



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 7
901 NORTH 5TH STREET
KANSAS CITY, KANSAS 66101

AUG 27 2008

W. Clark Smith
Permitting Section Supervisor
Air Quality Division
Nebraska Department of Environmental Quality
P.O. Box 98922
Lincoln, NE 68509-8922

RE: ADM Fremont PSD Construction Permit comments

Dear Mr. ~~Smith~~ ^{Clark}:

On July 23, 2008, the Environmental Protection Agency (EPA) Region 7 received notification of the Nebraska Department of Environmental Quality's (NDEQ) intent to approve the Prevention of Significant Deterioration (PSD) construction permit for Archer Daniels Midland - Fremont (ADM) to expand its existing soybean processing plant. The plant is located at 130 North Broad Street, Fremont, Dodge County, Nebraska. We have completed our review of the draft PSD construction permit and have the following comments.

Comment 1.

This project allows for modifications including lengthening the extractor, replacing two of the three components with new parts in the distillation system, replacing two smaller condensers with a new primary condenser, and replacing one of the existing cooling towers with a larger cooling tower. In general, we believe that these modifications should allow ADM to achieve a solvent loss ratio (SLR) below the proposed 0.165 gal/ton in the draft permit or the 0.175 gal/ton limit requested by ADM. We were unable to determine from the permitting record if NDEQ or ADM explored a range of limits related to the new modifications.

While historical data may be useful in assessing the likelihood that a plant can meet a BACT limit, it should not be the only information the state relies on in setting BACT, especially when the process is changing substantially. Instead, we suggest that NDEQ assess the affect of the new equipment over a range of potential BACT emissions limits. We suggest looking at what other similar plants have achieved following similar modifications. Two suggested plants for comparison are the ADM Mankato and proposed Mexico, Missouri projects since they appear to be similar to the project being undertaken at Fremont. We have enclosed data for the Mankato and Mexico plants with this letter.

Upon our review of the data available, we believe the ADM Fremont plant should have an SLR limit of 0.15 gal/ton, comparative to the ADM Mankato plant. Additionally, review of the January 2003 through December 2007 SLR (hexane loss) for the ADM Mankato plant shows it achieved an overall average of 0.116 gal/ton hexane loss. Similar data for the ADM Mexico plant with an average temperature of 66°F (11°F above Mankato's 55°F average), achieved an over all average of 0.120 gal/ton for the same time period. The 12-month rolling average at the Mankato plant never exceeded the 0.145 gal/ton during the period.

Comment 2.

Page 18, Fact Sheet, third paragraph. There appears to be a typographical error that states: "The source is now required to comply with the **0.175** gallons/ton solvent loss ratio . . ."

Comment 3.

See modeling comment memo from Mr. Richard Daye.

As always, we appreciate the opportunity to provide what we hope you will find to be constructive comments. Please contact Patricia Scott at (913) 551-7312 if you have any questions or comments regarding this letter.

Sincerely,



Mark A. Smith, Chief
Air Permitting and Compliance Branch
Air and Waste Management Division

Enclosure: ADM Mankato and ADM Mexico Solvent Loss Ratio data
Memo regarding modeling comments from Mr. Richard Daye

ADM Mankato

	Crush (bushels)	Hexane Loss (gallons)	Hexane Loss (gpt)	12 mo rolling (gpt)	Ave Temp F
January-2003	3,888,956	11,088	0.095		24
February-2003	3,286,177	7,862	0.080		25
March-2003	3,878,598	8,749	0.075		39
April-2003	2,704,895	9,752	0.120		57
May-2003	3,693,099	7,910	0.071		66
June-2003	3,063,453	8,940	0.097		76
July-2003	3,689,535	4,816	0.044		80
August-2003	3,805,663	8,900	0.078		81
September-2003	3,512,933	7,179	0.068		71
October-2003	3,977,787	11,366	0.095		61
November-2003	3,797,620	7,982	0.070		39
December-2003	3,499,344	9,763	0.093	0.082	30
January-2004	3,775,631	11,069	0.098	0.082	19
February-2004	3,259,184	8,368	0.086	0.083	26
March-2004	3,577,046	12,517	0.117	0.086	44
April-2004	2,982,239	10,323	0.115	0.086	61
May-2004	2,687,164	6,397	0.079	0.087	66
June-2004	2,966,025	8,069	0.091	0.086	73
July-2004	3,103,139	10,401	0.112	0.092	77
August-2004	3,103,515	10,647	0.114	0.095	73
September-2004	3,279,774	10,363	0.105	0.098	75
October-2004	3,836,282	12,130	0.105	0.099	57
November-2004	3,638,842	12,221	0.112	0.102	45
December-2004	3,897,465	11,992	0.103	0.103	31
January-2005	3,617,000	10,656	0.098	0.103	22
February-2005	3,298,106	10,913	0.110	0.105	33
March-2005	3,784,700	12,196	0.107	0.104	39
April-2005	3,833,300	12,610	0.110	0.104	60
May-2005	3,885,039	13,119	0.113	0.107	63
June-2005	3,191,116	11,019	0.115	0.109	81
July-2005	3,855,771	11,254	0.097	0.108	83
August-2005	3,931,045	14,726	0.125	0.108	78
September-2005	3,776,610	14,937	0.132	0.111	72
October-2005	3,648,633	11,941	0.109	0.111	61
November-2005	3,756,951	16,132	0.143	0.114	44
December-2005	3,091,407	11,237	0.121	0.115	22
January-2006	3,860,248	13,666	0.118	0.117	33
February-2006	3,375,519	14,744	0.146	0.120	27
March-2006	3,853,724	13,921	0.120	0.121	38
April-2006	2,711,937	17,046	0.210	0.129	61
May-2006	4,039,130	17,037	0.141	0.131	69
June-2006	3,976,975	17,681	0.148	0.134	78
July-2006	4,229,397	16,407	0.129	0.137	84
August-2006	4,183,452	15,484	0.123	0.137	78
September-2006	3,531,874	11,790	0.111	0.135	67
October-2006	4,164,857	15,137	0.121	0.136	55
November-2006	3,851,693	17,278	0.150	0.137	44

December-2006	4,561,595	17,557	0.128	0.137	35
January-2007	4,534,602	15,952	0.117	0.137	24
February-2007	3,963,173	13,837	0.116	0.135	17
March-2007	4,491,445	18,413	0.137	0.136	43
April-2007	3,721,761	21,255	0.190	0.134	54
May-2007	4,657,887	22,151	0.159	0.136	74
June-2007	4,260,744	19,337	0.151	0.136	80
July-2007	4,600,685	20,082	0.146	0.137	83
August-2007	4,526,559	17,472	0.129	0.138	77
September-2007	3,718,238	16,999	0.152	0.141	74
October-2007	4,777,680	16,158	0.113	0.141	61
November-2007	4,635,315	19,111	0.137	0.140	41
December-2007	4,197,772	18,435	0.146	0.141	21
			0.116	0.116	55
					Ave Temp F

Note: Monthly temperature information -

<http://www.wunderground.com/history/airport/KMKT/2007/12/3/MonthlyHistory.html>

Mexico

	Crush (bushels)	Hexane Loss (gallons)	Hexane Loss (gpt)	12 mo rolling (gpt)	Ave Temp F
January-2003	1,423,274	4,679	0.110		35
February-2003	1,216,675	3,529	0.097		39
March-2003	1,347,174	3,411	0.084		56
April-2003	1,351,807	3,609	0.089		67
May-2003	1,291,712	3,437	0.089		73
June-2003	1,204,334	4,066	0.113		79
July-2003	1,231,240	3,983	0.108		89
August-2003	1,316,154	5,206	0.132		91
September-2003	925,985	3,515	0.127		76
October-2003	1,562,549	6,362	0.136		68
November-2003	1,478,186	5,445	0.123		56
December-2003	1,302,215	4,476	0.115	0.110	44
January-2004	1,484,561	5,760	0.129	0.112	38
February-2004	1,309,178	4,598	0.117	0.113	42
March-2004	1,367,426	3,399	0.083	0.113	57
April-2004	1,337,826	2,840	0.071	0.112	67
May-2004	443,346	1,500	0.113	0.114	76
June-2004	1,268,811	5,522	0.145	0.116	80
July-2004	1,239,331	3,947	0.106	0.116	83
August-2004	1,370,563	4,367	0.106	0.114	80
September-2004	1,450,701	6,304	0.145	0.116	80
October-2004	1,487,544	6,735	0.151	0.117	67
November-2004	1,471,069	6,382	0.145	0.119	54
December-2004	1,482,915	5,661	0.127	0.120	45
January-2005	1,481,801	6,789	0.153	0.122	39
February-2005	1,307,214	8,354	0.213	0.130	48
March-2005	1,467,522	7,969	0.181	0.138	55
April-2005	1,433,589	7,820	0.182	0.147	68
May-2005	1,492,334	5,606	0.125	0.148	76
June-2005	1,412,451	7,323	0.173	0.151	87
July-2005	450,457	1,934	0.143	0.154	92
August-2005	1,280,102	6,266	0.163	0.158	88
September-2005	1,370,053	4,606	0.112	0.156	82
October-2005	1,567,169	5,444	0.116	0.153	67
November-2005	1,509,392	4,039	0.089	0.148	57
December-2005	1,578,737	4,863	0.103	0.146	38
January-2006	1551099	5070	0.109	0.142	50
February-2006	1359140	3552	0.087	0.132	45
March-2006	1545449	5258	0.113	0.126	57
April-2006	1310272	3632	0.092	0.119	73
May-2006	1572763	4055	0.086	0.116	75
June-2006	1438307	3307	0.077	0.108	84
July-2006	1537577	4879	0.106	0.104	92
August-2006	1523199	4981	0.109	0.100	91
September-2006	1249446	2362	0.063	0.096	77
October-2006	1547104	4898	0.106	0.095	64
November-2006	1465183	3879	0.088	0.095	57

December-2006	1410595	3861	0.091	0.094	47
January-2007	1467161	5176	0.118	0.095	39
February-2007	1332158	4470	0.112	0.097	38
March-2007	1200366	3554	0.099	0.095	63
April-2007	1459580	4760	0.109	0.097	63
May-2007	1517532	3809	0.084	0.097	79
June-2007	1464718	5746	0.131	0.101	83
July-2007	1483978	8390	0.188	0.108	87
August-2007	1372254	7165	0.174	0.113	95
September-2007	1105043	4678	0.141	0.120	85
October-2007	1496637	5401	0.120	0.121	72
November-2007	1411826	4403	0.104	0.123	56
December-2007	1501773	5372	0.119	0.125	41
			0.119	0.120	66
					Ave Temp F

Note: Monthly temperature information -
 For Mexico Mo. Ave temperature information is from Columbia Missouri



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VII
901 NORTH 5th STREET
KANSAS CITY, KANSAS 66101

August 26, 2008

MEMORANDUM

SUBJECT: ADM Fremont, Nebraska – PSD Review

FROM: Richard L. Daye
Regional Meteorologist
AWMD/APDB

TO: Patricia A Scott
Environmental Protection Specialist
AWMD/APCO

My review of the modeling for the ADM Fremont PSD application indicates that the modeling is not complete. The purpose of an air quality modeling analysis is to determine whether any air quality NAAQS and/or increment standards will be violated. Emissions from a source(s) are one of the most important parameters in the analysis. All emissions must be considered. A screening technique, 10D, was used to eliminate sources but the technique was not adequately described. The Modeling Assessment section in the EXCEL adm_incr_inventory file indicates that 10D is 10 times the distance that another source is from the source being permitted. Such a screening technique has not been approved by Region VII. All increment sources must be modeled. Section 7.2.1.1(a) of 40 CFR Part 51, Appendix W, (Guideline on Air Quality Models), states:

“7.2.1.1 Design Concentrations for SO₂, PM-10, CO, Pb, and NO₂

a. An air quality analysis for SO₂, PM-10, CO, Pb, and NO₂ is required to determine if the source will (1) cause a violation of the NAAQS or (2) cause or contribute to air quality deterioration greater than the specified allowable PSD increment. For the former, background concentration (subsection 8.2) should be added to the estimated impact of the source to determine the design concentration. For the latter, the design concentration includes impact from all increment consuming sources.”

An increment modeling file (SO2 Increment Modeling.zip) included Cargill and Ash Grove sources but these were not included in the NAAQS analyses (ADM04.ADO). Any source that consumes increment should also be modeled for NAAQS.

No modeling was done for source E-18, package boiler burning natural gas. Evidently this source operates when source E-18a does not. Emissions from E-18 should be less than those

from E-18a but no source characteristics were given other than it is located at a different location and is shorter. It should have been modeled.

The BPIP analysis indicated that the building with the silos is separate from the building where the package boiler stack (E-18a) is attached. Photographs suggest that the buildings are joined. There is difference in the BPIP analysis. The building configuration should be verified.

SUMMARY: The submitted predicted concentrations are below SO₂ NAAQS and PSD increments. My very limited modeling, that included a different BPIP analysis and a different AERMET analysis, indicates that the ADM facility will not significantly cause or contribute to a SO₂ NAAQS or PSD increment exceedances. It's impact near the Cargill and Ash Grove facilities is less than significance. The concentrations near the Cargill and Ash Grove are unknown because these sources were not included in the NAAQS analysis.

(via email)