OFFICIAL FILE COPY

Subject: Technical Support Document
Title V Operating Permit
Flexsys America, Ltd
Monongahela Plant
Washington County

March 30, 2000

To: File TV – 63 - 00015

Through: Joe Pezze
Regional Env.
Program Mgr.

From: Philip Sapala PPS 3/31/00
APCE II
Engineering Services

Mark Wayner
Acting Chief
Title V Permits
3/31/00

BACKGROUND

Flexsys America LP (Flexsys) is a chemical manufacturer located in Carroll Township, Washington County. Flexsys is a major stationary source as defined in Title I, Part D of the Clean Air Act Amendments. As such, the facility is subject to the Title V permitting requirements adopted at 25 PA Code, Chapter 127, Subchapter G.

Notice under 25 PA Code Chapter 127.505 was received by Flexsys on August 8, 1995 and the application was submitted to the Department by November 27, 1995. The application was deemed timely and administratively complete on January 19, 1996. An application shield, as described in 25 PA Code Chapter 127.505(e), was granted at that time.

EMISSION INFORMATION

Through RACT Operating Permit 63-000-015, facility wide VOC emissions are limited to 170 tons in any 12 month consecutive period.

CRYSTEX PLANT

The Crystex Plant manufactures Crystex using a proprietary process that uses sulfur, petroleum process oil and carbon disulfide as raw materials to reformulate sulfur for use as a vulcanizing agent. This process uses several individual emission units as listed in the Title V permit application and have been identified as proprietary under 25 Pa. Code Ch. 127.411(d) and Flexsys requests that the individual processes remain confidential. Thus, this process has been listed as a single source for permitting purposes.

Through the RACT Operating Permit this source is also limited to a short term allowable VOC emission rate of 3.2 lb./hr., which corresponds to 14 tons per year. This emission limit is for the CS2 process vent stack only.

Total particulate matter emissions allowed by the SIP limitation of 0.04 gr./DSCF found in 25 Pa. Code Ch.123.13 calculate to 4.46 tons/year (packaging dust collector).

Actual emissions and PTE for VOC's calculate to 57.3 tons/year and 174 tons/year, respectively. Of these VOC emissions, actual carbon disulfide emissions calculate to 50.4 tons/year, with a potential to emit of 157 tons/year. Carbon disulfide emissions from the thermal oxidizer are limited by Plan Approval 63-313-029 to 0.1 lb./hr, which equals 0.44 tons/year. The difference in VOC emissions between the Plan Approval limit and the actual and potential to emit emission estimates is due to fugitive emissions. Emissions of H2S are estimated at 6.4 tons/year actual and 7.3 tons/year potential. H2S emissions from the thermal oxidizer are limited by Plan Approval 63-313-029 to 0.28 lb./hour or 1.22 tons/year.

Under the SIP provisions of Chapter 123, sulfur compound emissions may not exceed 500 ppmv, except those subject to other provisions of Article III. The installation of the oxidizer was for protection of the State H2S standard as specified in Ch. 131. As a result, Section D, Condition #002 has been included which incorporates the requirements of Plan Approval No. 63-313-029, limiting SO2 emissions to 2200 ppm or 9.9 lb./hour and 34.5 tons in any 12 month consecutive period. NOx and CO emissions are not an issue.

Compliance with the appropriate emission limitations will be verified through stack testing, production data, current emission factors and/or material balance.

STORAGE TANKS

Various storage tanks are located at this facility, including sulfur (Source 117), CS2 (Source 119B), and process oil (Source 122). Sources 119B and 122 are subject only to the recordkeeping requirements of 40 CFR 60.116b(b), Subpart Kb. Additionally, there are diesel fuel tanks, but their small size absolves them from any specific state regulations, Title 25 Pa. Code Ch. 129.57 and the federal requirements of 40 CFR 60.110 Subpart K.

SULFUR RAILCAR UNLOADING

Source 115 includes railcar venting, unloading and depressurizing. H2S emissions estimate at 4 tons/year for both actual and potential emissions, all operations combined.

COMBUSTION SOURCES

Dual-fuel boilers

This site includes two dual-fuel boilers manufactured by Kewanee, ratings intentionally omitted because of confidentially request, used to provide steam for the facility, while burning natural gas and/or No.2 distillate oil. There is an NSPS regulation, 40 CFR, Part 60, Subpart Dc for small steam generating units, which only affects the use of No.2 fuel oil. These boilers may be subject as they were approved for construction on June 30, 1989 after the effective date of June 9, 1989. However, these boilers were potentially fabricated prior to the applicability date and the NSPS requirements were not included in the previous plan approval and operating permits. The NSPS requirements have been included in the draft Title V permit, as I believe that they are applicable based on the installation date as defined by "construction" under 40 CFR 60.2.

Actual and potential PM-10 emissions for each boiler calculate to 0.5 tons/year and 1.4 tons/year for natural gas and 1.57 tons/year potential for No. 2 fuel oil. Flexsys did not use fuel oil in 1994 or 1999. Total particulate matter emissions allowed by the SIP limitation of 0.4 lb./MM BTU's heat input found in 25 Pa. Code Ch.123.11 calculate to 44 tons/yr.

Actual and potential NOx emissions calculate to 4.7 tons/year and 14.7 tons/year, respectively for natural gas and 15.7 tons/year potential for No.2 fuel oil. CO emissions are comparable for either fuel and amount to approximately 4 tons/year potential and 1.2 tons/year actual. Potential SOx emissions calculate to 28 tons/yr. for No.2 fuel oil combustion and are negligible for natural gas. VOC emissions from either fuel source are insignificant.

The SIP regulation for SOx emissions from each boiler limit the emissions to1.0 lb SO_2 per MM BTU's heat input or 110 tons/year for each boiler, based on this restriction. However, the total SO_2 emissions allowed by 40 CFR Subpart Dc, limit the SO2 emissions to 0.5 lb./MM Btu's or 0.5% by weight sulfur in the fuel oil. The NSPS requirement corresponds to 55 tons/year per boiler. Actual SO_2 emissions based on maximum natural gas usage for the 1999 calendar year are insignificant. Flexsys did not combust fuel oil that year.

The emissions from the inert gas generator (Source 102) and the vaporizer (Source 032) are trivial in magnitude and are presented in the Title V application.

As there are no source specific limitations for NOx or CO and these sources are NOT major for any pollutant, periodic monitoring or source testing is unwarranted. Compliance with the appropriate emission limitations will be verified through recordkeeping of fuel specifications, fuel usage and the appropriate current emission factors.

OPERATING FLEXIBILITY

The Title V permit may include provisions to allow a permitted facility to make certain changes without requiring a permit revision. Flexsys has not requested any operational flexibility capabilities, other than the de minimis increase provisions of 25 Pa. Code Ch. 127.449 and potential de minimis increases allowed under Title III of the CAA, Section 112g. The later cannot be included as this time, as these provisions have not been developed for this source category (SIC 2819) and it is uncertain if this facility would be subject to the MACT standards for the Rubber Chemical Manufacturing Source Category.

ALTERNATIVE OPERATING SCENARIOS

Flexsys has requested that using No. 2 fuel oil in the process furnace be considered as an alternative operating scenario. This is not an AOS as there are no special requirements or limitations for the use of fuel oil. Flexsys has also requested an AOS in the introduction that will allow the facility to use the exhaust from the combustion of natural gas in the process furnace as the source of inert gas for the Crystex process, in lieu of the Inert Gas Generator. This applicable requirements and method of compliance have not been identified in the permit application, and again, this scenario would not possess different applicable requirements than the use of the inert gas generator. However, this operation may be considered under operational flexibility.

However, the alternate emission limits allowed during bypass events of the thermal oxidizer would consider include this operation as an AOS. Relevant conditions to this scenario have been included in the AOS for the Crystex Plant, Source 103.

AMENDMENTS

This application was amended to include the thermal oxidizer, Plan Approval 63-313-029 and the production expansion of the Crystex process, Plan Approval PA 63-015A, including control equipment and emissions data.

PREVIOUS OPERATING PERMITS AND PLAN APPROVALS

The emissions sources at this facility are regulated by several Air Quality permits. The Crystex Process is permitted under Plan Approvals 63-313-029 and PA 63-015A. The boilers are authorized under Operating Permit No. 63-302- 041. This facility was also issued a RACT Operating Permit No. 63-000-015. The applicable requirements from all current operating permits and plan approvals have been incorporated into the Title V Permit.

STREAMLINING

The only limits of conflicting allowable emission rates are those of opacity from the Flex Kleen baghouse on the dry end of the Crystex process. The applicable SIP limitation of 20% opacity required by 25 Pa Code Ch. 123.41 is assured through Section D, Condition #004. This condition restricts opacity to 10% at any time.

Additionally, there potentially exist conflicting allowable emission rates for the two boilers, provided that they are subject to the NSPS, Subpart Dc. The applicable SIP limitation of 1.0 lb./MM Btu heat input, would be superceded by the NSPS requirement of 0.5 lb./MM Btu or as an alternative 0.5% sulfur, by weight, in the fuel oil.

MISCELLANEOUS

For the sources where the method of compliance has not been specified, emissions will be determined using the appropriate emission factors, material balance methods and/or engineering estimates. Source testing, periodic monitoring and/or other recordkeeping requirements may be specified in the Title V permit conditions.

CONCLUSIONS AND RECOMMENDATIONS

I have completed my review of Flexsys LP Title V permit application for their Monongahela facility. Flexsys has met the regulatory requirements associated with this application submittal. The attached draft permit reflects terms and conditions as described in the Flexsys permit application and the included plan approvals. It is my recommendation to issue a Title V permit for this facility with an expiration date of 5/22/2005.