

STATE OF NEBRASKA

DEPARTMENT OF ENVIRONMENTAL QUALITY

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ADMINISTRATIVE AMENDMENT TO A PREVENTION OF SIGNIFICANT DETERIORATION (PSD) CONSTRUCTION PERMIT

Mike Johanns
Governor

ORIGINAL PERMIT TO CONSTRUCT AN AIR CONTAMINANT SOURCE

ISSUED ON JANUARY 21, 2004 TO:

Abengoa Bioenergy Corporation
1414 Road O
York, NE 68467-8236

FOR THE SPECIFIC CONSTRUCTION OF:

An Ethanol Manufacturing Facility

LOCATED AT:

1414 Road O
York, York County, Nebraska

IS HEREBY AMENDED AS FOLLOWS:

Modification of Condition XIII.(O)(2) and (O)(3)
to change installation and operational dates to November 30, 2004

No terms or conditions of the original construction permit issued on January 21, 2004, are being revised or otherwise modified by this document. The modification of Conditions XIII.(O)(2) and (O)(3) addressed herein does not trigger any additional requirements under Nebraska Title 129.

All other provisions of the original issued permit are still in effect, and in concert with this amendment, constitute the effective construction permit. This amended construction permit form shall be attached to the original construction permit and maintained with it henceforth.

Condition XIII.(O) now reads:

- (O) The control equipment shall be installed and operational by the following dates: (Title 129, Chapter 19)
- (1) June 11, 2004: Vent Scrubber F4 and CO₂ Scrubber F1 high efficiency packing;
 - (2) November 30, 2004: Flare and associated vapor recovery system upgrades for the storage tanks and the loading rack;

- (3) November 30, 2004: NO_x burners on the DDGS Dryers #1, #2, and #3, and Boilers B1 and B2; and
- (4) August 30, 2005: Thermal oxidizer #1.

Pursuant to a Delegation Memorandum dated May 3, 2000, and signed by the Director, the undersigned hereby executes this document on behalf of the Director.

09/08/2004

Date

Shelley Kaderly, Air Administrator
Air Quality Division

FACT SHEET

Abengoa Bioenergy Corporation
1414 Road O
York, York County, Nebraska

September 8, 2004

DESCRIPTION OF THE FACILITY OR ACTIVITY:

This facility is an anhydrous ethanol production plant. This Administrative Amendment modifies the Prevention of Significant Deterioration (PSD) Construction Permit (CP) issued January 21, 2004. The PSD CP superseded the CP issued to High Plains Corporation on July 11, 2001. High Plains Corporation changed its name to Abengoa Bioenergy Corporation on April 15, 2003.

This facility was issued an initial construction permit on October 28, 1993, which relocated the facility from Louisiana. A modification to the construction permit was issued on October 10, 1997, which changed conditions to reflect "as-built" conditions at the facility and to add industrial grade ethanol production (and upgrade/additions to related equipment and activities). A second modification of the construction permit was issued July 11, 2001, to increase production of anhydrous ethanol production from 42,280,000 gallons/year to 50,000,000 gallons/year, and to add/replace in accordance with the expansion.

The PSD CP addressed PSD regulations and the proposed increase in the production of anhydrous ethanol from 50 million gallons per year to 100 million gallons per year. The PSD-Best Available Control Technology (BACT) changes were due to a Notice of Violation (NOV) issued on December 4, 2002, which was issued due to stack test results from a September 2002 stack testing of the DDGS dryers (#2 & #3), CO2 scrubber and Vent Scrubber. The modification also included a small research and development (R&D) ethanol pilot plant (initially funded in part by a Department of Energy –DOE-grant), which will be used to develop techniques and procedures to increase the ethanol yield (gallons of ethanol/bushel of grain). The application for the R&D pilot plant project was received November 28, 2002, but due to the NOV issue the R&D pilot plant project application could not be processed until the existing plant came into compliance. The PSD permit incorporates the NOV compliance issues, the R&D pilot plant (about 1 million gallon increase in anhydrous ethanol) and an additional planned expansion of the plant.

The PSD modification (CP issued January 21, 2004) included the following:

- Increased anhydrous ethanol production from 50 million gallons/year to 100 million gallons/year;
- Increased denatured ethanol production from 52.5 million gallons/year to 105 million gallons/year;
- Increased grain (corn/milo) receiving from 560,000 tons/yr to 1,200,000 tons/yr;
- Increased dried distillers grain with solubles (DDGS) from 115,000 tons/yr to 400,000 tons/yr;

Removed from permit:

- Throughput limitations for grain receiving, natural gas combusted in boilers and DDGS dryers, methane combusted in DDGS Dryer #2/Methanator, and storage tanks chemicals (ethanol, denaturant);
- Production limitations for anhydrous ethanol, DDGS, and WDGS (Wetcake);
- Storage tanks (previously permitted but not installed), including the following fixed-roof, vertical aboveground tanks:

Tank T-810: 200,000 gallons for storage of intermediate ethanol;

Tank T-832: 39,500 gallons capacity, for specially denatured alcohol;
Tank T-833: 39,500 gallons capacity, for specially denatured alcohol;
Tank T-834: 39,500 gallons capacity, for specially denatured alcohol;
Tank T-835: 39,500 gallons capacity, for specially denatured alcohol;
Tank T-836: 39,500 gallons capacity, for specially denatured alcohol;
Tank T-837: 39,500 gallons capacity, for specially denatured alcohol;
Tank T-840: 10,000 gallons capacity, for toluene;
Tank T-841: 10,000 gallons capacity, for methanol;
Tank T-842: 10,000 gallons capacity, for ethyl acetate; and
Tank T-1503: 200,000 gallons capacity, for beverage grade ethanol.

- Tank T-838: 4,240 gallons capacity horizontal aboveground storage tank for low proof ethanol because it was not installed;
- Tank T-1502: 200,000 gallons capacity, for beverage grade ethanol, removed from service, but will remain on site. (It was constructed, but does not have emissions controls required under NSPS, Subpart Kb.) The permit now requires that this tank is permanently disconnected from the process line.

Addition of 2 grain receiving and storage systems (1 for corn and 1 for alternative grain- milo): including 2 “choke flow” receiving systems, 3 storage bins (2 for corn & 1 for milo), elevators, 3 hammermills, and 2 baghouses;
Addition of R&D pilot plant, including: 1 grain receiving pit using a “choke flow” system, 1 storage bin, 1 baghouse, fermentation and distillation equipment;
Addition of 6 fermentation tanks and two associated scrubbers (Vent Scrubber F7 and CO₂ scrubber F8);
Addition of a new slurry tank and new liquefaction tank;

Addition of 3 distillation columns;
Addition of new distillation scrubber (F3);
Upgrade existing scrubbers by installing high efficient packing material in each scrubber (F4 & F1);
Updated emission factors for fermentation/distillation scrubbers, and DDGS dryers based on September 2002 and January 2003 stack tests;
Upgraded existing DDGS Dryer #1 from 28.2 MMBtu/hr to 45 MMBtu/hr burner design rate;
Upgraded existing DDGS Dryers #2 and 3 each from 21.3 MMBtu/hr to 45 MMBtu/hr burner design rate;
Boilers B1 & B2 and DDGS Dryers #1, #2 and 3 will each have low NO_x burners installed;
Addition of 2 new DDGS Dryers (#4 & #5);
Addition of 2 thermal oxidizers (#1 and #2) to control DDGS Dryers emissions;
Addition of vapor recovery system with flare to 11 fixed-roof storage tanks;
Addition of components (light liquid valves and pumps, and gas valves) for the new equipment;
Addition of 3rd cooling tower;

Decreased NO_x limitation on boilers and DDGS dryers from 0.1 lbs/MMBtu to 0.04 lbs/MMBtu;
Removal of second-stage distillation system and associated scrubber (shut down as of January 2002);
Changed Tank T-801 from storing intermediate product (ethanol) to denatured ethanol storage;
Increased the TDS concentration limits of cooling tower water from 2200 ppm to 3600 ppm for any single sampling event, and from 1200 ppm to 2400 ppm average for any period of twelve consecutive calendar months;
Increased methanator flare design rate from 3.2 MMBtu/hr to 4.8 MMBtu/hr;
Increased emergency equipment hourly operating limitation from 52 hrs/yr to 500 hrs/yr per unit;

Addition of limitations (stack height, haul roads) to demonstrate NAAQS (Title 129, Chapter 4) compliance;
 Applied NSPS (Title 129, Chapter 18) requirements to applicable equipment;
 Applied PSD-BACT (Title 129, Chapter 19) requirements to the entire facility;
 Applied BACT (Title 129, Chapters 27) to HAP sources.

TYPE AND QUANTITY OF AIR CONTAMINANT EMISSIONS ANTICIPATED:

An administrative amendment was submitted August 19, 2004. This administrative amendment addresses the change in the compliance dates for the installation and operation of new control equipment for the existing storage tanks, loading racks, DDGS Dryers #1, #2, #3 and Boilers B1 and B2. The facility has requested that a later compliance dates for the installation and operation of the specified control equipment due to unforeseen delays in the projects. The changes in compliance dates are as follows:

For the flare and associated vapor recovery system upgrades for the storage tanks and the loading rack, the date is changing from July 20, 2004 to November 30, 2004.

For the NO_x burners on the DDGS Dryers #1, #2, and #3, and Boilers B1 and B2, the date is changing from August 24, 2004 to November 30, 2004.

The emissions and regulatory requirements for this facility will not change due to this modification. The fact sheet associated with the PSD CP issued July 21, 2004 has the specific emission calculations and regulatory requirement discussions.

Regulated Pollutant	2004 PTE Controlled Emissions (tons/year)
Particulate Matter (PM)	95.43
Particulate Matter smaller than or equal to 10 microns (PM ₁₀)	77.03
Sulfur Dioxide (SO ₂)	2.68
Oxides of Nitrogen (NO _x)	174.90
Carbon Monoxide (CO)	189.06
Volatile Organic Compounds (VOC)	233.85
Hazardous Air Pollutants (HAP):	
Acetaldehyde (75070)	4.34
Formaldehyde (50000)	1.75
Hexane (110543)	7.32
Methanol (67561)	0.90
Miscellaneous HAPs*	1.088
Total HAPs	15.48

*Miscellaneous HAPs are HAPs that are emitted at a rate less than 0.50 tons per year individually, including acrolein, benzene, 1,3 butadiene, carbon disulfide, cumene, dichlorobenzene, ethyl benzene, methyl tert-butyl ether (MTBE), naphthalene, polycyclic organic matter, toluene, xylenes, arsenic compounds, beryllium compounds, cadmium compounds, chromium compounds, cobalt compounds, lead compounds, manganese compounds, mercury compounds, nickel compounds, and selenium compounds,

APPLICABLE REQUIREMENTS AND VARIANCES OR ALTERNATIVES TO REQUIRED STANDARDS:

The discussions of the applicable requirements to this facility's PSD CP are listed in the fact sheet associated with the PSD CP issued on January 21, 2004.

Administrative Amendment Change Determination

Modification of the construction permit without public review has to meet the following conditions from Title 129, Chapter 17, Section 014.

014.01A: No emission limit in the original construction permit is exceeded.

No emission limit will be modified per this administrative amendment.

014.01B: No applicable requirement included in an operating permit to which the source is subject is violated.

The operating permit has not been issued but no applicable requirement that will be in the operating permit has been violated.

014.01C: No emissions limit, equipment or operational standard applicable to the source will be exceeded.

No emission limit, equipment or operational standard was modified per this administrative amendment.

014.01D: No emissions limit, equipment or operation standard assumed to avoid a classification that would render the source subject to an otherwise applicable requirement will be exceeded.

No emission limit, equipment or operational standard assumed to avoid a classification was modified per this administrative amendment.

014.01E: The nature of the constructed facility will be consistent with that described in the original public notice materials.

The public notice did not specify when the control equipment was to be installed, only that the control will be installed on the specified equipment.

Permit conditions specific to the proposed permit are discussed as follows:

- (O) The compliance dates from Conditions XIII.(O)(2) and (O)(3) are changed to November 30, 2004. The original dates in the PSD CP were proposed by the facility. Due to unforeseen delays in these projects, the facility requested an extension on the compliance dates. The facility expects the projects to be done by October 15, 2004, for the flare and vapor recovery system and by October 22, 2004, for the installation of the NO_x burners. The facility requested the extended compliance date to be November 30, 2004, to allow the facility some flexibility if there are any additional unforeseen delays on the projects. The NDEQ is granting the facility an extension of the time frame to ensure the control equipment is installed properly.

Condition XIII.(O)(1): the facility had a requested an extension of the compliance date from June 11, 2004 to June 30, 2004. The NDEQ granted the extension to June 30, 2004. The facility was able to complete installation of the high efficiency packing of the scrubbers by 7:00 p.m. on June 11, 2004.

Condition XIII.(O)(4): the compliance date for the installation of thermal oxidizer #1 is unchanged.

STATUTORY OR REGULATORY PROVISIONS ON WHICH PERMIT REQUIREMENTS ARE BASED:

Applicable regulations: Title 129 - Nebraska Air Quality Regulations as amended February 7, 2004.