)	Turbine Compressor Source Test Average
Molar Volume of Gases	mv	379	(scf/lb-mole)	Attach. 5-5 USEPA Combustion Manual
Stack NOx (as NO ₂)	ppmvN	5	(ppmv @ 15% O ₂)	DOI 0035 application
Molec Weight NOx	MWN	46	lb/lbmole	NOx as NO ₂

Calculations

Parameter	Symbol	Value	Units	Reference
Hourly Heat Input	QH	40,464	MMBtu/hr	$QH = (BHP * BSFCH) / 10^6$
Stack Flow (0% O ₂)	S1	346,795	dscf/hr	$S1 = FD * QH$
Stack Flow (15% O ₂):	S2	1,228,479	dscf/hr	$S2 = S1 * \{(20.9-0)/(20.9-15)\}$
NOx Mass Emissions	EN	0.746	lb/hr	$EN = \{(ppmvN / 10^6) * S2 * MWN / mv\}$
NOx Emission Factor	EFNOX	0.018	lb/MMBtu	$EFNOX = EN / QH$

Attachment 3 Source Test Data

Stationary Source	The Point Arguello Project
Stationary Source ID	1325
Facility:	Platform Harvest
DOI #	DOI 0035
Attachment #	3

Turbine Compressor A		F-Factor
Source Test Date	NOx	sdcf/MMBtu
	lb/hr	
Limits	4.65	
<i>5/29/2002</i>	4.150	8582.75
<i>2/3/2003</i>	4.190	8576.30
<i>3/8/2004</i>	3.860	8549
Average	4.067	8,569.35

Turbine Compressor B		F-Factor
Source Test Date	NOx	sdcf/MMBtu
	lb/hr	
Limits	4.65	
<i>3/5/2002</i>	4.120	8573.95
<i>2/3/2003</i>	4.580	8576.30
<i>3/8/2004</i>	4.010	8549
Average	4.237	8,566.42

Turbine Compressor C		F-Factor
Source Test Date	NOx	sdcf/MMBtu
	lb/hr	
Limits	4.65	
<i>3/5/2002</i>	4.340	8573.95
<i>2/3/2003</i>	4.200	8576.30
<i>3/8/2004</i>	3.950	8549
Average	4.163	8,566.42

Turbine Compressors	F-Factor
Source Test Date	sdcf/MMBtu
<i>3/5/2002</i>	8573.95
<i>5/29/2002</i>	8582.75
<i>2/3/2003</i>	8576.30
<i>3/8/2004</i>	8549
Average	8,571

Attachment 4 Reported Hours of Operation

Stationary Source	The Point Arguello Project
Stationary Source ID	1325
Facility:	Platform Harvest
DOI #	DOI 0035
Attachment #	4

	K-200A	K-200B	K-200C
Month	(hrs/Month)	(hrs/Month)	(hrs/Month)
Dec-01	551.35	740.16	739.78
Jan-02	698.85	659.59	738.79
Feb-02	550.08	435.85	575.19
Mar-02	109.10	611.57	728.70
Apr-02	8.18	713.18	716.83
May-02	321.80	157.99	727.76
Jun-02	662.05	0.00	719.54
Jul-02	700.52	0.00	714.64
Aug-02	692.34	193.36	642.24
Sep-02	165.66	649.43	662.27
Oct-02	280.00	735.93	735.96
Nov-02	683.20	717.48	638.80
Sum:	5,423.13	5,614.54	8,340.50
Average:	451.93	467.88	695.04

	K-200A	K-200B	K-200C
Month	(hrs/Month)	(hrs/Month)	(hrs/Month)
Dec-02	726.54	660.93	740.05
Jan-03	717.49	741.53	740.20
Feb-03	435.48	670.04	666.57
Mar-03	35.94	718.74	717.80
Apr-03	468.85	716.05	709.29
May-03	678.14	724.15	670.06
Jun-03	618.79	683.94	708.51
Jul-03	465.76	699.54	642.96
Aug-03	579.07	663.84	626.26
Sep-03	685.30	715.89	640.39
Oct-03	610.69	577.52	701.37
Nov-03	670.02	636.06	708.63
Sum:	6,692.07	8,208.23	8,272.09
Average:	557.67	684.02	689.34

	K-200A	K-200B	K-200C
Month	(hrs/Month)	(hrs/Month)	(hrs/Month)
Dec-03	606.92	740.10	733.85
Jan-04	721.29	729.21	734.05
Feb-04	677.86	634.06	655.57
Mar-04	740.99	742.50	698.91
Apr-04	700.10	702.75	702.72
May-04	739.89	739.86	634.66
Jun-04	703.14	701.72	690.89
Jul-04	628.39	690.32	714.74
Aug-04	706.52	722.39	639.16
Sep-04	693.08	631.95	583.30
Oct-04	648.98	726.10	640.16
Nov-04	208.22	697.01	695.57
Sum:	7,775.38	8,457.97	8,123.58
Average:	647.95	704.83	676.97