

## MEMORANDUM

Date: March 17, 1998

Subject: Equipment Leak Preliminary MACT Floors for MON Continuous and Batch Processes

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To: Miscellaneous Organic NESHAP Project File

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The purpose of this memorandum is to identify the equipment leak preliminary maximum achievable control technology (MACT) floors for continuous and batch processes at existing sources covered under the Miscellaneous Organic NESHAP (MON). These data were presented during a meeting with the Environmental Protection Agency (EPA), industry representatives and trade association representatives on December 9, 1997.

Alpha-Gamma has completed equipment leak preliminary MACT floor analyses for continuous and batch processes covered by the MON. The following paragraphs describe the methodology used in determining the equipment leak preliminary MACT floors and discuss the results obtained. Data sheets supporting the results described below are included as attachments to this memorandum.

### Equipment Leak Preliminary MACT Floor for MON Continuous Process

The preliminary MACT floor for equipment leaks from MON continuous processes is the Hazardous Organic NESHAP (HON) leak detection and repair (LDAR) program. The source of the data along with a description of the methodology used to determine the preliminary MACT floor is included in the following paragraphs.

Equipment leak data for continuous processes covered by the MON are included in the MON continuous database. The MON continuous database includes detailed emissions data for miscellaneous organic processes in the following seven states: California, Illinois, Louisiana, New Jersey, North Carolina, Missouri, and Texas. Information for these states was obtained primarily through electronic emission databases maintained by the individual states.

Leak detection and repair data for MON continuous sources in Louisiana were presented by Steve Gossett of Eastman Chemical Company at the April 24, 1997 meeting with EPA, Alpha-Gamma, industry representatives and trade association representatives. This information is being verified by the Louisiana Department of Environmental Quality. For the purpose of this memorandum, Alpha-Gamma is assuming that the information presented by Mr. Gossett is correct. The data provided by Steve Gossett indicated there are 19 facilities in Louisiana with MON continuous processes. Of the 19 facilities, 7 facilities perform the Louisiana non-HON LDAR program. The MON LDAR data for Louisiana have been modified to be consistent with the data provided by Mr. Gossett. The data are contained in a MSEXcel 5.0 worksheet, LALDAR.xls, which is on the attached diskette. A copy of the table is included as Attachment A.

Alpha-Gamma also gathered LDAR data for MON continuous processes in Texas. Ms. Dana Vermillion, P.E., permit engineer in the Texas New Source Review Division, provided Alpha-Gamma with a list of Texas MON facilities, the permit numbers and the LDAR program(s) associated with the permit. The information provided by Ms. Vermillion was combined with permit data collected by Alpha-Gamma during a site visit to Texas. Using the combined data, each MON continuous process, permit number and LDAR program were identified. The data for the Texas LDAR programs are summarized in Table 1 below.

**Table 1. Summary of MON Continuous Processes in TX with LDAR Programs**

LDAR Program	Audio/Visual/Olfactory	28M	28 RCT	28 VHP	28 MID
Number of facilities	3	8	1	4	11

These data are included in a MSEXcel 5.0 worksheet, TXMONeq.xls. The file is included on the attached diskette and a copy of the table is shown in Attachment B.

The MON continuous LDAR data from Louisiana and Texas are combined in Table 2. Note that the programs in the table are arranged from least stringent on the left and more stringent moving to the right. The Texas equipment leak programs along with the Louisiana non-HON and the HON equipment leak programs are summarized in Table 3.

**Table 2. Summary of MON Facilities in TX and LA with LDAR Programs**

LDAR Program	Audio/Visual/Olfactory	28M (TX)	28 RCT (TX)	LA non-HON	28 VHP (TX)	28 MID (TX)
Number of facilities	3	8	1	7	4	11

The MACT floor is based on an estimate of total number of facilities nationwide that have MON continuous processes. The MON continuous database includes 62 facilities in California, Illinois, Louisiana, Missouri, New Jersey, North Carolina, and Texas that have continuous processes. The 1993 TRIS database includes 335 facilities nationwide within the SIC codes covering MON continuous processes. Out of these 335 facilities, 156 are located in California, Illinois, Louisiana, Missouri, New Jersey, North Carolina, and Texas. Therefore, the expected number of MON facilities nationwide that have continuous processes is 133 ( $62 \times 335 \div 156$ ). The assumption made in this calculation is that the ratio of continuous processes to total processes is the same for the entire nation and California, Illinois, Louisiana, Missouri, New Jersey, North Carolina, and Texas combined. The top 12 percent (i.e., the MACT floor) of facilities with MON continuous processes nationwide is represented by the mean of the top performing 16 facilities ( $0.12 \times 133$ ). Referring to Table 2, the central tendency of the best performing 16 facilities is a program more stringent than the Texas 28 VHP LDAR program. Therefore, the preliminary MACT floor for equipment leaks from MON continuous processes is the HON LDAR program.

**Table 3. Summary of TX, LA Non-HON and HON Leak Detection and Repair Programs**

		LDAR Program					
		28M (TX)	28 RCT (TX)	LA non-HON	28 VHP (TX)	HON	28 MID (TX)
Leak Definition	Valves	10,000	500	1,000	500	500	500
	Connectors	10,000	500	1,000	500	500	500
	Compressors	10,000	10,000	5,000	2,000	500	500
	Pumps	10,000	10,000	2,000	2,000	1,000	500
Applicability		VP > 0.5 psi	VP > 0.044 psi	5% weight of the sum of Class I and II organic TAPs	VP > 0.044 psi	> 5% VHAP by weight; in organic service > 300 hrs/yr	VP > 0.044 psi
Monitoring frequency		Quarterly	Quarterly		Quarterly	Monthly	Quarterly

Equipment Leak Preliminary MACT Floor for MON Batch Processes

The preliminary MACT floor for equipment leaks from MON batch processes is the South Coast Air Quality Management District (SCAQMD) Rule 1173 LDAR program. The SCAQMD program is equivalent to the Subpart VV LDAR program. The source of the data along with a description of the methodology to determine the MACT floor is included in the following paragraphs.

The EPA, under the authority of Section 114 of the 1990 Clean Air Act Amendments, requested information from facilities which are subject to the MON and which have batch processes. The Section 114 requests were sent to 194 facilities in a letter from the EPA on January 28, 1997 with a clarification letter sent on March 10, 1997. The Section 114 questionnaire collected data on LDAR programs. The data provided indicates whether the facility had a LDAR program, which processes were covered by the LDAR program, the inspection frequency (e.g., monthly, quarterly, etc.), the definition of a leak (e.g., 500 ppmv, 1,000 ppmv, etc.) and the leak detection method (e.g., EPA Method 21, sight/smell/sound, etc.).

In addition to the data gathered by EPA, Alpha-Gamma contacted numerous facilities to determine which State or Local LDAR program the facility was complying with. This data was entered into a field titled "Leak Program" in the MON batch database. For some facilities, Alpha-Gamma inferred the specific LDAR program from the data response. Alpha-Gamma reviewed the various State and Local agency LDAR program regulations to determine the appropriate stringency of each program (i.e., is the program like the HON LDAR, like Subpart VV, etc.). Alpha-Gamma then used the data to rank order the LDAR programs for each facility according to their relative stringency. The MON batch LDAR data are summarized in Table 4. The complete MON batch LDAR data are contained in a MSEXcel 5.0 worksheet, Btchldar.xls, which is included on the attached diskette. A copy of the table is included in Attachment C.

**Table 4. Summary of MON Batch Leak Detection and Repair Programs**

LDAR Program	6NYCRR 595-599	Indiana 218.421	NJ	28M (TX) or Subpart VV Equivalent	Subpart V	South Coast Air Quality Management District Rule 1173	28RCT (TX)	LA Non-HON	28VHP (TX)	HON	28MID (TX)
Number of facilities	1	1	2	10	1	2	0	3	1	4	2

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Alpha-Gamma assumed the number of Section 114 responses (165 facilities) represents the nationwide number of facilities with MON batch processes. The top 12 percent (i.e., the MACT floor) of facilities with MON batch processes nationwide is represented by the mean of the top performing 20 facilities ( $0.12 \times 165$ ). Referring to Table 4, the central tendency of the best performing 20 facilities is the South Coast Air Quality Management District Rule 1173 LDAR program. Therefore, the preliminary MACT floor for equipment leaks from MON batch processes is the South Coast Air Quality Management District Rule 1173 LDAR program.

Attachments

**ATTACHMENT A**

**Louisiana LDAR Data for MON Continuous Processes**

**ATTACHMENT B**

**Texas LDAR Data for MON Continuous Processes**

**ATTACHMENT C**

**LDAR Data for MON Batch Processes**

**ATTACHMENT D**

**LDAR Data for MON Continuous and Batch Processes  
Combined**