



Comments and Responses on the Ag Processing – St. Joseph Prevention of Significant Deterioration (PSD) Permit Project Number 2006-04-052

A draft PSD permit for an expansion at the Ag Processing Inc (AGP) soybean processing plant in St. Joseph, Missouri was placed on public notice March 28, 2007. The only comments received during the public notice period were from AGP. A copy of AGP's comment letter and red-lined permit are included as attachments to this document.

AGP's comments have been summarized or paraphrased in this document, please refer to the attachments for further detail.

This document and the attachments will be posted at

<http://www.dnr.mo.gov/alpd/apcp/PermitPublicNotices.htm>

The posting may be discontinued 45 days after final permit issuance.

In a letter dated April 30, 2007 AGP submitted comments pertaining to the draft prevention of significant deterioration (PSD) permit. The Air Pollution Control Program (APCP) responds to the AGP comments as follows:

Comment: BACT Emission Limitation – Solvent Loss Ratio

AGP objected to the 0.145 gallon/ton solvent loss ratio and proposed instead a 0.169 gallon/ton solvent loss ratio. AGP believes that 0.145 gallons/ton is likely not continuously achievable and points to 2003 through 2006 emissions data from the St. Joseph plant to support this assertion. AGP specifically objects to the consideration of historical solvent loss data from other plants (e.g., AGP's Emmetsburg, Iowa plant) as one of the factors that goes in to establishing the BACT emission limitation. AGP suggests that the BACT emission limitation should be based on examination of historical emissions data from the St. Joseph plant alone, coupled with a statistical consideration of variability in the data. The AGP- recommended solvent loss ratio of 0.169 gallon/ton limit is based on average historical solvent loss ratio (St. Joseph plant, 2003 through 2006) plus three standard deviations. The AGP comment letter also discusses how oilseed characteristics, such as size and cellular structure, hull/debris content, moisture and oil content, maturity and fatty acid content can affect emission characteristics of a soybean processing facility.

Response:

As discussed in the review summary, APCP considered the following sources of information in evaluating what is "achievable":

- 40 CFR Part 63, Subpart GGGG – National Emission Standards for Hazardous Air Pollutants– Solvent Extraction for Vegetable Oil Production.

- The federal register preamble to the proposed Solvent Extraction MACT (65 FR34252)
- EPA's *Economic Impact Analysis for the Final Vegetable Oil Processing NESHAP – Final Report*, January 2001 (EPA-452/R-01-005)
- EPA's RACT/BACT/LAER clearinghouse
- Recently-issued permits for soybean processing facilities.
- Solvent loss ratio data supplied by AGP as part of this permit review.
- Solvent loss ratio data from Iowa, Nebraska and Missouri soybean processing plants.

To support the notion that the 0.145 gallon/ton limit is achievable APCP reiterates the following points from the review summary:

- A limited survey of emissions data from similar plants indicates that a solvent loss ratio below 0.145 gallons/ton is achievable.
- Manufacturer's guarantees are being issued with solvent loss ratios below 0.145 gallons/ton.
- PSD avoidance permits are being issued with solvent loss ratios below 0.145 gallons/ton.
- Based on examination of the 2003 through 2006 emissions data from the existing St. Joseph plant only a slight improvement (modified plant vs. existing plant) is required to meet the 0.145 gallon/ton emission limitation.

In considering what is an achievable BACT emission limitation APCP considers (among other things) performance at other, similar, plants. If another, similar plant is performing at a given level and there are site-specific reasons to explain why the permit applicant's plant can not achieve that level of performance due to technical or economic considerations APCP can take these considerations in to account as part of the BACT analysis. In this case APCP pointed out similar plants that have been operating well below 0.145 gallons/ton and AGP did not provide any technical or economic reasons to explain why this level of performance can not be achieved at the modified St. Joseph plant. The APCP does not believe that it is appropriate to look only at historical emissions data at the St. Joseph plant to establish the BACT emission limitation.

With regard to this comment APCP is not making any changes to the permit.

Comment: BACT Determination - Process Equipment as BACT Equipment

AGP objected to BACT specifications pertaining to portions of the process upstream of the mineral oil absorption process.

Response:

The definition of BACT includes process considerations. In the case of condensation processes upstream of the mineral oil absorber, APCP believes that it is appropriate to include the condensers as BACT control equipment since this part of the process works in conjunction with the absorption process to affect emissions. Both the condensers and the mineral oil absorption

system are used for hexane reclamation and both systems are also used for hexane emissions control.

With regard to the vapor recovery tray on the desolventizer-toaster, this specification has been modified such that it is no longer a BACT specification in response to AGP's comments.

Comment: BACT Emission Limitation – Startup, Shut-down and Malfunction

The BACT solvent loss ratio limit in the draft permit included all modes of operation – normal, startup, shutdown and malfunction. AGP requested modification of Special Condition 1.A. to make this condition consistent with the way the solvent extraction MACT standard treats initial start-up periods and malfunction periods.

Response:

APCP amended Special Condition 1.A. in response to AGP's request. As part of the evaluation APCP requested a copy of AGP's Startup, Shutdown and Malfunction plan and noted that AGP's list of possible process upsets that could trigger AGP to elect to operate in malfunction mode is very broad and fairly vague. If AGP elects to operate in malfunction mode APCP's enforcement staff will review the circumstances leading up the malfunction and remedial actions taken after the malfunction to determine if any enforcement action is necessary. This should serve as a disincentive to declare malfunction for relatively minor process upsets. See also 10 CSR 10-*Start-up, Shutdown and Malfunction Conditions*.

Comment: BACT Determination – Leak Detection and Repair Program

AGP objected to certain aspects of the leak detection and repair provisions in the draft permit.

Response:

APCP amended Special Condition 2., but not to the extent requested by AGP. The flammable gas monitor survey requirement was taken out but the daily observation requirement was retained. It will be to AGP's advantage to develop an effective leak detection and repair program. APCP is leaving considerable flexibility in the details of the leak detection and repair program while requiring a challenging solvent loss ratio limit.

Comment: Chiller Required for Mineral Oil Adsorption System

AGP objected to Special Condition 4.B. requiring installation and operation of a chiller to reduce the temperature of mineral oil that is introduced in to the adsorption column.

Response:

The solubility of hexane in the mineral oil will increase with a decrease in the temperature of the mineral oil introduced in to the adsorption column. APCP is retaining this requirement due to this fact.

Comment: Solvent Storage Tank Breathing and Working Losses

AGP objected to Special Condition 4.C. requiring routing of breathing and working losses from the solvent storage tanks to the solvent recovery system. AGP also states that no attempt was made by APCP to quantify losses of solvent from the storage tanks.

Response:

This is a practical and effective means to control emissions from the storage tanks. Solvent recovery for storage tank breathing and working losses is the current practice and AGP plans to continue this practice with the modified plant. APCP is retaining this requirement as a BACT requirement. APCP did not specifically estimate uncontrolled emissions from the storage tanks but clearly the practice of solvent collection and recovery results in less emissions as compared the case where breathing and working losses are vented to the atmosphere. Uncontrolled emissions could be estimated by utilizing EPA's TANKS software or other methods. Controlled emissions would be difficult to quantify since there is a commingling of hexane from various process sources in the solvent recovery system. As evident in the definition of BACT it is acceptable to specify BACT equipment or work practices for emissions reduction even when there are technical reasons that prohibit a quantification of the emissions reduction.

Comment: Special Condition 7

AGP provided suggested language to clarify the PM₁₀ emission limits, recommended alternative language for the replacement filter bag inventory requirement and requested a revision to the name of emission unit 53.

Response:

APCP included language referencing the PM₁₀ emission limits and renamed emission unit 53 as requested. The replacement filter bag language remains unchanged, the spirit and intent of the existing language is the same as the language provided by AGP.

Comment and Response: Special Condition 8

AGP provided some language that was intended to clarify how the cyclones and the common wet scrubber are set up for dryer-cooler portion of the process. APCP made some amendments for clarification.

Comment and Response: Special Condition 9

AGP suggested adding language to indicate that the PM₁₀ emissions testing requirements apply to emission points 6, 8, 30, 55 and 57. APCP added language to clarify that the PM₁₀ emissions testing requirements apply to emission points 6, 8, 19, 30, 53, 55 and 57.

Comment and Response: Special Condition 10

AGP suggested amendments to the post-construction ozone modeling language such that if commencement of normal operations for the modified plant occurs in the middle of an ozone season the post-construction ozone monitoring obligation does not begin until the following April. APCP incorporated the suggested amendments.

Comment: Hexane Risk Analysis Modeling

AGP suggested removal of Special Condition 11, which was an n-hexane emission limitation resulting from preliminary risk analysis modeling.

Response:

The original ambient air quality impact analysis submitted by Trinity Consultants, Inc. with the permit application characterized the n-hexane emissions as an area source whose dimensions were based upon the size of the extraction building. APCP staff determined that this characterization did not adequately describe the release of emissions from the extraction building and, as such, assigned volume source release parameters to the n-hexane emissions based upon the information contained within the permit application. This characterization resulted in ambient n-hexane concentrations in excess of the short-term risk assessment level (RAL) and led to an n-hexane emission limitation within the draft permit. Trinity Consultants, Inc., in consultation with APCP staff, determined that the assignment of the emission release parameters remained inadequate and required further investigation.

On May 4, 2007 APCP staff received a revised AAQIA from Trinity Consultants, Inc. that demonstrated compliance with the 24-hour and annual RALs for n-hexane. APCP staff determined that the May 4, 2007 AAQIA submitted in support of the Ag Processing, Incorporated PSD permit application is complete and no adverse impact on air quality should result. An APCP modeling memo was prepared on May 10, 2007 and was incorporated into the permit documents.

Comment: Oilseed Throughput Capacity

AGP provided a comment indicating that any production capacity limitation should be based on a 12-month rolling average, rather than bushels per day.

Response:

APCP added a new Special Condition 11, to limit oilseed throughput on a 12-month basis.