

## STATEMENT OF BASIS

### *for the issuance of Draft Air Permit # 0573-AOP-R3*

1. PERMITTING AUTHORITY:

Arkansas Department of Environmental Quality  
8001 National Drive  
Post Office Box 8913  
Little Rock, Arkansas 72219-8913

2. APPLICANT:

El Dorado Chemical Company  
4500 North West Avenue  
El Dorado, Arkansas 71730

3. PERMIT WRITER:

Siew Low

4. PROCESS DESCRIPTION AND SIC CODE:

SIC Description: Nitrogenous Fertilizers; Industrial Organic Chemicals  
SIC Code: 2873; 2819

5. SUBMITTALS: July 12, 2002

6. REVIEWER'S NOTES: **This modification includes the installation of a new ammonium nitrate transfer system to handle the finished ammonium nitrate product from the KT Ammonium Nitrate Plant, the installation of the new ammonium nitrate neutralizer in the E2 Ammonium Nitrate Plant, and the use of a "hard wired" PM<sub>10</sub> emission factor in demonstrating compliance with the Plantwide Applicability Limit for sources SN-01 through SN-21.** Emissions of PM/PM<sub>10</sub> at SN-27 will increase from 2.6 tpy to 2.7 tpy, as a result of installing a new ammonium nitrate transfer system (SN-27) at the KT Ammonium Nitrate Plant. Emissions of ammonia at SN-05 will increase from 40.0 lb/hr to 45.7 lb/hr, as a result of the simultaneous operation of three ammonium neutralizers in the E2 Ammonium Nitrate Plant. The annual ammonia emissions will not change. The increase in PM<sub>10</sub> actual emissions is 14.8 ton/year at SN-05 and SN-06, which is less than the 15.0 ton/year threshold for minor modification. This has been achieved by limit the production rate no more than 228,071 tons of ammonium nitrate per rolling 12 month total through the E2 Ammonium Nitrate Plant, and use the "hard wired" **PM<sub>10</sub> emission factor**. In the ammonia dispersion modeling submitted with this application, the facility did not include emissions from SN-11. SN-11 will not operate until stack testing has been done at the facility. The air dispersion modeling results show the maximum ambient impacts do not exceed any 1/100 TLV concentrations at any modeled receptor.

7. **COMPLIANCE STATUS:** The following summarizes the current compliance status of the facility including active/pending enforcement actions and recent compliance activities and issues.

This facility is currently **under an active CAO**.

8. **APPLICABLE REGULATIONS:**

**A. Applicability**

**Did the facility undergo PSD review in this permit (i.e., BACT, Modeling, et cetera) (Y/N) N**

**Has this facility underwent PSD review in the past (Y/N) N Permit #**

**Is this facility categorized as a major source for PSD? (Y/N) Y**

**\$ 100 tpy and on the list of 28 (100 tpy)? (Y/N) Y**

**\$ 250 tpy all other (Y/N) \_\_\_\_\_**

**B. PSD Netting**

**Was netting performed to avoid PSD review in this permit? (Y/N) N**

**C. Source and Pollutant Specific Regulatory Applicability**

Source	Pollutant	Regulation [NSPS, NESHAP (Part 61 & Part 63), or PSD only]
SN-13	NO <sub>x</sub>	NSPS Subpart G

9. EMISSION CHANGES:

The following table summarizes plantwide emission changes associated with this permitting action.

<b>Plantwide Permitted Emissions (ton/yr)</b>			
<b>Pollutant</b>	<b>Air Permit 0573-AOP-R2</b>	<b>Air Permit 0573-AOP-R3</b>	<b>Change</b>
PM/PM <sub>10</sub>	297.0	297.1	0.1
SO <sub>2</sub>	2520.4	2520.4	0
VOC	2.7	2.7	0
CO	25.4	25.4	0
NO <sub>x</sub>	<b>3002.2</b>	<b>3002.2</b>	<b>0</b>
H <sub>2</sub> SO <sub>4</sub>	<b>66.6</b>	<b>66.6</b>	<b>0</b>
NH <sub>3</sub>	<b>404.1</b>	<b>404.1</b>	<b>0</b>
HNO <sub>3</sub>	<b>242.0</b>	<b>242.0</b>	<b>0</b>

10. MODELING:

A. Criteria Pollutants

<b>Pollutant</b>	<b>Emission Rate (lb/hr)</b>	<b>NAAQS Standard (µg/m<sup>3</sup>)</b>	<b>Averaging Time</b>	<b>Highest Concentration (µg/m<sup>3</sup>)</b>	<b>% of NAAQS</b>
<b>PM<sub>10</sub></b>	<b>175.0</b>	<b>50</b>	<b>Annual</b>	<b>9.33</b>	<b>19%</b>
		<b>150</b>	<b>24-hour</b>	<b>85.61</b>	<b>57%*</b>
<b>SO<sub>2</sub></b>	<b>600.1</b>	<b>80</b>	<b>Annual</b>	<b>11.25</b>	<b>14%</b>
		<b>1,300</b>	<b>3-hour</b>	<b>468.1</b>	<b>36%</b>
		<b>365</b>	<b>24-hour</b>	<b>123.8</b>	<b>34%</b>

Pollutant	Emission Rate (lb/hr)	NAAQS Standard ( $\mu\text{g}/\text{m}^3$ )	Averaging Time	Highest Concentration ( $\mu\text{g}/\text{m}^3$ )	% of NAAQS
NO <sub>x</sub>	790.1	100	Annual	18.65	19%
VOC	0.7	0.12	1-hour (ppm)	NA	0%
CO	25.4	10,000	8-hour	NA	0%
		40,000	1-hour	NA	0%

\* - Background ( $47 \text{ Fg}/\text{m}^3$ ) plus modeled ( $85.6 \text{ Fg}/\text{m}^3$ ) equals  $132.6 \text{ Fg}/\text{m}^3$  which does not exceed the NAAQS ( $150 \text{ Fg}/\text{m}^3$ ).

11. Non-Criteria Pollutants

**1st Tier Screening (PAER)**

Estimated hourly emissions from the following sources were compared to the Presumptively Acceptable Emission Rate (PAER) for each compound. The PAER was deemed by the Department to be the product, in lb/hr, of 0.11 and the Threshold Limit Value ( $\text{mg}/\text{m}^3$ ), as listed by the American Conference of Governmental Industrial Hygienists (ACGIH).

Pollutant	TLV ( $\text{mg}/\text{m}^3$ )	PAER (lb/hr) = 0.11*TLV	Proposed lb/hr	Pass?
NH <sub>3</sub>	17.4	1.914	110.6	N
H <sub>2</sub> SO <sub>4</sub>	1	0.11	16.6	N
HNO <sub>3</sub>	5.2	0.572	60.8	N

**2nd Tier Screening (PAIL)**

SCREEN3 air dispersion modeling was not performed on the estimated hourly emissions from the following sources.

ISCST3 air dispersion modeling was performed on the estimated hourly emissions from the following sources, in order to predict ambient concentrations beyond the property boundary. The Presumptively Acceptable Impact Level (PAIL) for each compound

was deemed by the Department to be one one-hundredth of the Threshold Limit Value, as listed by the ACGIH.

Pollutant	(PAIL, $\mu\text{g}/\text{m}^3$ ) = 1/100 of Threshold Limit Value	Modeled Concentration ( $\mu\text{g}/\text{m}^3$ )	Pass?
NH <sub>3</sub>	174	168.7	Yes
H <sub>2</sub> SO <sub>4</sub>	10	4.9	Yes
HNO <sub>3</sub>	52	49.7	Yes

12. CALCULATIONS:

SN	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lbs/ton, lbs/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
SN-05	Testing	PM <sub>10</sub> - 13.0 lb/hr, 0.96 lb of PM <sub>10</sub> per ton of ammonium nitrate produced.	Brinks Scrubber	-	-
SN-05	Testing	NH <sub>3</sub> - 45.7 lb/hr	Brinks Scrubber	-	-
SN-06	Testing	PM <sub>10</sub> - 67.0 lb/hr, 0.96 lb of PM <sub>10</sub> per ton of ammonium nitrate produced.	-	-	Uncontrolled. Maximum prill production rate is 54 tons/hour.
SN-07	Testing	SO <sub>2</sub> - 600 lb/hr	Brinks Mist Eliminator	-	-
SN-07	Testing	H <sub>2</sub> SO <sub>4</sub> - 7.5 lb/hr	Brinks Mist Eliminator	-	-
SN-08	Testing	NO <sub>x</sub> - 200 lb/hr	Refrigeration SCR	- 75%	Controlled

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SN	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lbs/ton, lbs/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
SN-09	Testing	NO <sub>x</sub> - 200 lb/hr	Refrigeration SCR	- 75%	Controlled
SN-10	AP-42	NO <sub>x</sub> - 10.0 lb/ton	best operation	-	-
SN-10	Process Knowledge	HNO <sub>3</sub> - 20.0 lb/hr	-	-	yearly testing required
SN-11	Testing	PM <sub>10</sub> - 15.0 lb/hr, NH <sub>3</sub> - 10.0 lb/hr	-	-	<b>Permittee shall not operate this source. See Specific Condition in E2 Plant.</b>
SN-12	Process Knowledge	PM <sub>10</sub> - 2.0 lb/hr	baghouse	-	-
SN-13	NSPS	3.0 lb/ton of acid	refrigerated absorption	-	-
SN-14	Testing	PM <sub>10</sub> - 30.0lb/hr	none	-	-
SN-15	Testing	PM <sub>10</sub> - 17.0 lb/hr	none	-	-
SN-15	Testing	NH <sub>3</sub> - 18.0 lb/hr	none	-	-
SN-16A	AP-42	PM <sub>10</sub> - 5.0 lb/MMSCF SO <sub>2</sub> - 0.6 lb/MMSCF VOC - 1.7 lb/MMSCF CO - 1b/MMSCF NO <sub>x</sub> - 550.0 lb/MMSCF	none	-	-
SN-	AP-42	PM <sub>10</sub> - 5.0 lb/MMSCF	none	-	-

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16B		SO <sub>2</sub> - 0.6 lb/MMSCF VOC - 1.7 lb/MMSCF CO - 1b/MMSCF NO <sub>x</sub> - 550.0 lb/MMSCF			
SN-17	Testing	PM <sub>10</sub> - 20.0 lb/hr	Pease-Anthony Scrubber	-	
SN-17	Testing	NH <sub>3</sub> - 5.0 lb/hr	Pease-Anthony Scrubber	-	-
SN-18	Process Knowledge	PM <sub>10</sub> - 0.033 lb/ton	baghouse	-	-
SN-21	Testing	PM <sub>10</sub> - 0.1 lb/ton	Brinks Scrubber	-	-
SN-21	Testing	NH <sub>3</sub> - 1.0 lb/ton	Brinks Scrubber	-	-
SN-22	CEM	NO <sub>x</sub> - 3.0 lb/ton	cryogenic absorption	-	-
SN-22	Process Knowledge	HNO <sub>3</sub> - 10.0 lb/hr	cryogenic absorption	-	-
SN-25	TANKS3	VOC	none	-	-
SN-26	TANKS3	NH <sub>3</sub>	none	-	-
SN-27	AP-42	PM <sub>10</sub> - 0.0001 lb/ton	none	-	-
SN-28	AP-42	PM <sub>10</sub> - 0.0001 lb/ton	none	-	-

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SN	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lbs/ton, lbs/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
SN-29	AP-42	HNO <sub>3</sub> - 0.53 lb/1000 gallons	none	-	-
SN-30	AP-42	H <sub>2</sub> SO <sub>4</sub> - 0.0334 lb/1000 gallons	none	-	-
SN-31	SOCMI	NH <sub>3</sub> - 0.5 lb/hr	none	-	-
SN-32	SOCMI	NH <sub>3</sub> - 1.3 lb/hr	none	-	-
SN-33	Process Knowledge	NO <sub>x</sub> - 1.8 lb/hr	none	-	-
SN-33	Process Knowledge	HNO <sub>3</sub> - 1.8 lb/hr	none	-	-
SN-34	Process Knowledge	PM <sub>10</sub> - 1.6 lb/hr	none	-	-
SN-35	Process Knowledge	PM <sub>10</sub> - 2.0 lb/hr	baghouse	99%	-



13. TESTING REQUIREMENTS:

This permit requires stack testing of the following sources.

SN(s)	Pollutant	Test Method	Test Interval	Justification For Test Requirement
SN08 & SN-09	NO <sub>x</sub>	7E	Yearly	Necessary for efficiency check on SCR's
SN08 & SN-09	NO <sub>x</sub>	approved method	monthly	Necessary for efficiency check on SCR's
SN-10	NO <sub>x</sub>	7E	Yearly	Necessary for efficiency check on Venturi & Packed Tower Scrubber
SN-10	HNO <sub>3</sub>	approved method	Yearly	Necessary for efficiency check on Venturi & Packed Tower Scrubber
SN-01A & SN-01B	NO <sub>x</sub>	7E	Yearly	Necessary for efficiency check on operation of the sulfuric acid concentrators
SN-01A & SN-01B	HNO <sub>3</sub> H <sub>2</sub> SO <sub>4</sub>	approved method	Yearly if operated	Necessary for efficiency check on operation of the sulfuric acid concentrators
SN-07	SO <sub>2</sub>	6C	Yearly	Necessary for efficiency check on operation of the sulfuric acid plant
SN-07	H <sub>2</sub> SO <sub>4</sub>	8	Yearly	Necessary for efficiency check on operation of the sulfuric acid plant
SN-05, SN-06, SN-11, SN-14, SN-15, SN-17, & SN-21	PM <sub>10</sub>	5	Yearly	Necessary to prove that PSD has not been triggered
SN-05, SN-11, SN-15, & SN-22	NH <sub>3</sub>	approved method	Yearly	Necessary to prove adherence to the non-criteria pollutant strategy

14. MONITORING OR CEMS

The following are parameters that must be monitored with CEMs or other monitoring equipment (temperature, pressure differential, etc), frequency of recording and whether records are needed to be included in any annual, semiannual or other reports.

SN	Parameter or Pollutant to be Monitored	Method of Monitoring (CEM, Pressure Gauge, etc)	Frequency*	Report (Y/N)**
SN-13, SN- 22	NOx emission rate	CEM	Continuously	Y
SN-07***	SO <sub>2</sub> emission rate	CEM	Continuously	Y
SN-10	chemical condensate solution hydrogen peroxide concentration		Daily	N

\* Indicate frequency of recording required for the parameter (Continuously, hourly, daily, etc.)

\*\* Indicates whether the parameter needs to be included in reports.

\*\*\* Applicable if the plant is operated at a rate greater than 300 tpd

15. RECORD KEEPING REQUIREMENTS

The following are items (such as throughput, fuel usage, VOC content of coating, etc) that must be tracked and recorded, frequency of recording and whether records are needed to be included in any annual, semiannual or other reports.

SN	Recorded Item	Limit (as established in permit)	Frequency*	Report (Y/N)**
SN-08 SN-09	weak nitric acid production	292,320 tons/12 months	monthly	Y
SN-13	weak nitric acid production	140,000 tons/12 months	monthly	Y
SN-22 SN-10 facility	concentrated nitric acid production	SN-22 - 118,260 tons/12 months; SN-10 - 62,900	monthly	Y

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SN	Recorded Item	Limit (as established in permit)	Frequency *	Report (Y/N)**
		tons/12months; facility - 126,056 tons/12 months		
SN-22	start-up and shutdown emissions of NOx lb/hr and opacity over limits	see S.C. 30 & 31	daily	Y
SN-29	nitric acid shipped	200,000 tons/12 months	monthly	Y
SN-07	daily production	300 TPD w/o CEM 360 TPD w/ CEM	daily	Y
SN-30	sulfuric acid shipped	126,000 tons/12 months	monthly	Y
All E2 Plant	production	228,071 tons/12 months	monthly	Y
All KT Plant	production	252,000 tons/12 months	monthly	Y
SN-25	usage of gasoline	40,000 gallons/12 months	monthly	Y

\* Indicate frequency of recording required for the item (Continuously, hourly, daily, etc.)

\*\* Indicates whether the item needs to be included in reports

16. OPACITY

SN	Opacity %	Justification (NSPS limit, Dept. Guidance, etc)	Compliance Mechanism (daily observation, weekly, control equipment operation, etc)
SN-08 SN-09	10%	Compliance assurance for SCR operation	daily observation
SN-13	10%	NSPS limit	daily observation
SN-10	20%	Previous permit	daily observation
SN-01A			

SN	Opacity %	Justification (NSPS limit, Dept. Guidance, etc)	Compliance Mechanism (daily observation, weekly, control equipment operation, etc)
SN-01B	10%	Previous permit	daily observation
SN-22	10%*	Previous permit	daily observation
SN-07	15%	Previous permit	daily observation
SN-12 SN-18	5%	Department Guidance	daily observation
SN-21	10%	Previous permit	daily observation
SN-14 SN-17 SN-19	15%	Previous permit	daily observation
SN-05 SN-11 SN-15	20%	Previous permit	daily observation
SN-06 SN-27 SN-28	25%	Previous permit	daily observation

\* - except for startup and shutdown situations covered by S.C. 30 & 31

17. DELETED CONDITIONS:

The following Specific Conditions were included in the previous permit, but deleted for the current permitting action.

Former SC	Justification for removal
	None

18. VOIDED, SUPERSEDED OR SUBSUMED PERMITS

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List all active permits for this facility which are voided/superseded/subsumed by issuance of this permit.

Permit #
0573-AOP-R2

19. CONCURRENCE BY:

The following supervisor concurs with the permitting decision:

\_\_\_\_\_  
*Lyndon Poole, P.E.*