MEMORANDUM

TO: Group IV Resins Docket

DATE: November 24, 1998

SUBJECT: Summary of Responses to Petitioners' Comments

The equipment leak standards that are found in the national emission standards for hazardous air pollutant emissions for Group IV polymers and resins were petitioned for reconsideration as they apply to poly(ethylene terephthalate) (PET) facilities. The petitioners are identified below in Table 1. The purpose of this memo is to summarize the petitioners' comments and the U.S. Environmental Protection Agency's response to those comments.

TABLE 1

LIST OF PETITIONERS

Petitioner	Brief Description	Docket Item Number
Hoechst Celanese (HC) and Eastman	Petition for Reconsideration	VI-A-2
	Response to EPA Request for Clarification and Additional Information	VI-B-13
Wellman, Incorporated	Petition for Reconsideration	VI-A-7
	Information on cost of compliance for liquid phase components	VI-D-9

The format of this memo is to present in a Comment and Response format the general comments submitted by the petitioners. This is supplemented with a series of tables that summarize, in varying levels of detail, HC's and Eastman's comments contained in docket item VI-A-2 and then the response to each comment. In addition to this memo, the reader is referred to the Equipment Leak Analysis for PET Facilities Subject to the Group IV Polymers and Resins NESHAP (Docket Item VI-B-20), which contains the revised emission estimations, emission reductions, and costing as the result of comments by HC and Eastman and by Wellman.

Table 2 presents a summary of comments by HC and Eastman as they relate specifically to costing components subject to Method 21 monitoring. These comments cover items found in Exhibit A, pages 4 through 7, of Docket Item VI-A-2.

Table 3 presents a summary of HC and Eastman's comments as they relate specifically to components in heavy liquid service. In addition, this table addresses Attachment G to Docket Item VI-B-13, in which HC and Eastman present two plans for implementing a LDAR program for components in heavy liquid service. These comments cover items found in Exhibit A of Docket Item VI-A-2, pages 7 through 8.

Table 4 presents the claimed errors and technical inconsistencies presented by the petitioners in Exhibit B of Docket Item VI-A-2. Some of these claimed errors and inconsistencies are also identified in the body of Docket Item VI-A-2 and in Exhibit A, pages 8 and 9, of Docket Item VI-A-2.

In responding to the petitioners' comments and information submitted, one item of importance identified by the petitioners is the leak frequency associated with components subject to Method 21 monitoring. HC and Eastman presented summary data with some detailed printouts on the leak frequency associated with components at facilities subject to the equipment leak program under the Hazardous Organic NESHAP (subpart H of 40 CFR part 63). HC and Eastman claim that these data were for the first survey of the components prior to the implementation of subpart H, and could be used to represent the leak frequencies at their PET facilities, because the two types of facilities (HON and PET) employ similar maintenance programs. Review of the data submitted by HC and Eastman indicates a number of discrepancies. However, in order to expedite the analysis of the petitions for reconsideration, a decision was made to use the leak frequency data as presented by HC and Eastman for their facilities in the reanalysis rather than resolve the discrepancies. The use of the leak frequency data as presented by HC and Eastman does not constitute EPA acceptance that the data are either accurate or are applicable to PET facilities.

EMISSION ESTIMATION

Comment: HC and Eastman claim that the EPA's average SOCMI factors significantly overestimate equipment leak emissions and that baseline emissions would be more accurately predicted using the average emission factors identified in the 1993 Protocol document for components located at ethylene oxide/butadiene (EO/BD) process units (Protocol for Equipment Leak Emission Estimates, EPA-453/R-93-026, June 1993, page B-53).

Response: This comment is essentially identical to comments presented during the public comment period on the proposed rule. However, these petitioners provide for the first time equipment leak rate data compiled from several of their non-PET facilities that they believe are representative of leak rates at their PET facilities. The petitioners then calculate average leak rates based on these leak frequencies and compare them to several average leak rates reported in the 1993 Protocol document, including those based on the EO/BD data, on the EPA 24-unit study, and the combined EO/BD and EPA 24-unit study data (which makes up the SOCMI data set).

A comparison of the average leak rates (see table below) appears to show that the petitioners' non-PET facilities are emitting at a rate lower than the average SOCMI factors. The petitioners thus maintain that EPA has overestimated baseline emissions.

COMPARISON OF AVERAGE LEAK RATES
(kilograms/hour/component)

Company/Study	Light Liquid Pumps	Light Liquid Valves	Connectors
Hoechst	0.0119	0.00145	0.000541
Eastman	0.00299	0.000728	0.000163
EO/BD Data	0.00472	0.00111	0.00023
24-Unit Data	0.0258	0.00655	0.00316
SOCMI (EO/BD and 24-unit data combined)	0.0199	0.00403	0.00183

When developing the rule, the EPA provided each company, including the petitioners, with the opportunity to comment on the estimated emissions from equipment leaks, which were based on the average SOCMI emission factors. Most of the companies disagreed with the estimates, either stating they were too high or providing their own estimates. Two companies [Eastman Kodak (one facility) and DuPont (seven facilities)] found no reason to dispute the EPA estimate. HC and Eastman generally responded by providing emission estimates and detailed component counts. Two HC facilities (Shelby and Spartanburg) used EPA SOCMI emission factors to estimate their equipment leak emissions. Wellman, in contrast, provided no comments on the procedure for calculating uncontrolled emissions from equipment leaks and stated the information on the component counts and their stream composition was unavailable at that time.

In responding to the petitioners' comment, the EPA performed the equipment leak reanalysis using revised emission factors for the petitioners' facilities based on the equipment leak frequency rates presented by the petitioners in Docket Item VI-B-13. In addition to the petitioners, only one other company (ICI-Fayetteville) submitted data from which facility-specific leak frequencies could be derived. The EPA used ICI-Fayetteville's data to calculate facility-specific emission factors for the reanalysis for that facility. The leak frequency rates and the resulting facility-specific emission factors were not extended to analyses of other companies' facilities for several reasons: (1) the other companies either have not questioned the EPA emission estimates or have concurred with them, (2) the equipment leak programs to control emissions employed by the petitioners at their facilities may not represent programs practiced by other companies, and (3) several companies stated that they do not have any equipment leak programs.

It is important to note that the EPA is using the petitioners' leak frequency rates for analysis purposes only in responding to the petitioners' comments, and is not accepting them as valid. The level of detail associated with the leak frequency rates and inconsistencies in the presentation of the data (as discussed in the following paragraph) make it impossible to verify the accuracy of the leak rate data. In addition, there is no certainty that these leak frequency rates are applicable to the petitioners' PET facilities, because the monitoring and repair program in place for the submitted data at the time of the reported initial measurements may not reflect the uncontrolled leak frequency from the PET facility.

HC and Eastman submitted information on the equipment leak frequencies for a number of non-PET facilities. Upon request, they also provided data to support those reported leak frequencies. In reviewing the supporting data, there appear to be a number of inconsistencies, some of which would affect the estimated leak frequency. For example, in the information submitted by Eastman these inconsistencies include: (1) the number of leaking components reported in the summarization table do not match the monitoring results in the audit report; (2) start dates do not match between the summarization table and the audit report; (3) total number of components in the summarization table do not always match the number tested in the audit report; and (4) it is unclear what "net" readings refer to and it is possible that this is an incorrect accounting of leakers. In the HC data, concerns are (1) the data sheets do not match the numbers in the screening results table and (2) it is unclear what "adjusted" readings, which are presented for many of the process units and their leaking components, refer to and it is possible that this is an incorrect accounting of leakers. Notwithstanding these technical uncertainties, the EPA has used the petitioners' leak frequency rates in the reanalysis.

Comment: HC and Eastman state that one reason their baseline emissions are so much lower than predicted by the SOCMI emission factors is that since the 1970s a greater emphasis has been placed on repairing leaking equipment identified through sensory means, and that this is part of the normal practice at their facilities.

Response: This comment is essentially identical to one submitted by HC in response to the proposed rule. While HC and Eastman state that they currently have in place a program that repairs leaks through coordination with their maintenance staff, they do not provide any information documenting the effectiveness of a sensory program relative to a monitoring program for components in gas/vapor or light liquid service. But whatever their effectiveness, the EPA has used their data in the reanalysis.

Comment: Wellman claims that the EPA had information that industry-run LDAR programs were practiced in PET facilities (docket item II-B-13) and that by ignoring these programs the EPA over-estimated the number of leaking components.

Response: In response to an EPA request to identify equipment leak programs prior to the 1995 proposal, most PET companies (including the petitioners for all of their facilities) indicated that they did not have an equipment leak program or did not respond. Two companies (ICI and 3M)

stated that they repair leaks on a visual-detection basis. None of the companies provided any data to quantify the impact on emissions as a result of these visual-detection programs. In addition, none of the companies described such programs in any detail. Therefore, prior to the public comment period, there was insufficient information for the EPA either to describe these visual-based equipment leak programs or to quantify their effectiveness. During the public comment period, the EPA received additional statements (but no data or descriptions) from several commenters (including the petitioners) that there were industry-run LDAR programs. In fact, HC stated during the public comment period that the MACT floor determination was flawed because the proposed equipment leak standards only require what PET TPA facilities are currently doing for components in heavy liquid service. Notwithstanding such statements, industry did not provide the EPA with information or data to describe the programs or to quantify the emission reduction associated with industry-run LDAR programs. In the absence of such information or data, the EPA could not incorporate these programs in its estimate of baseline emissions.

Comment: Wellman states that the EPA did not use emission rates provided by the industry (docket item II-B-25), that the EPA assumed all vapor components to be methanol (docket item II-B-30), and that the EPA failed to revise the emission factor for vapor ethylene glycol, resulting in an overestimation of emissions from these components.

Response: The petitioner correctly states that the EPA did not use emission estimates provided by the industry for equipment leaks. As the EPA explained in Docket Item II-B-25:

> Emissions data provided by industry for equipment leaks were not used. Instead, emissions were estimated by determining the equipment component counts at each facility (e.g. valves in gas service, pumps in light liquid service) and applying the appropriate emission factors for each component category. Emission factors reported in the EPA's Protocol document for equipment leaks were used. This approach to estimating emissions for equipment leaks was taken to provide a consistent baseline for estimating the impacts of various leak detection and repair (LDAR) programs in use for various subcategories and to compensate for the fact that equipment leaks data provided by industry was not complete. For the several facilities that provided specific and clear information, the estimate of emissions were adjusted to account for low organic HAP concentrations and reduced hours of operations.

Docket Item II-B-30 lays out the procedures for the design and costing of condensers to control styrene and methanol emissions from polystyrene and PET process vents. These systems are not applied to equipment leak emissions. At proposal and promulgation, the EPA assumed all vapor service components at PET DMT facilities were in methanol service, and applied a recovery credit to these components based on the value of methanol. The EPA did not make any assumptions at proposal and promulgation as to what compound was contacting the gas/vapor service components at PET TPA facilities. The EPA did use the same emission factors to estimate emissions from gas/vapor service components at both DMT and TPA facilities.

Based on comments received during the public comment period, the EPA responded by revising the emission factors for components in heavy liquid service. No data has been provided to indicate that it is inappropriate to use the emission factor for components in vapor service where the contact compound is ethylene glycol in the vapor phase.

Based on the available data, the EPA believes the approach used by the Agency to estimate emissions is reasonable.

Comment: Wellman claims that the EPA applied information from DMT facilities to continuous TPA facilities thereby overestimating the numbers of components in vapor and light liquid service, which subsequently inflated the projected emission reductions.

Response: In the EPA analysis, only known component counts and type of service from continuous TPA facilities were used to estimate counts at those continuous TPA facilities that did not provide component counts. Similarly, only known DMT, batch counts and service type are used to estimate counts and service type at DMT, batch facilities that did not provide counts. The new analysis identifies clearly the counts used to estimate counts at facilities that did not provide that information.

Comment: Wellman states that the EPA excluded emissions from heavy liquid components from the baseline emission estimates and, therefore, the actual baseline emission for heavy liquid components at the petitioner's facility is 0 megagrams (Mg) per year.

Response: As shown in Docket Item II-B-29, baseline emission estimates include estimates of emissions from components in heavy liquid service.

Comment: Wellman claims that the EPA has stated that LDAR programs for heavy liquid components have no measurable effect on heavy liquid component emissions, referencing Docket Item II-B-11. The petitioner then states that they must use zero for heavy liquid component emission reductions.

Response: The EPA believes that there will be an emissions reduction for heavy liquid components as a result of the Polymers and Resins IV NESHAP, and that the petitioner misinterpreted the information in Docket Item II-B-11. The requirements of the rule for heavy liquid components specify that if an operator sees, smells, or hears a leak, they are required to tag the component and complete repairs within 15 days. The current industry practice is to identify leaks through the same methods as specified in the rule, but they have no specific time limit for repairs. The EPA believes it is reasonable to conclude that imposing specific time limits for repairs will result in repairs being completed in a more timely fashion, thereby reducing emissions.

The comments provided by Wellman indicate that they do not currently keep records on repairs of heavy liquid components. Therefore, it is not possible based on currently available data

to determine the average repair times under current industry practice. If these data were available, then it would be possible to quantify an emissions reduction.

In the case of open-ended lines and sampling connections in heavy liquid service, the emission reductions have been quantified. The equipment leak program requires all open-ended lines regardless of type of service to be capped, etc., and all sampling connections to be controlled to a "zero HAP emissions" level.

Comment: Wellman states that the number of gas/vapor components at continuous TPA facilities is very small (11 at the petitioner's facility) and, therefore, the benefits derived from an LDAR for these components are negligible.

Response: The EPA agrees that the emission reduction benefit may vary depending on the number of components subject to a LDAR program and that the amount of emission reduction will vary from facility to facility. However, in determining the benefits to be derived from an equipment leak program, the EPA looks at all of the facilities in the category or subcategory and all of the components from which emission reduction may be achieved. This type of approach has been consistently applied in the MACT program (i.e., impacts and cost effectiveness has been determined across a category or subcategory, not on an individual facility basis). Based on this analysis, the EPA has determined that the amount of emission reduction and the cost to achieve that emission reduction is reasonable.

COST ESTIMATION

Comment: HC and Eastman claim that the EPA has underestimated the costs of implementing an LDAR program based on Method 21 screening. Specifically, the petitioners claim that the EPA did not reflect fixed costs or costs associated with including heavy liquid components in the LDAR program and that the EPA underestimated the costs associated with performing Method 21 monitoring.

Response: The EPA acknowledges that cost elements were left out of the costing performed at proposal and promulgation. Revised costing was conducted and includes additional elements. Responses to specific cost items identified by the petitioners are found in Tables 2 and 3 to this memo.

Comment: HC and Eastman claim that the cost analysis contains fundamental technical errors that result in the EPA's grossly underestimating the cost of compliance with the LDAR program for PET facilities.

Response: HC and Eastman identify a number of errors that did occur in the regulatory cost analysis. These errors are corrected in the revised costing. Table 4 presents each item claimed by the petitioners as to being in error or insufficiently explained and EPA's responses to these items.

Comment: According to HC and Eastman, two significant errors occur in the EPA's cost effectiveness analysis. First, they assert that a valve monitoring frequency of 12 times per year could be required to maintain a leak frequency of 1 percent, versus the 4 times a year used in EPA's analysis. Second, they state that the EPA used an incorrect value for the leak frequency used to calculate repair costs. The petitioners claim that, by themselves, these errors underestimate the costs of the equipment leak program based on Method 21 screening by 100%.

Response: The EPA believes that the petitioners misstated the requirements of the rule. The comment implies that a facility must maintain a leak frequency of one percent. This is incorrect. A facility is not required to maintain a specified leak frequency for valves. The rule states that the required monitoring frequency varies from annual to monthly depending on the actual leak frequency found when monitoring is performed. Also, in order for a facility to be allowed to monitor on a quarterly basis, they must have a measured leak frequency of less than 2 percent, not the 1 percent value stated in the comment. The leak frequency is calculated as a rolling average of the last two consecutive monitoring periods.

The value quoted by the petitioners to support their contention that monthly monitoring of valves would be required, 2.42 percent, was derived from other information only for the purpose of estimating emissions from equipment leak programs currently in place. It does not reflect the percentage of valves we anticipate will leak when the rule is in place.

Finally, HC and Eastman estimated the initial leak frequency for valves in their facilities under their current practices to be 3.02 and 1.48 percent, respectively, using a leak definition of 500 ppmv. The EPA believes it is reasonable to assume based on these current leak frequencies that once the LDAR program is implemented the leak frequencies the facilities can expect to measure will be well below 2 percent.

The EPA agrees that the wrong subsequent leak frequencies were used to calculate repair costs and has revised them in the new cost analysis. The effect of this single change increases costs minimally.

Comment: HC and Eastman claim that the EPA failed to conduct a cost analysis for heavy liquid components. The petitioners state that no cost estimates are included for LDAR monitoring, maintenance, repair, or administrative costs. The petitioners also state that, in assuming these costs are zero (or impose no additional costs) without performing any type of analysis, the EPA has failed to meet its obligation under Section 112(d)(2) of the CAA. According to the petitioners, the costs associated with a heavy liquid LDAR program are significant, and do not result in cost effective emission reduction.

Response: The EPA agrees that the costing conducted at proposal and promulgation did not include costs for the implementation of the heavy liquid portion of the rule for valves, pumps, and connectors. In the new analysis, costing for these heavy liquid components is now explicitly included. Please refer to the "Equipment Leak Analysis for PET Facilities Subject to the Group

IV Polymers and Resins NESHAP" memo (Docket Item VI-B-20) for more details. Also, specific cost items identified by the petitioners are addressed below in Table 3.

Comment: Wellman states that emissions reductions at its facility would be approximately 0.29 Mg per year at a cost of approximately $26,000 per Mg of emission reduction based on a first-year cost of $56,898, and that this cost figure ($26,000 per Mg) is "many times the amount found by EPA to be unacceptably costly."

Response: The EPA has re-estimated emission reductions and costs for this petitioner's facility as well as for all of the other facilities [see the "Equipment Leak Analysis for PET Facilities Subject to the Group IV Polymers and Resins NESHAP" memo (Docket Item VI-B-20)]. For Wellman's facility, the EPA has re-estimated the emission reduction to be approximately 16 Mg per year and annual costs to be approximately $31,500, for a cost effectiveness of approximately $1,960 per Mg of emission reduction.

The EPA used the information provided by Wellman in estimating the components that would be affected by the equipment leak program and for which emission reductions could be quantified. Under the equipment leak program, emission reductions can be quantified, at Wellman's facility, for valves in vapor service and for open-ended lines in vapor service and in heavy liquid service. The equipment leak program requires all open-ended lines to be capped, resulting in emission reductions from open-ended lines in vapor service as well as in heavy liquid service. Based on the counts provided by Wellman (see Docket Item VI-D-9), there are 5 valves in vapor service, 6 open-ended lines in gas/vapor or light liquid service, and 1,200 open-ended lines in heavy liquid service. Using these counts, the EPA estimates emission reductions at Wellman's facility to be approximately 16 Mg per year.

In estimating their costs, Wellman did not annualize the costs for one-time items such as the monitoring instrument, training of personnel, and tags. In addition, Wellman estimated compliance costs to include the purchase of a monitoring instrument. With only 5 components that would need to be monitored (the valves in vapor service), the EPA found it less costly to rent an instrument 4 times per year than to purchase the same instrument and annualize the capital cost. Please see the "Equipment Leak Analysis for PET Facilities Subject to the Group IV Polymers and Resins NESHAP" memo (Docket Item VI-B-20) for more details on the new costing approach. Based on this analysis, the emissions and cost effectiveness for this facility presented by Wellman appear to omit parts of the equipment leak provisions in the rule, and therefore results in a higher cost effectiveness value than the EPA analysis.

HEAVY LIQUID COMPONENTS

Comment: HC and Eastman claim that the EPA promulgated LDAR requirements for heavy liquid service components that are different from the proposed rule without providing affected parties the opportunity to provide input. HC and Eastman also claim that the EPA has violated the legal requirements for rulemaking by making a change that "is not a logical outgrowth of the

proposed rules." Thus, EPA must provide opportunity for public comment on this "new substantive" requirement for components in heavy liquid service.

Response: It is not necessary to address this comment because the new analysis [as presented in the "Equipment Leak Analysis for PET Facilities Subject to the Group IV Polymers and Resins NESHAP" memo (Docket Item VI-B-20)] and the Federal Register notice provide public notice and opportunity for comment. The EPA also notes that Eastman, in its comments on the 1995 proposed rule, specifically suggested that the EPA allow the use of a leak detection and repair approach that would utilize visual inspection of process lines, and later informed the EPA that visual inspection would be acceptable to Eastman.

Comment: In Docket Item VI-B-13, HC and Eastman ask the EPA to consider two alternative programs for heavy liquid components -- a "minimal" program and a "more conservative" program -- and determine which would be sufficient to meet the requirements for heavy liquid components.

Response: Although not required to do so, the EPA reviewed the two programs and has determined that the minimal program as laid out by the petitioners is sufficient to meet the requirements set forth in the rule for components in heavy liquid service. (See Table 3 for more details.)

Comment: Wellman states the major cost for the LDAR program will be ensuring compliance with recordkeeping and scheduling requirements for heavy liquid ethylene glycol components. The petitioner states that he already maintains all of the equipment components listed in the standard, but does not keep records or track repair deadlines. According to the petitioner, one employee on a full-time basis will be required to ensure compliance with recordkeeping and scheduling to log and track monitoring and perform repairs. The petitioner states that a current employee cannot be used, during periods of maintenance turn around or upsets, because he would not be available to perform the regulatory requirements. The petitioner also assumes one full-time employee would be required because of the number of heavy liquid components at the facility (close to 80,000). Furthermore, maintenance employees would have to be trained on procedures for complying with the MACT equipment leak program, which requires that repairs be documented and components tagged for tracking purposes.

Response: As noted earlier, the EPA agrees that a number of cost components associated with the heavy liquid portion of the equipment leak program were left out of the costing done at proposal and promulgation. The EPA has addressed Wellman's concerns in the revised costing.

The EPA disagrees that compliance with the heavy liquid program will require a full-time employee. The heavy liquid component program does not require a specific individual to walk through the facility looking for leaks. Instead, leaks are identified by the workers at the facility during the course of their daily routine. Thus, a full-time employee is not required for detecting leaks. The repair of leaks is already performed by Wellman, thus there is no additional burden.

The only additional burden, as pointed out by Wellman, is to ensure compliance with repair deadlines and to record leakers.

Based on HC and Eastman comments, heavy liquid components are assumed to have an annual leak frequency of 0.25%. Applying this leak frequency to all of the heavy liquid components at all of the PET facilities, except Wellman's, yields an estimated 18 leakers per facility per year, or 1.5 leakers per facility per month. Applying this leak frequency to Wellman's heavy liquid component count of 80,000 results in 200 leaking components per year or 17 per month. The EPA used an estimate of 30 minutes per month in the reanalysis for keeping records of heavy liquid components that leak. The EPA believes that this estimate is more than sufficient for a facility to track repair deadlines and keep files when there are on average 1.5 leaking heavy liquid components per month. This translates into an average of 20 minutes per leaking component for recordkeeping. For Wellman, which has many more heavy liquid components than the other PET facilities, the recordkeeping estimate of 20 minutes per leaking component would result in a burden of 67 hours per year, which is significantly less than one full-time employee.

In summary, the EPA believes that the costs associated with the heavy liquid component program have been adequately addressed [see "Equipment Leak Analysis for PET Facilities Subject to the Group IV Polymers and Resins NESHAP" (Docket Item VI-B-20)] and that, while Wellman may occur higher costs than the other PET facilities because of their substantially higher heavy liquid component counts, the level of effort should not be one full-time employee.

Comment: Wellman, Inc., claims that the EPA has stated that the MACT equipment leak program will have no measurable effect on emissions from heavy liquid components, but has insisted that the petitioner implement a heavy liquid program that will cost more than the gas/vapor portion of the program. Wellman notes a compliance cost of $2.50 per heavy liquid component for initial identification in the spreadsheet used for costing at proposal, but the EPA assumed no components in heavy liquid service, and a pre-existing LDAR program in place. Therefore, no costs incur as a result of the rule. Wellman states that they have over 80,000 components in heavy liquid service. Using a compliance cost of $2.50 per component results in an annual cost of $200,000 for their facility, which is more than the estimated cost for the Method 21 monitoring program, and no emission reduction is obtained for this cost.

Response: The EPA agrees that a one-time, initial cost to identity components affected by the rule should be attributed to the heavy liquid portion of the rule as it affects valves, pumps, and connectors in heavy liquid service. In the revised costing, the EPA is using HC's and Eastman's suggested cost of $1.13 per heavy liquid component (see Table 3 for more details). This cost covers identifying all equipment in heavy liquid service, including redoing or developing P&ID drawings at least to the extent that equipment in heavy liquid service with greater than 5% HAP would be differentiated. Although the rule does not require redoing or developing P&ID drawings, which could represent a large portion of the $1.13 per heavy liquid component estimate, the EPA is using the petitioners' estimate to provide a conservative estimate of this cost item.) Based on the component counts provided by Wellman, the estimated one-time cost for

Wellman's facility is $86,000 (76,047 components x $1.13 per component). This is equivalent to an annualized cost of approximately $12,000 per year, which is approximately 35% of the estimated annualized cost for the rest of the equipment leak program (before emission reduction credits) at Wellman's facility.

The EPA disagrees that there will be no emissions reduction for heavy liquid components as a result of the Polymers and Resins IV NESHAP. The current programs have no specific time limit for repairs. The program in the rule has specific time limits for repairs. The EPA believes it is reasonable to conclude that repairs will be accomplished in a more timely fashion, thereby reducing emissions. However, it is not possible to quantify the reduction based on currently available information because the petitioners do not keep records and track repair times in their current programs. If these data were available, then an emissions reduction could be estimated.

Based on this reanalysis, which is based on costs suggested by the petitioners, the EPA concludes that the costs of the heavy liquid component program implementation will not be more expensive than the gas vapor portion of the program, and that there will be an emissions reduction that occurs as a result of the heavy liquid component requirements in the LDAR program.

TABLE 2. SUMMARY OF PETITIONERS VI-A-7'S METHOD 21 COSTING COMMENTS AND EPA RESPONSES

Summary of Petitioners' Comments	EPA Response
FIXED COSTS	
1. Fixed Costs for Implementing a LDAR Program	
A. 200 hours associated with planning for achieving compliance with LDAR requirements including coordination with management and operations personnel in implementing the program and develop procedures for coordination with maintenance staff to repair leaking components. At $22.50/hr = $4,500.	This item is covered in the reporting and recordkeeping burden estimate for this rule that was submitted to OMB. However, it was not included in the LDAR costs presented in the preamble and technical document of the promulgated rule. It has been added to the revised costing algorithm using the petitioners' 200 hour estimate for facilities with more than 500 components subject to Method 21 monitoring (hereafter referred to as Method 21 components). For facilities with 500 or fewer Method 21 components, this effort was reduced to 100 hours. Using a rate of $36.95/hr, these values are equivalent to $7,390 and $3,695, respectively. In the reanalysis, a labor rate of $36.95/hr was used rather than the $22.50/hr used in the petitioner's comments. All reporting and recordkeeping requirements are assumed to require a mix of labor, management/administrative, technical, and secretarial. The weighted average rate of this labor mix is $36.95 per hour.
B. 140 hours for training of environmental staff and submission of initial notification report. At $22.50/ hr = $3,150.	This item is covered in the reporting and recordkeeping burden estimate for this rule that was submitted to OMB. However, it was not included in the LDAR costs presented in the preamble and technical document of the promulgated rule. It has been added to the revised costing algorithm using the petitioners' 140 hour estimate for facilities with more than 500 Method 21 components. For facilities with 500 or fewer Method 21 components, this effort was lowered to 70 hours. Using a rate of $36.95/hr, these values are equivalent to $5,173 and $2,587, respectively.
C. Selection and development of software system to track all data including the purchase of the software system and the necessary computer equipment - 200 hours (= $4,500 at $22.5/hr) plus $10,000 for software system and computer equipment (=$14,500 total).	The sophistication of a database system will depend on the number of components required to be tracked, which will be used primarily for Method 21 components. For both in-house and subcontractor programs, the judgement was made that a database system would not be required if the number of Method 21 components was equal to or less than 500 components. Such facilities would be much more likely to use log sheets to track components for recordkeeping and reporting. For facilities with more than 500 Method 21 components, the judgement was made that a database system would be purchased. The revised costing assumes the same value (i.e., $14,500) as estimated by the petitioners.

TABLE 2. SUMMARY OF PETITIONERS VI-A-7'S METHOD 21 COSTING COMMENTS AND EPA RESPONSES

Summary of Petitioners' Comments	EPA Response
Subtotal: 200 hours $ 4,500 140 hours $ 3,150 200 hours plus software system: $14,500 Total: $22,150	For facilities with more than 500 Method 21 components: 200 hours = $ 7,390 140 hours = $ 5,173 200 hours plus software = $14,500 Total = $27,063 For facilities with 500 or fewer Method 21 components: 100 hours = $ 3,695 70 hours = $ 2,587 No software required = $ 0 Total = $ 6,282
2. Annual Fixed Costs Associated with Subsequent Screening Surveys	
A. Contractor pre-job preparation, travel, and per diem expenses. Average of $1,000/monitoring event, which equals $12,000/yr.	For facilities using a subcontractor and with at least one pump, used petitioners estimate = $12,000/yr For facilities using a subcontractor and with no pumps, only 4 trips per year would be required, and at $1,000/trip = $4,000/yr For in-house program, no trips required = $0.

TABLE 2. SUMMARY OF PETITIONERS VI-A-7'S METHOD 21 COSTING COMMENTS AND EPA RESPONSES

Summary of Petitioners' Comments	EPA Response
B. General program supervision and coordination and preparation of compliance reports. Approximately 25 hours per month, which corresponds to 300 hours per year and $6,750/yr (at $22.50/hr).	This item is covered in the reporting and recordkeeping burden estimate for this rule that was submitted to OMB. However, it was not included in the LDAR costs presented in the preamble and technical document of the promulgated rule. It has been added to the revised costing algorithm using the petitioners' 300 hour estimate for facilities with more than 500 Method 21 components. For facilities with 500 or fewer Method 21 components, this effort was lowered to 60 hours. Using a rate of $36.95/hr, these values are equal to $11,085 and $2,217 per year, respectively. Although the petitioners' estimate was used (for facilities with more than 500 Method 21 components), there may be some double-counting. Based on Attachment F in Docket Item VI-B-13, it appears that the subcontractor's monitoring fees include, in part, "processing and archiving and standard reports." Thus, the petitioners' estimate, which includes preparation of compliance reports, may be duplicative, unless the petitioners must redo the report prepared by the subcontractor.

TABLE 2. SUMMARY OF PETITIONERS VI-A-7'S METHOD 21 COSTING COMMENTS AND EPA RESPONSES

Summary of Petitioners' Comments	EPA Response
Annual Fixed Costs Associated with Subsequent Screening Surveys: Contractor travel expenses = $12,000 Supervision, coordination, and preparation of compliance reports = $ 6,750 Total: $18,750	Subcontractor Program (applies to facilities with more than 500 Method 21 components and at least one pump): Contractor travel expenses = $12,000 Supervision, coordination, and preparation of compliance reports = $11,085 Total = $23,085 Subcontractors program (applies to facilities with more than 500 M21 components and no pumps): Contractor travel expenses = $ 4,000 Supervision, coordination, and preparation of compliance reports = $11,085 Total = $15,085 In-house Program (applies only to facilities with 500 or fewer Method 21 components): Contractor expenses (none incurred since in-house program) = $ 0 Supervision, coordination, and preparation of compliance reports = $ 2,217 Total = $ 2,217
3. INITIAL AND SUBSEQUENT MONITORING COSTS	
A. The petitioners suggest a total initial monitoring cost of $16.25/component. There are 6 items that make up the $16.25/component as follows: Item 1. Identification and documentation of components subject to the LDAR program.	The petitioners were requested to supply supporting documentation showing how the $16.25/component figure was derived (see Attachment F of Docket Item VI-B-13). The information in Attachment F does not allow the EPA to reconstruct the $16.25/component estimate. The closest derivation is $15.80/component, but for reasons discussed below, a much lower estimate appears appropriate. <u>Item 1</u> is similar to "locate and tag", which is reported in the petitioners' Attachment F as $2.05 per component and as $2.15 per component in the Petroleum Refinery MACT (see docket item IV-B-20, Attachment 12) If tagging is not performed (logging is performed instead), Attachment F shows a cost of $0.50 per component. Item 1 is covered in the costing program using a $2.15 per component value. As noted below, the "locate and tag" fee appears to cover Items 2 and 4.

TABLE 2. SUMMARY OF PETITIONERS VI-A-7'S METHOD 21 COSTING COMMENTS AND EPA RESPONSES

Summary of Petitioners' Comments	EPA Response
Item 2. Collection of all necessary data associated with each component in order to implement and comply with program requirements. Item 4. Initial population of the software system with all of the component data.	Greater than 500 components - Subcontractor Program. The petitioners do not provide separate cost estimates for Item 2, collection of all necessary data associated with each component in order to implement and comply with program requirements, and for Item 4, initial population of the software system with all of the component data. Attachment F of Docket Item VI-B-13 states that the "locate and tag" cost includes "all work necessary to locate and log **all pertinent information** with the installation of a permanent marking system (wire and tag)" [emphasis added]. Thus, Item 2 appears to be included in "locate and log" and "locate and tag" estimates for subcontracting. ("Locate and log" refers to locating the components subject to the rule and recording the information on data log sheets. "Locate and tag" refers to locating the components subject to the rule, placing a tag on each subject component, and entering the information into a data base for means of identification.) Attachment F also states that the monitoring charge (which is estimated at $2.50 per component for a subcontracting program) includes "all labor and materials, monitoring and data collection equipment, calibration and calibration gases, **data entry**, processing and archiving and standard reports and lead head wires and aluminum anodized tags (for initial tagging only) unless otherwise specified" [emphasis added]. Thus, it does not appear that a separate cost is attributable to Item 4 for a subcontractor program. Greater than 500 Components - in house program. For an in-house program, collection of data and data entry costs are based on the memorandum from G.E. Harris to R.V. Oommen included in Attachment 12 of docket item IV-B-20. This memo notes that "master database acquisition", which would be the gathering of such information as process unit, component type, component service, stream name/ID, and location information, etc., can range from 2 to 5 minutes per component, including determination of values, field data logging, and keypunching into the database. This translates into $0.75 to $1.88/component (using a labor rate of $22.50/hour). All facilities with 500 or less Method 21 components were assumed to use an in-house program and because all in-house programs are assumed to use the "locate and log" method (rather than the "locate and tag" method), the higher estimate (i.e., $1.88 per component) was judged to be appropriate for the initial data entry effort and the lower estimate (i.e., $0.75 per component) was assumed appropriate for subsequent data entry effort.
Item 3. Creating/updating facility drawing to reflect individual components in the program.	The petitioners do not provide a separate cost estimate for Item 3, creating/updating facility drawing to reflect individual components in the program. The Group IV rule does not require the creating or updating of a facility drawing. Therefore, no costs were assigned to this item in the revised costing.

TABLE 2. SUMMARY OF PETITIONERS VI-A-7'S METHOD 21 COSTING COMMENTS AND EPA RESPONSES

Summary of Petitioners' Comments	EPA Response
NOTE: The above four items were assumed by the petitioners' to require 30 minutes per component or $11.25/component (labor rate of $22.50 per hour). The following two items make up the remaining items in the $16.25/component estimate.	
Item 5. Tagging of components at $1.00/component	The $1.00 per component (Item 5) is for a standard aluminum stamped tag and lead wire set. It appears, however, that this cost is already accounted for in the $2.05/$2.15 cost. Attachment F of Docket Item VI-B-13 states: "This [cost] includes all work necessary to locate and log all pertinent information with the installation of a permanent marking system (wire and tag)." Further, the Petroleum Refinery MACT estimate for this item ($2.15/component) states that the tagging and identification costs also include the cost of the tags (see Docket item IV-B-20, Attachment 12). Therefore, it seems inappropriate to add Item 5 to the total. The $1.00/tag set probably is useful to estimate the cost to obtain replacement tags, but this is not included in the revised costing.
Item 6. Initial screening and entry into recordkeeping system (accounts for tagging of leaking components, difficult to monitor components, first attempt at repair, monitoring instrument rental, and downloading into the computer software system) at $4.00/component.	Item 6 was derived from data shown in Attachment F of docket item VI-B-13. The assumptions used to develop the exact number of $4.00 per component were not available to the EPA. However, the EPA took the information in Attachment F and developed a cost for the initial screening as follows. The cost for the monitoring is $2.50 per component (from Attachment F). This includes the actual monitoring with the organic monitor, data entry, and tagging leaking components. The cost for initial attempt at repair is $3.75 per leaking component (from Attachment F), and initial attempt at repair is applicable only to valves. The cost on a per component basis is then dependent on the number of valves and the percentage of valves found leaking in the initial screening. The cost for instrument rental was taken directly from Attachment F. Once these items were incorporated into the cost algorithms, the initial monitoring cost calculated by the algorithms ranged from $3.00 to $4.00 per component depending on the number of components to be monitored and the initial leak rate.

TABLE 2. SUMMARY OF PETITIONERS VI-A-7'S METHOD 21 COSTING COMMENTS AND EPA RESPONSES

Summary of Petitioners' Comments	EPA Response
B. Subsequent monitoring, which covers screening and data entry into recordkeeping system, accounting for tagging of leaking components, retagging of components, difficult to monitor components, first attempt at repair, monitoring instrument rental, and downloading of data into the computer software system. Estimated at $4.00 per component (overall average).	The cost for subsequent component monitoring was also derived from data shown in Attachment F of docket item VI-B-13. The assumptions used to develop the exact number of $4.00 per component were not available to the EPA. However, the EPA took the information in Attachment F and data from previous studies and developed a cost for subsequent monitoring as follows. The cost for the monitoring is $2.50 per component (from Attachment F). This includes the actual monitoring with the organic monitor, data entry, and tagging leaking components. The cost for initial attempt at repair is $3.75 per leaking component (from Attachment F), and initial attempt at repair is applicable only to valves. The cost on a repair component basis is then dependent on the number of valves and the percentage of valves found leaking. The cost for instrument rental was taken directly from Attachment F. Once these items were incorporated into the cost algorithms, the subsequent monitoring cost including instrument rental costs where applicable calculated by the algorithms ranged from approximately $4.00 to $12.00 per component depending on the number of components to be monitored and the number of leaking components.

TABLE 2. SUMMARY OF PETITIONERS VI-A-7'S METHOD 21 COSTING COMMENTS AND EPA RESPONSES

Summary of Petitioners' Comments	EPA Response
C. The petitioners stated that the above monitoring costs do not include the administrative costs associated with implementation of an LDAR program nor do they include costs associated with repairing leaking components. The petitioners also stated that performance of Method 21 screening by a contractor does not change administrative expenses (such as coordination with the maintenance department when leakers are found and keeping track of any components that are added/removed from service). Therefore, the petitioners did not amend EPA's algorithms for estimating administrative and repair costs.	In the costing algorithm at proposal and promulgation, a 40% administrative factor was used. This factor included the cost of data reduction and analysis and report preparation. In the revised costing, the estimates discussed previously for reporting and recordkeeping were used instead. As noted in the response to Items 1.A and 1.B, 300 technical hours were used in the revised costing for administrative and reports (annual cost) and 340 technical hours for planning and training (one time cost) for facilities with more than 500 Method 21 components. These larger facilities average approximately 2,500 Method 21 components per facility. Facilities with 500 Method 21 components or less average approximately 240 Method 21 components. Therefore, less effort would be required for these two burdens. These facilities will need to use fewer personnel to implement a LDAR program and have on average one-tenth the number of components and thus leakers to track and report than the facilities with more than 500 Method 21 components. For these smaller facilities, 60 technical hours were used for annual administration and reports and 170 technical hours were used for planning and training.

TABLE 3. SUMMARY OF PETITIONERS VI-A-2'S HEAVY LIQUID COMMENTS AND EPA RESPONSES

Comment Summary	EPA Response
In their petition, the petitioners assumed the effort to identify all equipment in heavy liquid service that need to be included in the program to be one-tenth the effort involved for components in the Method 21 LDAR program, which equals 3 minutes per (heavy liquid) component for a cost of $1.13 per component (3 minutes at $22.50/hr). The petitioners stated that it is assumed that this would not include tagging of equipment, but would need to involve redoing or developing P&ID drawings at least to the extent that equipment in heavy liquid service with greater than 5% HAP could be differentiated. The petitioners' minimal program described this procedure for identifying all equipment in heavy liquid service as follows: Identify all lines in the PET process that contain organic HAP at a concentration above 5 percent. Indicate these lines on a process and instrumentation diagram using a different color or line thickness for each type of service (i.e., heavy liquid, light liquid, gas/vapor). Don't worry if each individual component in heavy liquid service is not shown on the P&ID drawing.	Section 63.162(c) requires each piece of subject equipment in a process unit to be readily distinguished from non-subject equipment. Tagging is not required -- equipment may be identified on a plant site plan, in log entries, or by designation of boundaries using some form of weatherproof identification. The petitioners' minimal program meets this requirement. Some cost will be incurred to meet the rule requirement. Because most of the components in heavy liquid service are likely to be found on the same set of lines (i.e., all of the ethylene glycol service lines), it is not clear that a $/component factor is the best way to estimate costs. A better approach might be the number of process lines at a facility. It is also not clear whether or not the $1.13/component includes double-counting. In their petition (Docket Item VI-A-2), the petitioners appear to ascribe this cost only to heavy liquid components. However, in their minimal program description, it appears that they are identifying all lines -- gas/vapor and light liquid as well as heavy liquid. Because other parts of the rule already require identification of gas/vapor and light liquid components, no cost for that identification is attributable to the heavy liquid portion of the LDAR program. Thus, in their description of the minimal program, the $1.13 per component could include costs not attributable to the heavy liquid portion of the LDAR program. In summary, the new analysis uses the petitioners' estimate of $1.13/heavy liquid component at this time. This may be an overestimate because it may include double-counting of costs.
In Attachment G of Docket Item VI-B-13, the petitioners identified the need to design a data management system. The minimal program is described as: Design and produce tags for leaking equipment. Set up file in the EHSA office to keep the tags that have been removed from components following repair.	The rule requires that leaking components be tagged. The cost of the tag is estimated at $1.00 per tag (using the petitioners' Attachment F of Docket Item VI-B-13 as the source of this estimate). The number of tags required each year depends on the number of leakers identified each year. The petitioners, in their original petition, assumed that 0.25% of heavy liquid components will be identified as leaking annually. The number of tags required each year is based on this estimated leak frequency. A cost has been assigned for setting up a file. This initial, one-time cost assumes the purchase of a dedicated a 4-drawer file cabinet (= $125 from office supply catalogue) and 30 minutes (at $22.50/hr) of moving furniture around.

TABLE 3. SUMMARY OF PETITIONERS VI-A-2'S HEAVY LIQUID COMMENTS AND EPA RESPONSES

Comment Summary	EPA Response
Train staff on the requirements of the rule regarding identifying and repairing components in heavy liquid service. Estimated time of approximately 100 hours or $2,250. The minimal program defined this as: Train production operators and maintenance staff on the requirements of the rule regarding identifying and repairing leaking equipment, including the required schedule for first attempt at repair and successful repair. Train production operators in the procedures described below for tagging leaking equipment and making sure it gets repaired. Train maintenance staff in the procedures described below for filling in the tags and taking them to the EHSA office for filling after the leak has been repaired. Petitioner VI-A-7 also indicated that they would require training their entire maintenance staff for a cost of $2,600 (50 people at 2 hours per person at $26 per hour).	Almost all of the action items required for heavy liquid components under the rule are the same as for light liquid components -- the repair of component from first attempt at repair to the required schedule for repair. There are some minor differences associated with the heavy liquid components -- not required to use monitoring instrument; leak = sight, smell, sound; how to determine if repair is successful. Therefore, the petitioners' estimate of 100 hours seems unreasonably high. The petitioners did not identify how many people needed to be trained. The revised costing uses an average of 10 people who will need to be trained. The discussion of the heavy liquid program should take no more than 2 hours. This yields a total of 20 hours. A cost of $36.95 per hour rather than the $22.50 per hour was used for this effort, resulting in estimated costs of $739. Petitioner VI-A-7 has the highest estimated heavy liquid component count of all the PET facilities. Annualizing their estimated cost of $2,600 results in an annualized cost of $370 versus $105 (annualized cost of $739).
Find Leaks - The petitioners stated, in their January 23, 1997, petition, that routine walk-throughs would probably need to include an additional line on a log sheet as to whether or not any leaking components were discovered and estimated a cost of 1 minute per heavy liquid component per year (or $0.38/component annually). The "minimal approach," states "No action is required. Production operators may happen to see, hear, or smell a leak during their normal daily activities."	In their petition (Docket Item VI-A-2), the petitioners' describe their "more conservative approach" rather than their "minimal approach" as presented in Docket Item VI-B-13. Because the minimal program is consistent with the intent of the rule, no cost has been assigned to this item. Further, the petitioners state that "since the 1970's a much greater emphasis has been placed on repairing leaking equipment identified through sensory means, and that this is part of the normal practice at their facilities." Thus, no incremental costs are associated with the rule for finding leaks.

TABLE 3. SUMMARY OF PETITIONERS VI-A-2'S HEAVY LIQUID COMMENTS AND EPA RESPONSES

Comment Summary	EPA Response
Tagging and repair of leaking equipment. Assumed 0.25% of heavy liquid components would be identified each year as leaking, 4 hours per leaking component to tag and repair. This is equivalent to $0.23 per leaking component. In their minimal approach, the petitioners describe this as: Have the production operators that detected the leak identify the leaking component with a tag that will be easily noticed by Maintenance. Include on the tag: the date the leak was detected, the operator's initials, and an identifier for the component. Call maintenance immediately to inform them that a piece of equipment needs to be repaired and include identifying information to assist Maintenance in locating the leaking component. Revise Maintenance's SOP on the time frame required for repairing leakers. Have maintenance indicate on the tag the date of first attempt at repair and the date of successful repair. After the leak has been repaired, have Maintenance remove tag and take it to the EHSA office for filing. Have the EHSA staff check the tags before filling to make sure the component was repaired within 15 days.	The rule requires the repair of heavy liquid components. However, as noted above, the petitioners already acknowledge that the companies are repairing heavy liquid components as part of their normal practice. Therefore, no additional cost has been attributed to the rule for repairing leaking equipment. As noted earlier, a cost has been attributed for the tags used in tagging the leaking component. Facilities currently repairing components in heavy liquid service already have a mechanism for notifying maintenance. Revising the maintenance's SOP on the time frame for repairing leaks is already covered by the requirements for gas/vapor and light liquid components, which have the same time frame. The last three items in the Comment Summary column identified by the petitioners in their minimal program are not believed to incur any incremental cost or are covered elsewhere.

TABLE 3. SUMMARY OF PETITIONERS VI-A-2'S HEAVY LIQUID COMMENTS AND EPA RESPONSES

Comment Summary	EPA Response
Maintain Records - Records would need to be kept to document equipment in heavy liquid service (including when equipment is added or removed), leaks found, and repair history. It is assumed that the time associated with keeping records will be equal to the time associated with tagging and repairing equipment, or $0.23 per component.	
In their minimal approach, the petitioners state:	The minimal approach described by the petitioners is sufficient to meet the intent of the rule.
Have EHSA keep a copy of the diagram that indicates which process lines are in heavy liquid service.	The first item under the minimal approach is at most a negligible cost item (keeping a diagram).
Have EHSA keep a file of all tags that have been removed following successful repair of a leak	Keeping a file of tags should also require minimal effort each month. The revised costing uses a cost for maintaining records of 0.5 hours per month or $221.70 per year (0.5 hrs/month x 12 months x $36.95/hr). This cost was assumed to be the same for all facilities.

TABLE 4. SUMMARY OF PETITIONERS VI-A-2's CLAIMED TECHNICAL ERRORS AND INCONSISTENCIES AND EPA'S RESPONSES

Summary	Comment	EPA Response
Incorrect monitoring frequencies for valves.	•Cost algorithms are based on a valve monitoring frequency of 4 times per year. Eastman and Hoechst believe that in order to achieve a leak fraction of 1.00% (as required by the HON) monitoring must be performed monthly. This results in an underestimate of costs by 30%.	We have kept the monitoring frequency at quarterly monitoring for valves. The petitioners are in error -- the HON does not "require" a leak rate of 1%; rather the HON allows quarterly monitoring when there are less than 2% leakers [see 63.168(d)(2)] and semiannual monitoring when there are less than 1% leakers.
Incorrect values for "subsequent leak frequency" for pumps, valves, and connectors.	•EPA used the average leak frequency for pumps valves and connectors (4.02%, 1%, and 0.25%, respectively) rather than the leak frequency that will be experienced immediately prior to LDAR monitoring (8.04%, 2%, and 0.50%, respectively). This results in a 25% underestimate of costs.	The petitioners are correct. The higher subsequent frequency numbers are used in the recosting except where they are higher than the initial leak frequency used for the petitioner's facilities.
Change in annual costs not properly explained.	•The costs at promulgation are 3.5 times less than the costs at proposal. •Only one error resulted in an underestimate of cost; the other errors caused an increase in cost and were not explained. •The one error that was explained only accounted for a 30% reduction in cost.	Because a new analysis has been conducted, it is unnecessary to address this comment. The documentation in the Equipment Leak Analysis for PET Facilities Subject to the Group IV Polymers and Resins NESHAP memo (Docket Item VI-B-20) clearly lays out all of the bases for the cost estimates.
Change in emissions not properly explained.	•No information is provided regarding how previous and revised emission estimates from each of the PET facilities were calculated. •EPA made assumptions on equipment counts at each of the facilities; however, did not provide additional information on these assumptions so that the emission calculations could be checked.	Because a new analysis has been conducted, it is unnecessary to address this comment. The documentation for the new analysis lays out all of the bases for the cost estimates. However, because of possible confidential information concerns, it still is not possible to independently reconstruct the derivation of component counts for those facilities that did not provide them.

TABLE 4. SUMMARY OF PETITIONERS VI-A-2's CLAIMED TECHNICAL ERRORS AND INCONSISTENCIES AND EPA'S RESPONSES

Summary	Comment	EPA Response
Emission reduction used for HC Salisbury is incorrect.	•EPA used uncontrolled emissions value for emissions reductions.	Upon review of the data used for this facility, the analysis at promulgation used the proper emission reduction and did not use uncontrolled emissions. Please refer to the Equipment Leak Analysis for PET Facilities Subject to the Group IV Polymers and Resins NESHAP memo (Docket Item VI-B-20) for calculation of emission reductions for this facility and all others.
Presentation of changes in emission factors is misleading.	•EPA revised only the emission factors for equipment in heavy liquid service; no emission factors for equipment in light liquid and gas service changed. •Because no emissions reductions associated with Method 21 LDAR are achieved from heavy connectors, the aforementioned change has no impact on revised emission reduction estimates nor revised cost effectiveness calculations. •Therefore, it appears that the primary reason emission reduction values changed is because EPA used different equipment counts, which were not documented in the Memorandum.	The new analysis lays out the emission factors and component counts and their use in estimating baseline emissions and emission reductions. Please refer to the Equipment Leak Analysis for PET Facilities Subject to the Group IV Polymers and Resins NESHAP memo (Docket Item VI-B-20).
Error in connector costs for DMT based facilities.	•The monitoring frequency for connectors at DMT based facilities was 0, which gives no cost for monitoring or repair of connectors.	The petitioners are correct; the costing should have shown a 1 (one) for monitoring frequency. The costs have been revised this reflect this error. Please refer to the Equipment Leak Analysis for PET Facilities Subject to the Group IV Polymers and Resins NESHAP memo (Docket Item VI-B-20).

TABLE 4. SUMMARY OF PETITIONERS VI-A-2's CLAIMED TECHNICAL ERRORS AND INCONSISTENCIES AND EPA'S RESPONSES

Summary	Comment	EPA Response
Equipment counts not properly documented and not reasonable.	•Believe that the equipment counts used were inaccurate.	First bullet. The new analysis memo identifies explicitly the source of component counts for those facilities that provided component counts. Equipment Leak Analysis for PET Facilities Subject to the Group IV Polymers and Resins NESHAP memo (Docket Item VI-B-20).
	•Memorandum does not document which specific facilities were used to obtain the component counts.	Second bullet. This new analysis identifies which facilities provided component counts and were used to estimate component counts for those facilities that did not provide component counts. Equipment Leak Analysis for PET Facilities Subject to the Group IV Polymers and Resins NESHAP memo (Docket Item VI-B-20).
Basic errors in spreadsheet calculations.	•Pump miscellaneous charges: 1. Incorrect leak fraction was used (initial rather than subsequent).	First bullet, item 1. The petitioners are correct. The costing has been revised accordingly.
	2. Equation was multiplied by 0.4 rather than 0.8 as in the HON analysis.	First bullet, item 2. The petitioners are correct. The costing has been revised accordingly.
	•For several facilities, the capital cost for open-ended lines is not calculated and is shown as zero.	Second bullet. The petitioners are correct. The costing has been revised accordingly.
	•The initial leak frequencies and subsequent leak frequencies listed in the "revised formula" spreadsheet are not the values actually used in the spreadsheets. In addition, these values are questionable because they are associated with monitoring frequencies/leak definition that were never actually selected.	Third bullet. The new analysis supersedes this comment. Please refer to Equipment Leak Analysis for PET Facilities Subject to the Group IV Polymers and Resins NESHAP memo (Docket Item VI-B-20).