



DEPARTMENT OF NATURAL RESOURCES

MISSOURI AIR CONSERVATION COMMISSION

PERMIT TO CONSTRUCT

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number: 032009-004 Project Number: 2008-11-013

Parent Company: Albaugh, Inc.

Parent Company Address: 1525 NE 36th Street, Ankeny, IA 50021

Installation Name: Albaugh, Inc.

Installation Address: 4900 Packers Avenue, St. Joseph, MO 64504

Location Information: Buchanan County, S30, T57N, R35W

Application for Authority to Construct was made for:
Installation of four (4) aboveground storage/mixing tanks, each with a capacity of approximately 11,930 gallons. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

-
- Standard Conditions (on reverse) are applicable to this permit.
- Standard Conditions (on reverse) and Special Conditions are applicable to this permit.

MAR 10 2009

EFFECTIVE DATE


DIRECTOR OR DESIGNEE
DEPARTMENT OF NATURAL RESOURCES

STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within 2 years from the effective date of this permit. Permittee should notify the Air Pollution Control Program if construction or modification is not started within 2 years after the effective date of this permit, or if construction or modification is suspended for one year or more.

You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review. In the event that there is a discrepancy between the permit application and this permit, the conditions of this permit shall take precedence. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the departments' Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). The information must be made available not more than 60 days but at least 30 days in advance of this date. Also, you must notify the Department of Natural Resources Regional office responsible for the area within which you are located within 15 days after the actual start up of this (these) air contaminant source(s).

A copy of this permit and permit review shall be kept at the installation address and shall be made available to Department of Natural Resources' personnel upon request.

You may appeal this permit or any of the listed special conditions to the Administrative Hearing Commission (AHC), P.O. Box 1557, Jefferson City, MO 65102, as provided in RSMo 643.075.6 and 621.250.3. If you choose to appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed. If it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC.

If you choose not to appeal, this certificate, the project review and your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant source(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit at (573) 751-4817. If you prefer to write, please address your correspondence to the Missouri Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention: Construction Permit Unit.

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SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

The special conditions listed in this permit were included based on the authority granted the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (12)(A)10. "Conditions required by permitting authority."

Albaugh, Inc.
Buchanan County, Section 30, T57N, R35W

1. Volatile Organic Compound (VOC) Emission Limitation
 - A. Albaugh, Inc. shall emit less than 40.0 tons of Volatile Organic Compounds (VOCs) from emission points 226, 227, 228 and 229 (Tanks T-2306, T-2307, T-2556 and T-2557) in any consecutive 12-month period.
 - B. Attachment A or equivalent forms approved by the Air Pollution Control Program shall be used to demonstrate compliance with Special Condition 1(A). Albaugh, Inc. shall maintain all records required by this permit for not less than five (5) years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request. These records shall include Material Safety Data Sheets (MSDS) for all materials stored or mixed in the tanks.
 - C. Albaugh, Inc. shall report to the Air Pollution Control Program's Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten (10) days after the end of the month during which the records from Special Condition Number 1(B) indicate that the source exceeds the limitation of Special Condition Number 1(A).

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (5) REVIEW

Project Number: 2008-11-013
Installation ID Number: 021-0037
Permit Number:

Albaugh, Inc.
4900 Packers Avenue
St. Joseph, MO 64504

Complete: November 10, 2008

Parent Company:
Albaugh, Inc.
1525 NE 36th Street
Ankeny, IA 50021

Buchanan County, S30, T57N, R35W

REVIEW SUMMARY

- Albaugh, Inc. (Albaugh) has applied for authority to install four (4) aboveground storage/mixing tanks, each with a capacity of approximately 11,930 gallons.
- Hazardous Air Pollutant (HAP) emissions are expected from the proposed equipment. HAPs emitted from this process are 1,4 dioxane, ethylene oxide, acetaldehyde, 2, 4-D (2,4-Dichlorophenoxyacetic acid) and 2,4-D isopropylamine salt. The tanks will also be used to store and mix glyphosate (N-(phosphonomethyl) glycine, aka Roundup) and dicamba (3,6-dichloro-2-methoxybenzoic acid), these chemicals are not classified as HAPs.
- None of the New Source Performance Standards (NSPS) apply to the equipment or operations described in the permit application.
- The volume of each of the tanks is below the 75 cubic meter (19,813 gallon) applicability threshold of 40 CFR Part 60, Subpart Kb, *Standards of Performance for Volatile Organic Liquid Storage Vessels*.
- Albaugh indicates that the St. Joseph plant does not produce (as a final product or intermediate) any of the chemicals listed at 40 CFR 60.489, therefore the installation is not subject to the new source performance standard for equipment leaks of volatile organic compounds (VOC) in the synthetic organic chemical manufacturing industry.
- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) or currently promulgated Maximum Achievable Control Technology (MACT) regulations apply to the proposed equipment. HAP emissions are limited to below the threshold for MACT applicability through the intermediate operating permit.

- A baghouse and wet scrubber are used to control emissions and recover product.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of criteria pollutants are below de minimis levels.
- This installation is located in Buchanan County, an attainment area for all criteria air pollutants.
- Screen level dispersion modeling was conducted to evaluate the risk associated with 2, 4-D emissions. The emission rate input in to the screen model was the un-controlled emission rate and the modeled ambient concentration was well below the applicable risk assessment level. See the ambient air quality impact analysis section of this permit review summary for further detail.
- This installation is on the List of Named Installations [10 CSR 10-6.020(3)(B), Table 2]. See item 20. *Chemical Process Plants*.
- An amendment to the intermediate operating permit application is required for this installation within 90 days of equipment startup.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

Albaugh manufactures, formulates and repackages a variety of herbicides and pesticides at the St. Joseph, Missouri plant. The products are sold under the Agri-Star trade name. Equipment utilized at the installation includes storage and mixing tanks, reaction vessels and other material handling and chemical processing equipment. Most of the operations occur indoors. A December 2, 2008 inspection report indicates that the installation is currently engaged primarily in glyphosate production (approximately 80 percent of total output).

An Intermediate Operating Permit renewal application has been received by the Air Pollution Control Program (June 2007) and is currently under technical review. To qualify for intermediate operating permit status the installation as a whole is limited to less than 100 tons per year of VOC emissions, less than 10 tons per year for any individual HAP and less than 25 tons per year for total HAPs. Albaugh is prohibited from exceeding these emission limits without first applying for and obtaining a Part 70 operating permit and another construction permit. The following construction permits have been issued to Albaugh from the Air Pollution Control Program.

Table 1: Construction Permits Issued to Albaugh

Permit Number	Description
0486-005	Esterification of 2,4-D
0794-021	Addition of a 3,000 gallon Pfaundler reactor
0495-001	Addition of two (2) 3,500 gallon premix tanks
0895-001	Addition of eight (8) 20,000 gallon tanks
1095-008	Installation of a 15,000 gallon premix tank and 5,000 gallon reactor
1295-011	Installation of a 381,000 gallon tank
1296-001	Installation of a 170,000 gallon carbon steel tank
0797-010	Addition of eleven storage tanks
1197-004	Addition of four (4) 36,000 gallon tanks and removal of three (3) existing tanks
0198-003	Replacement of a 3,500 gallon Pfaundler reactor with 5,000 gallon Pfaundler reactor and add two (2) 3,500 gallon cooling tanks
0498-020	Addition of a new trifluralin storage tank
1099-005	Addition of 20 tanks
112000-015	Addition of 17 blending tanks for glyphosate and dicamba 2,4-D production
012005-007	Installation of a new glyphosate process

PROJECT DESCRIPTION

Albaugh has applied for authority to install four (4) aboveground storage/mixing tanks, each with a capacity of approximately 11,930 gallons (13' diameter X 12' high). The tanks are vertical, fixed roof tanks constructed of 304 stainless steel. Tanks T-2556 and T-2557 are located in existing building 25 and will be used in to produce an isopropylamine salt of glyphosate. Tank T-2306 is located in building 23 and will be used to produce Landstar (a combination of glyphosate and 2,4-D isopropylamine salts). Tank T-2307 is located in building 23 and will be used to produce Fallowstar (a combination of glyphosate and dicamba isopropylamine salts). A baghouse and wet scrubber will be used to control emissions and recover product.

The process for transferring solids (glyphosate, 2,4-D and diacamba) to the mix tanks is to hold the bags (super sacks) over the top of the tank with a lift and cut the bottom of the bag. The solids fall through a hopper attached to the top manway. The fabric filter is connected to the top of the tank, creating a slight negative pressure, and sucks dust into the tank where it is either consumed in the process or collected on the filter.

The fabric filters are Farr Dust Collectors, model GS-8. The applicant indicates that the blowers are rated at 10,000 CFM and will typically run at 8,000 CFM. The duct connecting the dust collector to the mix tank is 16".

The water scrubber is a 6' diameter x 20' high vertical column with 15' of packing. The vapor inlet and outlet are 16". The bottom 4' of the column is a reservoir holding the water which is circulated top to bottom. There is a 1' vapor space at the top of the column. The vapor space and the water reservoir are separated from the packing with a perforated metal plate.

EMISSIONS/CONTROLS EVALUATION

A mass balance approach was used to calculate the potential VOC emissions from the tanks, taking in to account the vapor pressure and composition of the materials. With regard to material transfer operations for solids (glyphosate, 2,4-D and diacamba), an un-controlled emission factor of 0.012 pounds PM₁₀ per ton of material dumped was used. This is based on emissions testing conducted in 1995 at the St. Joseph plant for 2, 4 – D acid dumping at an EP-06 tank. EP-06 tanks have a system for dust control that is similar to the system described above. The applicant offered an alternative emission factor of 0.005 pounds PM₁₀ per ton of material dumped, based on a drop point equation for aggregate handling, but the Air Pollution Control Program (APCP) elected to use the more conservative 0.012 pounds PM₁₀ per ton emission factor. The drop point equation referenced above was developed for outdoor dumping (to storage piles) of mineral aggregate (sand, gravel, limestone). The two input variables are wind speed and moisture content. In this case we are not dealing with mineral aggregate, the transfer operations are indoors so wind speed is negligible and the moisture content is not monitored.

While it is anticipated that the baghouse and wet scrubber will control particulates with a combined efficiency of approximately 95 percent, this control efficiency was not utilized in the potential emissions calculations summarized below.

Anticipated maximum production levels indicated in the application were stated as follows:

- Tank T-2306 – 300 1,000 gallon batches of Landstar per year
- Tank T-2307 – 300 1,000 gallon batches of Fallowstar per year
- Tank T-2556 – 8,000 1,000 gallon batches of Glyphosate 62 per year
- Tank T-2557 – 8,000 1,000 gallon batches of Glyphosate 62 per year

However, no process limitations or bottlenecks were indicated that would limit production to these levels. In order to maintain this permit review as a Section (5) review the applicant accepted a less than 40 ton per year emission limitation for VOC. Based on the emission factors in the application, annual production can exceed the levels above by approximately 60 percent.

The following table provides an emissions summary for this project.

Table 1: Emissions Summary (tons per year)

Pollutant	Regulatory De Minimis Levels	Existing Potential Emissions	Existing Actual Emissions (2007 EIQ)	Potential Emissions of the Application	New Installation Conditioned Potential
PM ₁₀	15.0	N/D	0.0002	0.01	N/A
SO ₂	40.0	N/D	0.0	0.0	N/A
NO _x	40.0	N/D	0.0	0.0	N/A
VOC	40.0	< 100	32.4	< 40.0	N/A
CO	100.0	N/D	0.0	0.0	N/A
HAPs	10.0/25.0	<10/<25	0.0008	3.1E-03	N/A
1,4 Dioxane	6 (SMAL)	N/D	N/D	1.3E-03	N/A
Ethylene Oxide	0.1 (SMAL)	N/D	N/D	2.5E-04	N/A
Acetaldehyde	9 (SMAL)	N/D	N/D	1.6E-04	N/A
2,4 D and 2,4 D Salt	10	N/D	N/D	1.4E-03	N/A

N/A = Not Applicable; N/D = Not Determined; SMAL –screening model action level

PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of all criteria pollutants are below de minimis levels.

APPLICABLE REQUIREMENTS

Albaugh, Inc. shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved. For a complete list of applicable requirements for your installation, please consult your operating permit.

GENERAL REQUIREMENTS

- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110
- *Operating Permits*, 10 CSR 10-6.065
- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170
- *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.220
- *Restriction of Emission of Odors*, 10 CSR 10-3.090

SPECIFIC REQUIREMENTS

- *Restriction of Emission of Particulate Matter From Industrial Processes*, 10 CSR 10-6.400

AMBIENT AIR QUALITY IMPACT ANALYSIS

Screen level dispersion modeling was performed to determine the ambient impact of 2,4-D emissions from this process. The emission rate input in to the screen model was 3.2E-04 pounds per hour (4.0E-05 grams per second). This is an un-controlled emission rate (i.e, the control efficiency of the baghouse and wet scrubber were not applied).

Table 2: Risk Assessment Modeling Results: 2,4-D

Pollutant	Modeled Impact	Risk Assessment Level	Averaging Period
2,4-D	0.031 micrograms/m ³	1.78 micrograms/m ³	24 hours

STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, I recommend this permit be granted without special conditions.

Steve Jaques, P.E.
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated November 5, 2008, received November 10, 2008, designating Albaugh, Inc. as the owner and operator of the installation.
- Kansas City Regional Office Site Survey, dated December 2, 2008.

Mr. Ron Collins
Plant Manager
Albaugh, Inc.
4900 Packers Avenue
St. Joseph, MO 64504

RE: New Source Review Permit - Project Number: 2008-11-013

Dear Mr. Collins:

Enclosed with this letter is your permit to construct. Please study it carefully. Also, note the special conditions, if any, on the accompanying pages. The document entitled, "Review of Application for Authority to Construct," is part of the permit and should be kept with this permit in your files.

Operation in accordance with these conditions, your new source review permit application and with your amended operating permit is necessary for continued compliance.

The reverse side of your permit certificate has important information concerning standard permit conditions and your rights and obligations under the laws and regulations of the State of Missouri.

If you have any questions regarding this permit, please do not hesitate to contact Steve Jaques, at the departments' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or at (573) 751-4817. Thank you for your attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Kendall B. Hale
New Source Review Unit Chief

KBH:sjl

Enclosures

c: Kansas City Regional Office
PAMS File: 2008-11-013

Permit Number: