EPA Flexible Permit Implementation Review: DaimlerChrysler Permit Review Report

Source: DaimlerChrysler - Newark, Delaware Automobile Assembly Plant (NAP)

Permitting Authority: Delaware Department of Natural Resources and Environmental Control (DNREC)

Flexible Permits: Construction/Operation permit (APC-95/0569) issued in September 1995; and title V air operating Permit (AQM-003/00128) issued in October 1999. *Note to EPA: The initial permit included a nonattainment NSR review of the new paintshop. While the 1995 permit and the subsequent title V permit include provisions addressing BACT review, these are not associated with PSD.*

1. BACKGROUND

General Questions for Permitting Authority

1.1 Agency name

Delaware Department of Natural Resources and Environmental Control (DNREC)

1.2 Number of major sources (title V)

DNREC reported that there are approximately 87 major sources in Delaware. The State has received 87 title V permit applications, as of July 2001.

1.3 Number of permit actions per year

1.3.a Minor NSR

1.3.b Major NSR

1.3.c Operating permits

- **Title V issuance**
- **Title V revisions**

1.3.d Other permits

DNREC representatives reported that the agency issues approximately 5-10 major NSR permits per year and approximately 250-400 minor NSR permits per year in the State of Delaware. As of July 2001, DNREC has issued 71 title V air operating permits, as well as four renewals, three cancellations, 19 administrative amendments, and one permit amendment. DNREC has also issued 78 synthetic minor and acid rain permits.

1.4 Number of permit writers

1.4.a Workload (permit actions per year per permit writer)

DNREC representatives indicated that the agency has approximately 23 permit writers, although these personnel also have inspection and compliance responsibilities as part of their workload.

DNREC stated that permit writer workload is variable, based on the permit writer's expertise and experience, as well as source complexity.

1.5 Minor NSR provisions (summary of requirements, citation(s))

Regulation #2: Permits.
Delaware's Regulation #2 addresses requirements associated with air permitting in the State.

Applicability:

- Permit applications are required for initiating construction, installation, alteration, or initiating operation of any equipment or facility or air contaminant control device which will emit or prevent the emissions of an air contaminant over 0.2 pounds per day provided that actual emissions are quantified and documented, and facility records are maintained to document the exception.
- Under Regulation #1, a "modification" refers to any physical change in, or change in the method of operation of, any air contaminant source which results in an emission to the atmosphere of one or more existing air contaminants.
- For equipment that meets all applicable emissions rates and/or standards without an air contaminant control device, and actual emissions equal to or greater than 0.2 pounds per day but less than 10 pounds per day, and to which title V does not apply, a completed registration form can be submitted in lieu of an application. (See Section 9 of Regulation #2.)
- Applications for "source category permits" are also required for specified sources. (See Section 10 of Regulation #2.)
- Equipment listed in Appendix A of Regulation #2 is exempt.

Requirements:

Registration forms are to contain a description of the equipment covered by the registration; a description of the nature and quantification of the amount of the emissions from the equipment; and a demonstration that the equipment meets the emissions rate(s) and/or standard(s) specified. The registration option still requires compliance with all applicable State and federal requirements, including monitoring, recordkeeping, and reporting. Construction, installation, alteration, or initiation may be initiated immediately after submitting to the DNREC the information above. If at any time the registered equipment does not meet the requirements (emissions limits), operation of the equipment is to be immediately discontinued until all necessary permits have been obtained. If the DNREC determines that the registered equipment does not meet the requirements, enforcement action may ensue.

Source category permit applications are to contain all information required by the source category application form; this includes certification that the source will comply with all of the terms and conditions of the source category permit. If the source is a title V source, the source category permit is to be incorporated into the title V permit by reference via a title V administrative permit amendment.

Permit applications are to contain descriptions of: equipment covered by the application; equipment connected to the equipment covered by the application; the plot plan, including the distance and height of building within a reasonable distance from the place where the equipment is or will be installed;

the proposed means of pollution prevention or control; the chemical composition and amount of any waste to be produced as a result of the construction; any additional information, evidence or documentation to show what the proposed equipment will do; methods and expected frequency of occurrence of the start-up and shutdown of the equipment; the nature and amount of emissions to be emitted by equipment, the facility, or an air contaminant control device.

If the applicant desires terms/conditions of the permit to transfer to its title V permit via a title V administrative amendment, specific certification language must be included in the application (by a responsible official), as well as:

- the citation and description of all applicable requirements that will apply to the equipment, facility, or air contaminant control device and that will become applicable to any covered source as a result of the construction, and a description of any applicable test method for determining compliance with each applicable requirement; and
- certification that the source will meet all applicable requirements on a timely basis.

Emissions rates and/or standards for each air contaminant emitted from any equipment are to be specified in each permit, consistent with:

- the rate and/or standard established and/or relied upon in the SIP; and
- the rate shown not to interfere with the attainment and maintenance of National and State ambient air quality standards; or
- the rate requested by the applicant, if no less stringent than the rates above.

Upon completion of the construction, if the permit is not to be incorporated into a title V operating permit, a request for an operating permit is to be made.

1.6 Public participation provisions (summary of requirements, citation(s))

Once a permit application has been received, public participation is to include:

- making the application materials available at at least one location;
- advertising in a newspaper of general circulation in the county in which the activity is proposed;
- sending notice of the information by mail to any person who has requested such a notification; and
- holding a public hearing, if a meritorious request is received within 15 days of the date of the advertisement or if the DNREC deems it to be in the best interest of the State. If a hearing is held, notice of at least 20 days must be provided.

If the permit applicant requests to make the terms and conditions of a permit federally enforceable, all steps for permit applications listed above apply, except for the public hearing, which must be requested within 30 days of the date of the advertisement, and which must be scheduled with 30 days of advance notice.

If the permit applicant requests to allow the terms and conditions of a construction permit be transferred to a title V permit via the administrative permit amendment process, all steps for permit applications listed above apply, except for the public hearing, which must be requested within 30 days of the date of the advertisement, and which must be scheduled with 30 days of advance notice. As well, a copy of the application is to be sent to EPA Region III for review, followed by a copy of the proposed permit. EPA has 45 days to object to the permit. If EPA does not object, other parties

have 60 days after EPA's 45-day review period to make such an objection. Requirements are found in Regulation 2, 25, and 30.

1.7 Reporting and feedback mechanisms (summary of requirements)

Annual Emissions Statements: Emissions statement requirements apply to all stationary sources located in an ozone non-attainment area that emit NO_x and/or VOCs. The Emissions Statement is to contain data elements addressing source identification, operating data, actual emissions data, control equipment information, and process rate information. Each Emissions Statement is to include a certification of the data. The minimum operating data provided by the source is to include:

- Percentage of annual throughput;
- Hours per day on both the normal operating schedule and during peak ozone season (June 1 - August 31);
- Days per week on both the normal operating schedule and during peak ozone season;
- Weeks per year on both the normal operating schedule and during peak ozone season;
- Start time on both the normal operating schedule and during the peak ozone season; and
- End time on both the normal operating schedule and during the peak ozone season.

Minimum emissions information is to include:

- Actual VOC and/or NO_x emissions at the process level, in tons per year for an annual emissions rate and pounds per day during the peak ozone season;
- Emissions method code for estimated or measured emissions (See Regulation 17, page 10);
- Units code to identify the units (TPY or PPD) (See Regulation 17, page 10); and
- Calendar year for emissions.

Minimum control equipment information is to include:

- Current primary and secondary control equipment ID codes (See Regulation 17, page 11);
- Current control equipment efficiencies; and
- Capture efficiency.

Minimum process rate data is to include:

- Annual fuel/process rate (annual throughput if not a combustion process);
- Peak ozone season daily process rate;
- Design capacity;
- Fuel use data;
- Tank data; and
- Solvent usage data.

Annual Emissions Statements are due on April 30 for the preceding calendar year, or more frequently if requested by DNREC.

1.8 Requirements and/or ability to be more stringent than EPA rules

DNREC's Regulation 25, Section 2 requires them to look at installations (identifiable pieces of process, combustion, or incineration equipment) in addition to the federal review definition.

DNREC has the ability to have requirements that are more stringent than EPA rules. Another example of this is the Regulation No. 2 construction and operating permit program for minor sources.

It is described in Section 1.5 "Minor NSR Provisions" of this report.

1.9 Status of initial title V issuance (i.e., number issued, renewed, in process)

DNREC has received 87 title V permit applications and issued 71 title V permits, as of July 2001.

1.10 Number of flexible permits written and public reaction to them

In addition to the DaimlerChrysler permit, DNREC has issued a flexible title V permit for DuPont's Edge Moor, Delaware facility. Public hearings were not requested for either permit. DNREC has also issued permits that contain alternate operating scenarios. DNREC representatives stated that "public reaction [to these flexible permits] has been little or none."

1.11 Air quality status of area where flexible pilot permit was issued

The source, located in Newark, Delaware, is in a severe non-attainment area for ground level ozone.

1.12 Number of inspections that have occurred re: flexible permit

The following inspections were conducted by DNREC during the term of the PAL permit (Permit: APC-95/0569 - Construction/Operation), between September 1995 and October 1999:

- New paint shop pre-operation inspection (2/14/97);
- Regenerative Thermal Oxidizer (RTO) stack test and other stack sampling (1997);
- Powerhouse certification inspection (4/2/97);
- Paint sampling for VOC content (10/1/97);
- Annual permit inspection of the NAP (9/13/98 to 9/21/98).

The NAP was shut down from June 1996 to September 1997 for retooling the facility to produce the Dodge Durango. Due to the limited nature of facility operations during this period, DNREC considered the February 14, 1997 paint shop pre-operation inspection and the April 2, 1997 powerhouse inspection to count as the annual inspection for that time period.

An inspection was conducted in July 1999, before the October 1999 issuance date of the title V permit. Particulate testing for color booths 1 and 2 also occurred at that time. In January of 2000 the powerhouse boilers and paintshop hot water generators were stack tested and in May of 2000 coating samples were taken. In July of 2000 a facility tour was made by DNREC representatives but it was not considered a formal inspection. DNREC determined that a combination of the site visit, the stack test, and the paint sampling was sufficient to determine compliance for 2000. From August 21 to 23 of 2001, DNREC conducted an annual inspection and paint sampling. The facility was found to be in compliance with its permit conditions and applicable requirements.

1.13 Authority to impose P2 requirements and/or additional safeguards suggested by draft White Paper Number Three (e.g., monitoring, notices, up-front magnitude limits)

DNREC representatives believe that the agency does possess the authority to impose P2 permit requirements and it did impose P2 requirements in the NAP 1995 permit which were carried over to the title V permit. DNREC representatives also indicated that they believed more frequent emissions reporting (e.g., monthly) was warranted to help ensure the NAP would remain below its PAL emissions limits. Since the 1995 permit was the first flexible permit with a facility-wide emissions limit issued by DNREC, the agency felt such safeguards were necessary to ensure that potential non-compliance with the emissions limits could be detected quickly. DaimlerChrysler was not opposed to these conditions.

1.14 Agency's overall orientation to P2 (e.g., how is P2 considered in permit writing?)

DNREC does have a Pollution Prevention Program, and has prepared P2 guidance documents for several industries. Despite a successful implementation of the P2 program, DNREC representatives indicated that they believe that its full potential has not been met. DNREC believes that the concepts behind the P2 provisions included in the DaimlerChrysler NAP PAL permit and the flexible permit of another facility in the state could be implemented at facilities across the state.

1.15 Time required to issue flexible permit

DNREC representatives stated that it took 99 days to develop and issue the 1995 initial flexible permit. This was with two full-time staff, plus manager oversight, and quick permit review turnaround from EPA Region 3. This remarkably short permit development time frame was primarily attributed to the effective partnership among DNREC, EPA Region 3, and DaimlerChrysler. A public hearing was not requested for this permit. DNREC representatives reported that, had a public hearing been necessary, the permit process could have taken an additional 4 to 6 months. DNREC staff reported that the most time-consuming aspects of permit development related to PAL baseline establishment, identification of the pre-approved changes and change categories, and determining LAER and offsets for NSR.[1]

DNREC representatives indicated that it was relatively straightforward to incorporate the flexibility provisions from the original PAL permit (APC-95/0569-Construction/Operation) into the title V permit, and that this did not add to the time and effort necessary to develop the NAP's title V permit when compared with other conventional title V permit development efforts.

1.16 Time required to issue conventional title V permits (on average)

DNREC representatives reported that it typically takes 2-3 years (18 months for renewals) to issue a title V permit from the time that an initial application is submitted to the agency. DNREC stated that permitting delays occur mainly when the facility does not submit a timely or complete application.

1.17 History of any deviations, violations and/or enforcement actions over the period before the effective date of the flexible permit

DNREC representatives reported that in 1994 (prior to the flexible permits), the NAP had replaced thermal oxidizers in the old paint shop without obtaining a permit. The NAP had stated that they believed this to be an "in kind replacement." DNREC let them proceed without an enforcement action because the stack test showed that emissions rates had actually gone down.

1.18 Compare characteristics of flexible permits vs. traditional permits.

1.18.a Considering all the different types of sources for which you issue Title V permits,

---

[1]For description purposes, the approach taken by DNREC in the 1995 permit is referred to as a Plant-wide Applicability Limit (PAL). Indeed, the emissions caps contained in the 1995 permit and the title V permit function as such limits, when met they prevent Major NSR from triggering for any change or group of changes. However, except for a specific set of types of changes listed in the two permits as pre-approved, changes that would normally go through state level NSR review still must. Additionally, the permit states that any new units with emissions over the significance level must meet BACT. All new source permits are subject to a 30 day comment period. See section 2.2 for a discussion of how the PAL baseline was set.

what are some examples of good candidates for flexible permits?

1.18.b What are some examples of sources that are not good candidates?

1.18.c Keeping in mind these two different groups of sources (one that contains good P4 candidates and the other that contains sources that are not good P4 candidates) consider the following characteristics. Which characteristics are similar between the two groups of sources? Which are different?

1.18.d Have you ever turned down a facility that asked for a flexible permit? If so, what reasons did you have for making this decision? What facility characteristics were important in making this decision? Could we get a copy of applications that were turned down?

DNREC representatives indicated that a source's compliance history should serve as a primary indicator of the source's suitability as a candidate to receive a flexible permit. While DNREC representatives stated that they do not believe prior compliance issues should preclude a source from receiving a flexible permit, they did indicate that the source's compliance history, including recent trends in that history, should be considered when determining whether a flexible permit is appropriate for the source. For sources that are new (e.g., "greenfield" sources) and do not have a compliance history, DNREC indicated that it would consider the compliance history of other facilities in Delaware or other jurisdictions that are owned or operated by the same company. DNREC has developed a source questionnaire to assist the agency in conducting such background assessments.

DNREC also indicated that the source should have the staff and capability to devote to the permitting process, the resources to prepare an effective and thorough permit application, an effective emissions monitoring system, and the capability to prepare complete and accurate emissions inventories. They indicated that the source should also be capable of "self-policing".

In addition, DNREC representatives reported that "good communication between the agency and facility is key". Agency personnel indicated that they want to feel comfortable that the facility's staff will contact the permitting authority if questions regarding operational or equipment changes, monitoring, or regulatory interpretation arise during permit implementation. In addition, sources should be able to articulate their need for operational flexibility, including the types of changes that they are likely to make during the permit term.

DNREC representatives indicated that the agency received a request for a PAL permit from another facility, but due to its poor compliance record and a lack of "self-policing" strategies, the request was denied.

Questions Specific to the Pilot Source

1.19 Source description, types of operations, and applicable requirements

Source Description/Operations:

DaimlerChrysler's Newark Assembly Plant (NAP) is located in Newark, Delaware, and the 3.4 million square feet facility sits on a 244 acre site. The facility was built in 1951 as a tank manufacturing plant, and was converted to automotive assembly in 1956. Since 1997, the NAP has exclusively produced Dodge Durango sport utility vehicles. Facility operations focus primarily on vehicle coating (painting) and assembly of parts produced at other DaimlerChrysler facilities and by more than 390 suppliers to produce finished vehicles. Approximately 2,180 parts are assembled to produce each Durango, and the facility contains 241 robots and 17.1 miles of conveyor. In July 2001,

the NAP was producing approximately 600 vehicles per day. The NAP has a unionized workforce of approximately 2,686 that works in two 8-hour shifts. Approximately 219 salaried employees work at the facility.

Prior to producing the Dodge Durango, the facility produced vehicles based on Chrysler's K Car platform and Intrepids utilizing the paint shop that was located in the current assembly operations buildings. To produce the Durango, Chrysler desired to build a new coatings building adjacent to the assembly building that would accommodate many of the new coating emissions-reducing coating technologies that DaimlerChrysler had developed in the early 1990s. The 1995 construction permit enabled this building to be constructed, which is attached by covered conveyor line to the assembly complex.

Most of the VOCs from the NAP occur during the process of painting vehicles. This process begins when unfinished vehicles undergo a phosphating surface treatment, followed by an EDP Prime Coat Operation dip tank and E-Coat oven. Once cooled, the vehicles are sanded for preparation prior to the application of sealers. On the sealer deck, an underbody sealer and manual seam sealers are applied, followed by deadener pad installation. A powder anti-chip/primer surfacer coating is then applied and the vehicle again goes through a curing oven. The topcoat is applied in two steps. A waterborne color basecoat is first applied, followed by a solvent borne clearcoat. The vehicle is then routed through the topcoat curing oven. Paintshop curing oven exhausts are routed to a thermal oxidizer. Upon completion of this painting process, vehicles are sent to the trim department in the main assembly building where all remaining components are added.

The NAP also has a powerhouse with five boilers, each with a rated heat input capacity of 72 mmBTU/hour. The boilers were retrofitted in 1992 to burn natural gas. During the permit term, DaimlerChrysler decided to install additional smaller hot water heaters, so that the boilers would only need to be operated for six months during heating seasons each year, and not over the summer months when ozone pollution concerns are greatest. The NAP also maintains four electric compressors with 26,000 cfm capacity, and two backup generators for the powerhouse. Criteria pollutants result from operation of the boilers, thermal oxidizer pollution control equipment (incinerators), paint curing ovens, and air supply houses.

Applicable Requirements:

- Minor NSR (Reg. 2)
- Ambient Air Quality Standards (Reg. 3)
- Particulate Emissions from Fuel Burning Equipment (Reg. 4)
- Sulfur Dioxide Emissions from Fuel Burning Equipment (Reg. 8)
- Control of Nitrogen Oxide Emissions (Reg. 12)
- Visible Emissions (Reg. 14)
- Source Monitoring, Recordkeeping, and Reporting (Reg. 17)
- Control of Odorous Air Contaminants (Reg. 19)
- Standards of Performance for Automobile and Light Duty Truck Surface Coating (Reg. 20, Sect.15)
- Compliance Certification, Recordkeeping, and Reporting Requirements for Coating Sources (Reg. 24, Sect. 4)
- Compliance Certification, Recordkeeping, and Reporting Requirements for Non-Coating

Sources (Reg. 24, Sect. 5)
- Handling, Storage, and Disposal of VOCs (Reg. 24, Sect. 8)
- Automobile and Light Duty Truck Coating Operations (Reg 24, Sect. 13)
- Coating of Miscellaneous Metal Parts (Reg. 24, Sect. 22)
- Solvent Metal Cleaning (Reg. 24, Sect. 33)
- Industrial Cleaning Solvents (Reg. 24, Sect. 33)
- Other Facilities that Emit VOCs (Reg 24, Sect. 50)
- Major NSR, including LAER (Reg. 25)
- Title V Operating Permit (Reg. 30)

1.20 Actual and allowable source emissions (tpy) for every year since flexible permit issuance

The Construction/Operation air permit issued in 1995 established an annual (12-month rolling) plant-wide applicability limit (PAL) for VOCs of 1112.8 tons/year, and a daily VOC emissions limit of 5.3 tons/day. Annual and daily emissions limits were also established for NO_x of 150.71 tons/year and 4.86 tons/day. These PAL levels were retained in the title V permit issued in October 1999.

The short-term (daily) VOC emissions limit was established to protect ambient air quality/NAAQS, to be consistent with the SIP, and to comply with DNREC's policy of conducting gaussian plume dispersion modeling based on daily emissions rates to prevent unhealthy downwind concentrations of air pollutants.

Actual annual emissions during the term of the flexible permits (from 1996 to the present) are presented in Table 1.20. The table also includes annual emissions data for the years prior to the first PAL permit. DaimlerChrysler representatives indicated that the drop in VOC emissions during 1996 and 1997 coincided with DaimlerChrysler's renovations of the NAP to shift to production of the Dodge Durango (e.g., vehicle production was idle or low throughout this period). Additionally, they reported that the higher SO_2 and NO_x emission levels in 1993 through 1996 were largely associated with use of #6 fuel oil in the power house boilers during this period.

Table 1.20 **Annual Actual Source Emissions (tons/year)**

Year	VOC	NO_x	CO	SO_2	TSP	PM_{10}
2000	776.2	61.0	25.4	12.1	3.0	3.1
1999	935.7	62.0	12.8	0.2	1.2	1.2
1998	858.7	78.5	9.3	9.6	2.0	1.8
1997	178.3	53.8	12.9	30.2	3.9	3.5
1996	179.2	76.2	8.2	93.4	9.7	7.5
1995	575.3	145.6	14.1	142.2	11.5	10.6
1994	1165.5	173.6	18.0	139.6	11.6	11.6
1993	1145.0	156.9	17.5	101.9	8.7	7.9

1.21 Amount and nature of fugitive emissions

Fugitive emissions come from industrial cleaning solvents used in manual wiping and the mechanical body washers, as well as sealers and adhesives manually applied to each vehicle. DaimlerChrysler representatives indicated that as pollution prevention and control devices have reduced actual emissions, the proportional contribution of fugitive emissions to overall facility VOC emissions has grown. DaimlerChrysler does not track "fugitive" emissions separately. Because a mass balance approach is used to track emissions, it picks up emissions from stacks and fugitives for some materials togther. While one might assume that cleaning-related VOCs are fugitives, some portion of them occur in the booths and end up as point emissions. As a result DaimlerChrysler is not able to provide an exact number for fugitive emissions only.

1.22 Source flexibility needs

1.22.a Characterization of pre-flexible permit regulatory concerns

1.22.b Type and number of source changes potentially subject to air permitting

1.22.c Which changes incur an opportunity cost of being 'late to market' due to permitting "delays," and the potential extent of that cost

1.22.d Why conventional permitting process may not be sufficient for certain types of changes

DaimlerChrysler representatives reported that there are several factors that contributed to their interest in securing a flexible PAL permits for the NAP. First, DaimlerChrysler representatives indicated that air permitting time frames are increasingly on the critical path for the introduction of new products and the implementation of process improvements. While new vehicle development process (i.e., time from initial product design to production launch) took five years in the early 1990s, this process has been shortened to 18 to 27 months, largely due to advances in computer-assisted design. DaimlerChrysler representatives indicated that the time frames associated with preparing New Source Review (NSR) permit applications and awaiting agency approval to make changes increasingly have potential to delay new product launch. Title V with its revision process has the potential to compound this delay.

Second, DaimlerChrysler acknowledged a strong desire to increase the certainty regarding the applicability of regulatory requirements to desired operational and equipment changes, and to increase the predictability of time frames associated with making these changes. DaimlerChrysler representatives reported that they believe advance approval provisions in a permit can increase clarity regarding how the facility needs to address various types of changes to satisfy applicable requirements. DaimlerChrysler personnel indicated that during many years the facility may not need to make many changes that utilize the pre-approved change provisions of the flexible permit. They emphasized, however, that the ability to make a handful of changes utilizing the pre-approval conditions in a timely and predictable manner can help to keep project schedules on track and add substantial value to the company. In addition, such a framework minimizes the conversations necessary to determine potential regulatory applicability which can themselves be quite extensive.

Third, DaimlerChrysler indicated that a key factor in their interest in flexible permits was the desire to reduce complexity associated with their air permits. DaimlerChrysler representatives reported that the reduction of complexity has been an important company-wide objective linked to the company's lean manufacturing initiatives. By streamlining permit conditions (by eliminating redundant, overlapping limits on operating conditions and replacing them with streamlined, enforceable

environmental performance limits), DaimlerChrysler believes that the flexible permit has simplified the NAP's compliance demonstration activities, while improving the information generated on environmental performance and allowing personnel to focus on overall facility emissions performance.

DNREC officials indicated that they viewed the cyclical nature of production at the NAP as a key reason for developing a PAL permit for DaimlerChrysler. The production cycle begins with a major changeover, including the installation and modification of equipment, as the facility prepares to assemble a new vehicle type. During this period, emissions are typically low. Once production is launched, emissions increase as production volume increases.[2] Towards the end of a model production, emissions typically fall off again until production is slowed or idled for changeover to a new vehicle model. Thus, the emissions profile of the NAP can cycle from less than 200 tons/year to higher than 1,000 tons/year over a 3 to 5 year period. To accommodate this production and emissions cycle, and to lessen the need for permitting actions to address these patterns, DNREC believed that a PAL would be appropriate to meet the source's flexibility needs.

DaimlerChrysler representatives provided three examples to highlight areas where addressing New Source Review requirements under conventional permitting approaches has hampered changes that would result in both environmental and business benefit. They indicated that flexible permitting provisions can play an important role in minimizing these types of situations.

In the first example, an automotive assembly plant planned to eliminate one shift of a two-shift operation, due to market fluctuations. To accommodate demand, a small increase in production on the single shift was needed. The facility needed to make minor physical changes to accommodate an increase of two jobs (vehicles) per hour. DaimlerChrysler projected that annual natural gas usage would be reduced by roughly 30% (0.4 billion cubic feet of natural gas) at a savings of greater than $2 million due to the shift reduction. Electrical power consumption would be reduced by roughly 10% at a savings of greater than $700,000 annually. To make the physical changes and increase production on the single shift, DaimlerChrysler determined that, under a conventional permitting scenario, the facility would need to either obtain a PSD permit, which would likely take more than 12 months and could require investment in additional pollution control equipment, or the facility could accept a lower emissions limit that would prevent returning to full capacity running two shifts in the future. DaimlerChrysler representatives indicated that the conventional air permitting process creates strong disincentives for proceeding with this change, even though it would result in both environmental and economic benefit.

In the second example, DaimlerChrysler was considering eliminating a thermal oxidizer on a coating line at an automobile assembly plant. The requirement to use a thermal oxidizer on a coating line oven was part of a past BACT analysis. The VOC content of the coatings, however, has been reduced over time and the facility can now meet the permitted emissions rates without the use of the thermal oxidizer. At the low VOC emissions rates, the thermal oxidizer has fewer emissions to burn

[2]Production and emissions increases do not necessarily increase at the same rate. For some processes, VOC emissions levels remain relatively constant despite production increases. For example a electro-coat dip tank paint system will have some VOC emissions regardless of the number of vehicles or parts painted. As a result, the per vehicle VOC emissions will likely decrease as full production levels are reached.

and must use more fuel to maintain the required temperature; the oxidizer burns roughly 50 million cubic feet of natural gas annually. The local agency indicated that the proposed removal of the thermal oxidizer would need to be reviewed under PSD because the requirement to use the oxidizer was part of an original BACT analysis. Also, although the estimated worst case increase in actual emissions associated with removing the oxidizer would be 24 tons per year, a comparison of the past actual emissions to future potential emissions would exceed the significance threshold for PSD and a reevaluation of BACT would be needed. DaimlerChrysler reported that the facility applied for a PSD permit 11 months ago and the thermal oxidizer continues to operate. DaimlerChrysler representatives indicated that a flexible permit could have provided a more streamlined and predictable process for determining the fate of the oxidizer, potentially facilitating the elimination of criteria pollutants associated with its continued operation.

The third example involves a comparison of the Newark permit with the permits in place at another DaimlerChrysler plant. This comparison is documented under section 7.8 of this report, and it highlights both the delays associated with making changes under a conventional permitting approach and the increased complexity of permit requirements typically experienced under conventional permits.

1.23 What has been the frequency of required NSR permits over the period before the effective date of the flexible permit?

DaimlerChrysler's NAP had two plant-wide NSR permits prior to the flexible permit that was issued in 1995, both to track miscellaneous VOC-containing materials. The NAP also had 20 other permits addressing individual coating operations, sanding operations, and boilers, all issued between 1985 and 1995, and many of which involved three to four permit amendments each.

1.24 Flexible permit's inspection history

DNREC representatives reported that the NAP "was evaluated to be in compliance" based on stack tests, coating samples, and a site visit in 2000 and the annual inspection conducted from August 21 to 23 of 2001. See section 1.12 for a discussion of inspections conducted under the flexible permit.

Two compliance issues were identified during the DNREC inspections, although both were resolved without issuance of violations or penalties. First, during the September 1998 annual inspection, DNREC observed an uncovered pail containing solvent near the spray gun cleaning area near the clearcoat booth. DNREC inspection reports indicate that this situation was immediately rectified by facility personnel. In DNREC's October 1, 1998 annual inspection summary letter to the NAP, the agency recommends that Chrysler "review internal procedures to ensure that all personnel are trained in the requirements" and indicates that no further action will be taken by the agency.

Second, the analysis of paint samples taken by DNREC during the September 1998 inspection produced results that differed from DaimlerChrysler calculations. DNREC calculated the VOC content of a set of coatings to contain 31% more pounds of VOCs per gallon than Chrysler's calculated VOC content. This disparity meant that Chrysler's compliance with the LAER topcoat emission rate of 8.45 lbs./gallon was doubtful. Correspondence between DNREC and the NAP from October 1998 to February 1999 traced the calculations disparity to sample analysis errors made at the EPA-approved laboratory utilized by DNREC. Subsequent evaluations enabled DNREC to reproduce DaimlerChrysler's calculations, and the facility was determined to be in compliance.

1.25 Source's history of P2 commitment

DaimlerChrysler representatives indicated that the company has had a strong P2 program in place for many years at both the corporate and facility levels. DaimlerChrysler has a demonstrated history of successfully using P2 in lieu of add-on controls as a company operations strategy. The company believes that end-of-pipe pollution control equipment often results in high energy consumption, increased emissions (in the case of thermal oxidizers), additional costs, increased complexity, and non-compliance risk, and that the controls do not ultimately contribute to the product's value. Therefore, they cited P2 as the preferable option whenever possible and as the cornerstone of the company's compliance strategy. DaimlerChrysler representatives identified two primary types of P2 activities: (1) incorporation of P2 into new products and processes, and (2) in-production modifications to reduce pollution and/or improve process efficiency and input yields.

The first type of P2 activity typically involves corporate environmental staff working directly with engineering and design teams, suppliers, and facility personnel to research and develop new products, components, and processes that have lower environmental impact. Such advances generally are piloted at one or a few facilities, but over time, they might be expanded to all similar operations across the company. For example, in the early 1990s, Chrysler made a strategic decision to develop a comprehensive coating strategy that focused on P2. DaimlerChrysler representatives reported that the company takes a "systems approach" to P2. Rather than looking at just a single step in the vehicle coating process (e.g., electro-coat primer), it has looked to optimize environmental performance across all steps in the paint process. P2 efforts have focused on reducing VOCs and hazardous air pollutants (HAPs), as well as odor issues, across the entire coating process. The resulting shift in coating strategies is reflected in the coating technology changes made between the 1980s and 1990s, summarized in Table 1.25.

Table 1.25 **Changes in Vehicle Coating Technologies Resulting from P2 Strategy**

1980s	1990s
Pre-treatment with chrome rinses.	Chrome-free pre-treatment rinses.
High film build electro-coat dip primer.	Lead-free electro-coat with reduced HAPs & VOCs.
High solids chip resistant primer.	Enhanced chip resistant powder primer surfacer (no HAPs and minimal VOCs).
High solids solvent borne base/clear topcoat.	Waterborne basecoat/high solids clearcoat (lower VOCs and 95% HAP reduction).
Solvent borne black-out and under-body deadener.	Waterborne black-out and low VOC under-body deadener.

DaimlerChrysler has made a concerted effort to implement these new coating systems at all 11 Chrysler Group assembly plants in the U.S. and Canada. The new coating building ("paint shop") at the NAP, constructed under the flexible permit from 1995 to 1997, utilized these new coating systems.

Corporate P2 efforts have been supported and complemented by P2 activities at the NAP. In the

early 1990s, a "Solvent Reduction Team"(now referred to as the "Pollution Prevention Team") was created to develop methods to reduce the volume of solvent containing chemicals being used at the plant. Significant reductions in the amount of solvents and paints used was achieved through the installation of more efficient coating application equipment, process modifications, input substitution, and worker education. From 1993 to 2000, the NAP reduced Toxic Release Inventory air emissions from 4.5 pounds per vehicle to 2.7 pounds per vehicle.

In addition to DaimlerChrysler's focus on P2 for coating processes, the NAP has implemented lean manufacturing techniques that have eliminated significant waste and pollution from facility operations since the early 1990s. For example, just-in-time supply systems have reduced the need for inventory storage space, resulting in less energy consumption. Nearly all vehicle components are delivered in reusable containers, minimizing packaging waste. Continuous improvement quality initiatives by the NAP's 127 employee teams have resulted in numerous other improvements that have reduced waste and increased input yields. DaimlerChrysler representatives noted that the NAP's operations-driven lean manufacturing initiatives have played a major role in reducing the facility's environmental footprint. Additionally, the NAP is currently ISO 9002 registered for its quality management systems, and has ISO 14001 certification of its environmental management systems.

DaimlerChrysler representatives indicated that the company has invested more than $10 billion dollars in recent years into existing company sites, reflective of a general commitment to the communities that historically supported the company. Company representatives cited the company's commitment to investing in older facilities (the NAP was constructed in 1951) as having significant environmental benefits.

DaimlerChrysler representatives indicated that the implementation of the flexible permit at NAP has facilitated continuing P2 efforts. The permit allows the site to apply new methods of pollution prevention quickly and to adjust, and if necessary, remove them without a conflict with the permit. In that context, NAP has been working on means of reducing coating VOCs with process refinements rather than incineration. The benefits of such flexibility extend beyond NAP. Once a method is proven effective at NAP, it can then be applied at other plants within the company and may become an industry wide practice at a later date.

2. FLEXIBLE PERMIT DESIGN FEATURES

2.1 What flexible permit tools contained within this permit accomplish advance approvals (ROPs, PTE limits, PALs, clean buildings, category of changes, etc.)?[3]

Innovative and flexible features contained in the initial PAL permit (APC-95/0569-Construction/Operation), issued in September 1995, and title V air operating Permit (AQM-003/00128), issued in October 1999, are summarized below. As mentioned, the title V permit preserved all of the innovative provisions established in the 1995 PAL permit.

[3]Terms used in this document are defined in the draft guidance entitled "Design of Flexible Air Permits" (White Paper Number Three), August 7, 2000.

VOC and NO_x PALs:
The initial flexible permit, issued in September 1995, contained annual and daily plant-wide applicability limits (PALs) for both VOCs and NO_x. The facility's title V permit, issued in October 1999, became the new vehicle for the PALs, and retained all of the flexibility provisions within the original PAL permit. See sections 1.20 and 2.2 for the specific PAL levels established by the permits. See footnote under section 1.15 for additional discussion of the facility-wide emissions limit.

Conventional Pre-Approved Changes:
The permit has pre-approved several types of modifications. In the title V permit, these are also referred to as Alternate Operating Scenarios. These pre-approved change categories include:

- the emissions unit is replaced in kind or replaced with a unit with inherently lower emissions;
- operational changes which will not increase the short term emission limit; and
- any of the exemptions listed under Regulation 2, Appendix A.

For other proposed modifications to emissions units that would have increases in associated VOC or NO_x emissions or to proposed new emissions units with less than 25 tons/year (VOC or NO_x), the NAP is to submit a complete application with sufficient information for public notice. A draft permit and the permit application must be advertised in a newspaper of general circulation and sent to EPA and affected states for a public comment period of thirty days. NAP then has fifteen days to comment on any public comments. If no meritorious request for a public hearing is made, a proposed permit is written reconciling any comments. The proposed permit is sent to EPA for a comment period of 45 days. If EPA does not comment on the permit, it can be issued at the end of that 45 day period. The terms and condition of the permit can then be incorporated into the title V permit via the administrative amendment process. (See title V Permit Condition 2(d)(4)).

For other proposed modifications to emissions units with the potential to increase emissions by 25 tons/year or more of VOCs or NO_x, or new construction with the potential to emit greater than 25 tons/year VOC or NO_x, minor NSR applies. Additional emissions rate requirements will not be added to the PAL as long as toxics concerns are addressed, PAL limits are not exceeded, and BACT is incorporated into the installation (with an emphasis on P2). A complete application is to be submitted, with sufficient information for public notice. Absent objections from the public or DNREC, and if all requirements are met, the change is approved and can then be incorporated into the title V permit via the administrative amendment process.

PAL Pre-Approved Changes Originated in the PAL Permit and Transferred to the Title V Permit:
The permit contains pre-approved operational and equipment changes for VOC and NO_x emissions sources only, provided that source emissions remained below the PALs. These included:

- in-kind replacement of an emissions unit or replacement with an inherently lower emitting unit;
- introduction of new types of VOC containing materials used for new models;
- changes in the number and type of applicator equipment;
- changes in the physical dimensions of each oven or booth to accommodate production needs; and
- addition or elimination of auxiliary cleaning steps or minor coating operations which affect VOC emissions.

Other Operational Flexibility:
In the title V permit (Condition 4), DaimlerChrysler is also authorized to make any change within the facility which contravenes the terms and conditions of the permit, without a permit revision if the change:

- is not a modification or otherwise prohibited under any provision of Title I of the CAA or the SIP;
- does not involve a change in any compliance schedule date; and
- does not result in a level of emissions exceeding the emissions allowable under the permit.

Replicable Testing Procedures:
The permit contains replicable testing procedures for determining the various parameters for the pollution control equipment that are used for emissions calculations and compliance demonstration (i.e., capture efficiency, destruction efficiency). By including replicable testing procedures in the permit, as opposed to including specific parameter values, parameters can be adjusted based on the latest testing results without the need for a permit revision, provided that DNREC approves the test results. DNREC is also provided with advance notice of scheduled testing, enabling agency to observe actual testing events. Through this approach, the public continues to have access to current parameter information, available in the DaimlerChrysler file at DNREC.

Pollution Prevention Program:
The permits contain a requirement for a P2 Program, where DaimlerChrysler, to the extent reasonable, is to include at a minimum the following P2 Program elements:

- a process to formulate performance goals and objectives to comply with VOC emission limits and standards through the implementation of P2;
- data collection necessary for the evaluation of P2 effectiveness;
- a key employee training program to promote P2 at the facility; and
- a statement of commitment to implement P2 measures at the facility.

The permit also contains a requirement for annual reporting of P2 activities.

Pollution Prevention Performance Requirement:
The permit also include a P2 performance requirement for DaimlerChrysler to achieve a measurable improvement in topcoat emissions by 2003. DaimlerChrysler is to begin utilizing a powder clearcoat by September 2003 if it is commercially available; if not, the company is either to employ P2 measures that will reduce topcoat VOC emissions to below 7 pounds of VOCs per gallon of applied coating solids on a daily weighted basis on an interim basis until a powder clearcoat option is commercially available. If DaimlerChrysler does not believe it will be able to meet the powder clearcoat requirement, it must submit a plan for DNREC approval by September of 2002 to expeditiously achieve six pounds of VOCs per gallon of applied coating solids.

2.1.a Describe the information and level of detail provided in the application to support these flexible permit provisions.

DNREC stated that they required enough specificity in the application to understand the nature and scope of construction and operational activities that DaimlerChrysler desired to accomplish under the permit, but that they did not require blueprints or detailed design specifications. Detailed specifications are submitted to DNREC as they become available.

2.1.b Describe the types of information needed in or required by the permit to support the ongoing implementation of the flexible permit provisions.

Log of Pre-Approved Changes and Alternative Operating Scenarios:
If required, for each operating scenario, the NAP is to record in a log the operating scenario under which each particular emission unit is operating. Contemporaneously with changing from one operating scenario to another, the NAP is also to record in the log the scenario under which it is operating. By the last day of any month, the NAP is to calculate and record the plant-wide annual and daily VOC and NO_x emissions for the previous calendar month. This calculation is to take into account any changes made including advance-approved changes, P2 projects, and changes in compliance determination methodology.

Monthly Emissions and Pre-Approved Change Report:
Within 30 days of the end of each month, the NAP is to submit a report containing:

- plant-wide VOC and NO_x emissions in tons for the previous 12 months;
- plant-wide daily VOC and NO_x emissions in pounds per day;
- a list of pre-approved changes made during the previous calendar month;
- certifications for pre-approved changes;
- certifications for changes in the method of compliance with certification requirements; and
- the plans, specifications, and as-built plans as updated.

Annual Compliance Certification:
The PAL and title V permits also contained a requirement for DaimlerChrysler to submit a certification of compliance with the permit terms to DNREC within 90 days of the end of each calendar year. This certification must include:

- the plant-wide emissions on an annual basis for the previous year compared to the annual plant-wide emissions limit;
- a listing of pre-approved changes made at the facility for the previous calendar year with the associated emissions;
- a summary of pollution prevention projects at the facility and the reduction in emissions, if applicable;
- the amount of VOCs emitted on an annual basis (tons/year) from the Topcoat Operations;
- the amount of VOCs emitted on an annual basis (tons/year) from the EDP Prime Operation;
- the amount of VOCs emitted on an annual basis (tons/year) from all Miscellaneous Metal Coating Operations;
- the tons of VOC emissions resulting from solvent used during the previous calendar year and a copy of the calculations that were performed to estimate the amounts;
- a certification that the source is in compliance with Regulation 24, Section 45, “Industrial Cleaning Solvents”;
- the amount of residual fuel oil and natural gas burned in each calendar month for the five boilers; and
- the amount of natural gas burned each calendar month for plant-wide sources (not including boilers).

Information for Other Operational Flexibility Changes:

Under the title V permit, DaimlerChrysler is also pre-approved to make other "operational flexibility" changes (see Condition 4 of the permit, and section 2.1.a above for a discussion of the provision). At least seven days before making such an "operational flexibility" change, DaimlerChrysler is to provide advance written notice to the DNREC, including:

- identification of the affected emissions unit(s) and a description of the change to be made;
- the date on which the change will occur;
- any changes in emissions; and
- any permit terms and conditions that are affected, including any new applicable requirements.

The seven day notice period may be shortened or eliminated as necessary for a change that must be implemented more quickly to address unanticipated conditions posing a significant health, safety, or environmental health. In such a case, DaimlerChrysler is to provide notice as soon as possible after learning of the need to make the change, and the reason advance notice could not be given.

2.1.c How were any18-month "commencement of construction" requirements met?

Not applicable to this case for minor NSR. DaimlerChrysler commenced construction within a few months for purpose of major NSR.

2.1.d What were the processes, if any, for extending any BACT determinations (i.e., keeping them contemporaneous)?

Not applicable for the DaimlerChrysler permit.

2.2 If the flexible permit contains a PAL, how was the PAL baseline set?

The VOC baseline is based on 1990 actual emissions. This is more representative of actual production levels (and emissions) than recent years when the facility was used in a more limited way. Use of the year 1990 also ensured consistency with the State Implementation Plan (SIP). The NAP's actual VOC emissions for 1990 were 1,438 tons/year, based on 3,981 operating hours and 236,515 vehicles produced. That baseline was reduced by 224 tons/year, down to 1214.2 tons/year, to reflect the effectiveness of industrial solvent cleaning rules adopted after 1990 and not fully implemented, but relied upon in the SIP. This baseline of 1214.2 tons/year was further reduced by offsets for the topcoat operation at a rate of 1.3 to 1, for an additional reduction of 101.4 tons/year, bringing the annual VOC PAL baseline down to 1112.8 tons/year.

For NO_x emissions limits, 1994 was selected as the baseline year, since this year was deemed to be most representative of both facility production and weather. No adjustments to the baseline level of 150.71 tons/year were required for RACT because the 1994 operation was already compliant with NO_x RACT for this facility and offsets were not required. The 1995 permit did not, however, contain the specific annual and daily NO_x PALs, since testing results needed to finalize the PAL levels were not yet available. The permit did, however, contain detailed procedures for determining the annual and daily NO_x PALs in Appendix A, titled "Determination of Short Term and Annual Plant-wide NO_x Emissions Limits". The daily emissions limits for VOC and NO_x were established based on recent actual experience with emissions variability, and were designed to ensure protection of short-term National Ambient Air Quality Standards (NAAQS) environmental health concerns.

These PAL limits will be retained until November 15, 2002, after which time the limits could be adjusted downward to reflect the effect of any new state NO_x and VOC regulations applicable to sources at the plant. The downward adjustment will be based on the contribution of the affected sources to actual emissions at the time the rule goes into effect. No other adjustment is contemplated by DNREC since this PAL level was established as a source-specific allowable emissions rate consistent with the SIP attainment demonstration. See footnote in section 1.15 for additional discussion.

2.3 How was the PAL monitoring, recordkeeping, and reporting approach justified?

2.3.a What is the rationale for the monitoring approach and averaging time?

2.3.b What data conversions are required?

2.3.c What is the averaging time for each emissions cap and/or the duration of the cap?

2.3.d What is the rationale supporting the use of any longer (e.g., longer than one month) duration?

In September 1995, DNREC staff prepared a technical memorandum that outlines the processes and considerations used to determine the LAER and emissions offsets, the PALs, and the specific permit conditions. The PAL monitoring, recordkeeping, and reporting approach is discussed below, along with the rationale for the approach and monitoring averaging times.

The PAL for volatile organic compounds (VOCs) is expressed as an annual limit, 1112.8 tons per year, and a daily limit, 5.3 tons per day. Monthly emissions also are calculated and then prorated to individual days based on daily vehicle production volumes to determine daily VOC emissions. The VOC monitoring approach is based on EPA's "Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light-Duty Truck Topcoat Operations" (EPA-450/3-88-018, December 1988). The approach assumes all VOCs contained in raw materials used (with the exception of the amount of solvent collected via a waste solvent recovery system from the purge solvents) is emitted to the control device or the environment. VOC emissions from the coating solvent flash-off areas and the curing ovens are routed to a regenerative thermal oxidizer (RTO).

Monitoring the quantity of each VOC-containing material (e.g., coatings, solvents, sealants, and cleaning materials) provides an accurate accounting of VOC usage. Monitoring material usage and production volumes on a daily basis provides the information necessary for calculating the monthly (and the subsequent prorated daily), and annual VOC emissions. Monitoring and reporting the daily and monthly usage of VOC compounds provides the appropriate monitoring of trends in emissions increases or decreases as a result of process changes. The monthly emissions data in conjunction with production data (i.e., total number of vehicles produced) provides the information necessary to calculate an overall daily VOC emissions rate for the Newark Assembly Plant. Monitoring monthly emissions also allows on-going tracking of performance with respect to the annual limit. The monthly VOC emissions are then aggregated for the previous 11 months to determine the annual VOC emissions and compliance with the annual PAL (tons/year).

As mentioned above, VOC topcoat emissions calculations are completed on a mass balance basis using methods outlined in the EPA Automotive Manufacturing Topcoat Protocol. Booth/oven splits, transfer efficiency, and incinerator efficiencies used in these calculations are based on the most recent tests completed using the protocol.

Compliance with EDP primecoat operations is demonstrated pursuant to procedures set forth in New Source Performance Standards (40 CFR 60.393 (c)(2)) through the use of capture and control. VOC RACT standards apply to the miscellaneous metal parts coating and final repair operations and dictate the compliance method. Compliance with these limits is demonstrated through the use of complying coatings or daily weighted averages, and notice must be submitted to DNREC if switching from one method to the other. The test protocol is to be submitted to DNREC if the NAP changes the method of compliance to a control device.

This facility also has PALs (annual limit and daily limit) for NO_x, emissions from all facility fuel use, including the five boilers (located in the power plant building), curing ovens, and the control device (incinerator). All the boilers use natural gas as the primary fuel and No.6 fuel oil as the secondary fuel; the incinerator utilizes a low-NO_x burner with natural gas as the supplemental fuel. The annual NO_x PAL is 150.71 tons/year, which is based upon the actual NO_x emissions in 1994. The daily NO_x PAL is based on daily emissions of specific units and materials (e.g., incinerator). Compliance with the PALs is determined by monitoring monthly fuel usage to the boilers and incinerator and multiplying the fuel usage rate by the appropriate emission factors. The type and amount of fuel are the only varying parameters used in determining compliance with the PAL.

Whereas the oven burners and miscellaneous NO_x sources use AP-42 emission factors in conjunction with monitored parameters to calculate emissions, source-specific emission factors were developed for the antichip, topcoat and EDP primecoat incinerators, and the boilers. Stack tests were conducted on the topcoat and EDP primecoat incinerators in 1995, shortly after issuance of the PAL permit, to develop the source-specific factors. For the EDP primecoat incinerator, the equation contains different emission factors for vehicle coating and non-vehicle coating periods. The NAP has installed gas meters on each set of ovens, on the line into the paintshop, and the regenerative thermal oxidizer (RTO). These readings are fed directly to the environmental section via computer. A stack test on the five boilers was also conducted shortly after title V permit issuance. The NAP is restricted to use of natural gas for these boilers during the ozone season (April 1 to October 31) based on 90 percent availability. The NAP is required to keep records documenting fuel use for the powerhouse separate from the plant's fuel use. Boiler tests were conducted in 2000 and 2001, and a factor was developed from those tests.

The monitoring rationale for the NO_x cap is based on Regulation #2, Control of Nitrogen Oxides Emissions, which stipulates that monitoring can be based on the correlation of operating parameters with NO_x emissions levels through source testing. Emission factors, fuel usage, and hours of operation are used to determine compliance with the NO_x short and long-term emissions limits.

Several data conversions are necessary to calculate VOC emissions using the mass balance approach. The basic values measured are the weight (lbs) or (gallons) of VOC-containing materials used (e.g. coatings, solvents, sealants, and cleaning materials). The material usage must be converted to the mass (lbs) of VOC introduced into the system. This requires the concentration (percent) of VOC in each raw material and the density (lb/gal) of the raw material, which is provided by the suppliers in the Certification of Analysis for each batch of coating, solvent, and sealant.

As mentioned above, the VOC cap has two durations: daily (based on a monthly VOC emission rate calculation, prorated to daily vehicle production rates) and annual (based on 12-months rolling). The NO_x emission cap also has two durations: daily (based on a daily emissions of the boilers, ovens, and RTO) and annual (based on 12-months rolling).

Compliance with the annual PALs is determined within 30 days of the end of each month based on the prior 12 months. Compliance determinations with daily emissions limits for VOC and NO_x are based on monthly usage data and subsequent allocation of emissions to individual days based on daily production data or other indicators approved by DNREC. DNREC believed that 30 days was reasonable for a facility of the NAP's size. This approach also makes sense for auto assembly plants where the emissions in each production day in a month are very similar (i.e., no batch processes where steps occur intermittently).

The EPA Review Team found that the permit addresses both short- and long-term concerns for VOC and NO_x emissions since the permit has both daily and annual VOC and NO_x limits.

2.4 Where applicable, describe the following aspects of the permit that are used for purposes of tracking emissions under a PAL or an emissions cap:

2.4.a Details regarding source emission factors and processes for changing emission factors

2.4.b Tracking emissions from startups, shutdowns, and malfunctions of monitoring, control, and/or process equipment

2.4.c Requirements for tracking emissions from insignificant emissions units

2.4.d Requirements for quantifying fugitive emissions

The permit requires the use of AP-42 emission factors, site-specific emission factors, regulatory specific emission factors. Where source-specific factors are used, these are based on the most recent stack test performed and the source. The permit is silent with regards to changes to emission factors; DNREC stated that as long as a stack test is performed and results are approved, the NAP has the flexibility to make such changes if desired.

VOC emissions associated with startups, shutdowns, and malfunctions are included in mass balance calculations. Insignificant units are not carved out separately. "Nonproductive" emissions are included as part of the plant-wide material usage calculations. Fugitive emissions are not quantified separately, but are included in plant-wide material usage calculations that are used to derive source emissions.

Additional Permitting Authority Inquiries

2.5 How did the source articulate its need for flexibility?

When DaimlerChrysler first determined the need to invest in a new paintshop at the NAP, the company approached DNREC about the possibility of obtaining a "pollution control exclusion". DaimlerChrysler provided data to DNREC demonstrating that major New Source Review netting requirements would inhibit plant production viability, because the facility would be unable to preserve emissions decreases that result from production lags and use this "cushion" later when production increases occur (i.e., when the two-year emissions baseline has disappeared). DNREC did not believe, however, that their rules allowed for such a pollution control exclusion and instead proposed the PAL approach for VOCs and NO_x.

2.6 What were your key rule interpretations?

In developing the PALs, DNREC had to assess its discretion to use allowable emissions to represent actual emissions under federal New Source Review (NSR). Discussions and review determined that this discretion did exist. DNREC also needed to ensure that it had the flexibility to allow pre-approvals in light of any construction time limit requirements. Again, it was determined that this discretion was allowed by the rules.

2.7 Was there a need for follow-up rulemaking?

DNREC did not need to engage in any rulemaking to enable the flexible permit provisions for DaimlerChrysler.

2.8 Might you include additional flexible approaches for this source in the future?

DNREC indicated that so far the experience with DaimlerChrysler has been a positive one, and they will consider additional approaches for them in the future. As mentioned in section 1.10, since the DaimlerChrysler flexible permit, DNREC has also worked with DuPont to develop and issue a flexible permit for DuPont's Edge Moor, Delaware facility.

3. PUBLIC PARTICIPATION AND PUBLIC PERCEPTION

3.1 Were comments received from the public? Please provide a summary of any comments and of your response(s) to them.

3.1.a In what venues/times were public comments received? (formal permit process, public information sessions not required by the permit process, permit implementation, etc.)

3.1.b How many public meetings/information sessions were requested and subsequently held?

DNREC and DaimlerChrysler representatives reported that no comments were received from the public during the development and issuance of the PAL and title V flexible permits. The draft PAL permit (Permit: APC-95/0569 - construction/operation) went out for a 30 day public comment period prior to issuance on September 7, 1995, twice the length of the required public comment period of 15 days. DNREC indicated that the extended comment period was selected to address Federal enforceability of the permit. In conducting the public comment period, DNREC indicated that the agency followed its standard notification procedures for conducting the comment period. A copy of the draft permit was made available at the DNREC offices and at the Newark Public Library. Consistent with State law, on June 18 and 21, 1995, DNREC printed public notices regarding the draft permit in two newspapers, the *News Journal* and the *Delaware State News*. DNREC representatives reported that no public comments related to the permit and its flexibility provisions were received during this period, and that no public hearings were requested or held.[4] A copy of the

[4]This result is significant in light of the fact that DNREC has a history of receiving odor complaints regarding NAP. DNREC received 4 odor complaints in 1997, 46 in 1998, 66 in 1999, 73 in 2000, and 5 in 2001, as of July 2001. Many of the complaints originated from a limited number of residential addresses. DNREC and DaimlerChrysler representatives indicated that the reported odors are typically of short duration, often making it

draft permit and the background memorandum were submitted to the EPA for review. DNREC reported that EPA did not have any comments about the LAER decision, emissions offsets, or PAL permit conditions.

In 1999, the draft title V permit also went out for a 30-day public comment prior to issuance in October 1999. No public comments were received, and no public hearings were requested or held.

3.2 Was there a discussion in notices, meetings and/or public comments of the source's need for flexibility, possible environmental benefit, and/or administrative burden from getting additional permit(s) or permit revisions?

DNREC representatives indicated that the newspaper notices for the public comment periods in 1995 and 1999 on the draft flexible permits both stated that the permits contained unique flexibility provisions. The 1995 PAL construction/operation permit also included a description of the scope of the project (i.e., construction of a new paint shop), the applicability of LAER and offsets, and DNREC's intention to issue the flexible permit.

On October 25, 1995, EPA Region III issued a press release praising the NAP flexible permit. The press release, titled "Top EPA Air Official Touts First Flexible Air Permit to Automaker", quoted comments by EPA Assistant Administrator for Air and Radiation Mary Nichols which expressed "EPA's full support of [the] new flexible air permit". The press release also discussed both the need for flexibility and the anticipated benefits from the flexible permit.

3.3 Were there any environmental justice issues? If so, how were they addressed?

DNREC representatives stated that there have not been any environmental justice issues raised related to the DaimlerChrysler NAP. The facility has been in operation since 1951 at its current location.

3.4 Were there any CBI issues? If so, how where they addressed?

DNREC and DaimlerChrysler indicated that there have not been any confidential business information (CBI) issues associated with the permit. DaimlerChrysler has not claimed any reporting or monitoring information submitted to DNREC as CBI.

3.5 What was the ongoing level/adequacy of information flow to the public?

3.5.a What was the amount and type of information available during the title V permit development and public notice/comment period?

3.5.b What input was obtained back from the public beyond initial comments?

3.5.c What level of detail of source activity was provided to the permitting authority, and/or the public for flexible permit changes that took place during the permit term (e.g., logs and other records)?

- **What required information was submitted directly to the permitting authority?**

---

difficult for facility or agency personnel to respond in time to detect and identify reported odors. DaimlerChrysler reported that during the flexible permit term the company has taken several steps to address neighbor odor complaints.

- **What and how much information submitted by the source was claimed as CBI?**
- **What additional information was available to the public only through FOIA requests?**

3.5.d What was the timing of the availability of relevant information to the public during permit implementation and development?

3.5.e What was the level of interest in annual P2 reports provided?

3.5.f Were advance notices circulated or made publicly available?

DNREC representatives indicated that all of the information typically available under conventional construction and title V permitting scenarios was available to the agency and public under the flexible permits. See section 2.1.b for more detailed discussion of the specific information contained in the various reports and notices required to support the permit flexibility provisions. DNREC representatives further indicated that the ongoing availability and adequacy of information available to the public is enhanced under the DaimlerChrysler flexible permit, when compared to a conventional permit.

First, more information is available to the agency and the public during the development of the flexible permits regarding the operational and equipment changes that the source planned to make during the permit terms. DNREC representatives indicated that the permit applications and the draft permits provided information on categories of changes planned by the facility, as well as P2 advances planned for clearcoat operations, that would not have been included in conventional permit information, although information on the new paint shop construction would have been included in a conventional construction permit. As discussed in sections 3.1 and 3.2, the draft permits were advertised and made available to the public during the public comment periods prior to permit issuance. No public comments were received on the draft flexible permits.

Second, the monthly reports required by the permits included comprehensive, facility-wide information on VOC and NO_x emissions. The monthly frequency of these reports is greater than would typically be available under conventional permits. In addition, the facility-wide emissions reporting provides actual environmental performance data that is likely to be more easily understood by the public than disaggregated reporting in pounds per emissions source. See section 2.1b for a discussion of information contained in the monthly reports.

Third, DNREC representatives indicated that implementation of pre-approved changes during the permit term resulted in more information being available to the agency and the public than would typically be available under a conventional permit. The pre-approved change provisions created an incentive for DaimlerChrysler to report operational and equipment changes even if they would not have triggered the need for a construction permit application under a conventional permitting scenario, since personnel at the source no longer needed to review the each change for the applicability of construction permitting requirements (they only had to make sure that the change was covered under the advance approval provisions in the permit). DNREC staff remarked that they found the enhanced availability of information on facility changes to be helpful in preparing for on-site compliance assurance visits.

Fourth, the annual summary of pollution prevention projects and associated emissions reductions required as part of the annual compliance certification under the flexible permits is information that is not typically required by conventional construction and title V permits.

With regard to the timing and availability of information in DNREC's files related to implementation of advance-approved changes, there is some difference between flexible and conventional permitting scenarios. Under a conventional permitting scenario, changes triggering the need for minor NSR permitting would result in separate applications for case-by-case DNREC approval. These applications, with information on DaimlerChrysler's desired change or modification, would typically be available in the DNREC facility files and be accessible to the public. Under the flexible permits, records of specific changes implemented using the advance approval conditions are maintained on-site at the facility and are reported monthly to DNREC. The monthly list of implemented changes is accessible to the public in DNREC's files. In the case of advance-approved changes made under Condition 4 of the title V permit (see section 2.1.a), an advance notice letter must be submitted to DNREC at least 7 days prior to implementing the change. This information would also be available in the DNREC files.

DNREC representatives reported that there has been little or no public requests for or interest in (of which they are aware) the information contained in the NAP's file at DNREC, including the annual P2 summary information. DNREC staff indicated that this level of public interest in the permit-related documentation is relatively consistent with that experienced for other Delaware sources.

3.6 Based on document/record review, compare conventional regulatory permitting versus flexible permits in terms of:

3.6.a How provisions are described to the public

3.6.b Number of comments received

3.6.c Number of complaints received

3.6.d Level of ongoing public interest

3.6.e Amount of information (if any) not available to the public (e.g., logs) and how this may or may not contribute to the public's understanding of the permit

3.6.f Amount of P2 information made available

See sections 3.1 and 3.5 above.

4. IMPLEMENTATION OF FLEXIBLE PERMIT PROVISIONS (ON-SITE VERIFICATION)

Utilization

4.1 What was the source's overall flexibility provision utilization throughout the permit term?

4.1.a How often were the flexible approaches used?

- **Describe the nature of the changes that occurred at the facility under the flexibility provisions.**
- **Identify which changes took advantage of which flexibility provisions (e.g., new unit A was added pursuant to advance approval and within a PAL emissions limit).**

DaimlerChrysler representatives stated that the NAP has made a wide range of changes under the 1995 PAL permit and the subsequent title V permit. In sum, DaimlerChrysler representatives estimated that over 90 changes in coating system components, coatings, cleaning activities, fuel fired sources, source locations, ventilation systems, and emissions control systems have been made between 1995 and 2000. According to DNREC, some of these changes, absent the pre-approvals, would have been subject to minor NSR. Several categories of changes made under the flexible permits are discussed below.

PAL Permit Condition 7 (emissions unit modifications increasing potential VOC or NO_x emissions less than 25 tons/year):

- The NAP submitted applications for a light bulb crusher and two hot water generators, which were approved under this streamlined permitting process. No public hearing was requested, so approval was granted within 45 days.

Pre-approved addition or elimination of auxiliary cleaning steps or minor coating operations affecting VOC emissions:

- The NAP implemented new or revamped cleaning steps for the skid cleaner, hook washer, dinamec tool clear, and E-coat filter cleaner.

Pre-approved in-kind replacements and/or changes in the physical dimensions of each oven or booth:

- The NAP redesigned scrubbers, replaced ceramic blocks and increased instrumentation for the regenerative thermal oxidizer control equipment, and extended the stacks on certain booth zones.

Pre-approved introduction of new types of VOC containing materials:

- The NAP introduced several new coatings, including low odor purge solvents, new sealers, new clearcoat formulations, and new basecoat colors.

Possible future changes:

- The NAP also predicted that the flexibility provided in the title V permit will enable the site to be used for demonstrating new clearcoat applications and material technology over the next three years (changes that will result in improved emissions per unit of output). The facility is also planning substantial model styling changes in the future, which will require more agile equipment to paint contours appropriately (including the need to change from fixed bells to robots). Such changes will rely upon the permit's flexibility provisions.

4.1.b How many minor NSR permits and/or title V permit revisions were necessary (i.e., not covered under the advance approval)?

DaimlerChrysler representatives reported that their operational change needs have been fully addressed by the flexibility provisions in their flexible permits, and that they have not needed to seek additional conventional construction permits. The two changes (mentioned above) made under the PAL permit condition 7 were not specifically pre-approved, but were eligible to go through an expedited review process if all applicable requirements were met and if no public hearing was requested during the public notice period.

4.1.c Contrast these results with implementation under a conventional permit design for the same source.

- **What approach would the source have taken for each change that utilized a flexible permit provision, absent that provision?**
  - **S not made the change**
  - **S taken steps to avoid triggering requirements (e.g., netted out of major NSR)**
  - **S complied with full major/minor NSR permitting**
  - **S Were any other conditions taken to avoid applicable requirements other than NSR? If so, which ones?**
- **How much time & resources were saved by utilizing the flexible permit provision(s), compared to the option you would have chosen above?**

NAP went through a major NSR review at the time that the 1995 flexible permit was established. The decision to commit to the new paintshop at NAP was affected by the company's ability to secure a permit where an additional major NSR would not be triggered if emissions were carefully managed by the company.

Using an alternate approach to both minor and major NSR via the PALs (and the associated pre-approvals) has resulted in time and resource savings for the NAP. Because the PAL permit was the first of its kind negotiated in Delaware, and the first for an automobile manufacturing facility, PAL development took more effort than would otherwise occur once procedures for such permits have been established. Even though the actual permitting process took place in 99 days, total estimated labor during this time for DaimlerChrysler, DNREC, and EPA was 1,330 hours. This included the labor involved in completing the major NSR review of the new paintshop. DaimlerChrysler indicated that the level of effort for a PAL could likely be reduced to as little as 670 hours once PAL permitting practices are refined and standardized.

DaimlerChrysler representatives discussed labor savings over the course of the initial PAL permit term. Under a conventional permit, the key labor during the five year permit term would likely involve the repeated need to go through the State and/or federal NSR applicability analyses and permitting processes, if warranted by the applicability analyses. DaimlerChrysler conducted an analysis comparing permitting labor associated with the NAP PAL permit versus permitting labor associated with a conventional permit, and found that the PAL permit implementation saved approximately 505 staff hours for the facility (i.e., mid point between estimated savings of 10 hours and 910 hours), and between 290 and 720 hours for DNREC. DNREC representatives indicated that the agency staff labor savings are likely to be lower than those in the DaimlerChrysler estimate, although the actual labor savings would depend on the actual number of changes implemented under the pre-approved change provisions.

Table 4.1.c **Labor Comparison Between Flexible and Conventional Permit**
(over 5 year permit term)

PAL Source	Labor (in hours)	
	DaimlerChrysler	DNREC
Negotiating the PAL	450-550	220-370

Creating Emissions Tracking System	200	40
Emissions Reporting (Quarterly) & Review	800	160
Annual Site Visit / Permit Review	100	100
Total Labor	1150-1650	520-670
Conventionally Permitted Source	**DaimlerChrysler**	**DNREC**
Completion of 5-10 minor NSR Reviews	500-1000	300-600
One Major NSR Netting or PSD	400-800	220-500
Compliance Reporting/Review	160	40
Annual Site Visit/Review	100	100
Total Labor	1660-2060	960-1240
Labor Savings Associated with Flexible Permit	10-910	290-720

Note that the line items included in DaimlerChrysler's permit labor analysis in Table 4.1.c do not include all labor associated with permit development and implementation. The line items highlight key labor areas that are likely to be unique under each permit type. While the figures also assume more detailed reporting will be required under the PAL, estimated time savings when compared to conventional permits remain. While it is difficult to precisely estimate labor savings between the flexible and a hypothetical conventional permit, representatives from both DaimlerChrysler and DNREC indicated that they anticipate that the flexible permits have and are resulting in some labor savings over the full permit term.

The above estimates do not include labor savings achieved during the subsequent title V permit term. Since the flexibility provisions contained in the initial PAL permit were fully incorporated into the title V permit, no additional investment was required to develop the title V permit, as compared with a conventional title V permit. Cost and labor savings associated with DaimlerChrysler's continued utilization of the pre-approval provisions, however, continue to accrue.

With regard to differences in permitting time frames under the flexible permit when compared with a conventional permit, DNREC representatives indicated that there have likely been sizable time savings under the flexible permit. DNREC representatives reported that it often takes 6 months to issue a minor NSR permit, from the time the permit application is received by the State, and considerably more time to issue a major NSR permit. This time frame can extend longer when there is an application review backlog at DNREC. Under the flexible permit, these construction and modification permitting time frames are reduced or eliminated, in cases where the changes have been pre-approved or where the public and agency review processes have been streamlined. For example, those pre-approved changes that went through a public comment period and streamlined DNREC review (see permit condition 7) were reduced to a 45-day time frame under the 1995 flexible permit. (When this condition was transferred to the title V permit, a thirty day public comment period and a

fifteen day comment review period were added to the time frame.) Additionally, the pre-approval provisions in the flexible permit eliminated the added potential delay associated with making minor NSR applicability determinations and preparing construction permit applications (note: these time frames are not included in the 6 to 9 month estimate for processing submitted construction permit applications).

Documentation

4.2 What problems, if any, did you encounter regarding the following:

4.2.a Tracking of fugitive emissions

4.2.b Inclusion of emissions from startups, shutdowns, and malfunctions

4.2.c Inclusion of emissions from insignificant emissions activities

4.2.d Missing data

4.2.e Use of/updates to emission factors

4.2.f Application of ROPs (amount of errors noted) and missing critical assumptions

4.2.g Required content of logs

4.2.h Use of advance notices

No problems were encountered regarding the tracking of fugitive emissions under the NAP permits. Because the monitoring approach is based on the amount of VOC input to and generated by the system, any fugitive VOC emissions from the paint lines, including cure volatiles, are accounted for in the EPA protocol. Therefore, they are also included in the NAP's approach. Testing was done to determine capture efficiency and transfer efficiency for the spray booths and booth/oven splits on the coating lines.

No problems were encountered with regard to including emissions from startups, shutdowns, and malfunctions, although a procedural problem was encountered during the permit term. There was a breakdown of communication between DNREC and DaimlerChrysler regarding plant operation during an RTO malfunction (the plant continued to operate when the RTO malfunctioned in August of 1999). Plant staff was confused over the reporting requirements for RTO temperature deviations and malfunctions, and did not know whom to contact in the event of a malfunction. As a result, the RTO temperature fell at least 50 degrees below the setpoint for 3 hours or more 3 times in one week without being addressed under the reporting provisions of the permit until the environmental staff person returned to the plant. The plant continued to operate through these malfunctions, but the RTO temperature never fell more than 100 degrees below the setpoint and no emissions limits were exceeded. The NAP took measures to prevent recurrence of this issue by posting a malfunction procedure flowchart on the RTO. See section 6.3 for additional discussion. Because the monitoring approach is based on the total amount of VOC input to the system (e.g., coating operations), any VOC emissions from the painting lines are accounted for in the approach (in accordance with the EPA protocol), including those occurring during startups, shutdowns, and malfunctions.

No problems were encountered with regard to inclusion of emissions from insignificant activities. DNREC determined during the permit application review that VOC emissions from the fuel cell loading (12.5 gallons of gasoline is pumped to each vehicle prior to engine testing) and gasoline storage and delivery systems were insignificant; therefore, quantifying VOC emissions from these process steps is not required.

No problems were encountered with regard to missing data. Monitoring is based on the amount (weight) of material (e.g., coatings, solvents, sealants, and cleaning materials) delivered to the coating lines, production rates, and the capture/transfer/destruction efficiencies associated with the control device (RTO). The amount of material used and production rates are always known; the control device efficiencies are based on State-approved results of the most recent performance tests; missing data is not an issue.

No problems were encountered with regard to use of and updates to emission factors. VOC emission factors are not used for determining annual VOC emissions; the daily and annual VOC emissions are based on the actual measurement of VOC usage. However, a monthly VOC emission rate is calculated and used (in conjunction with daily production data, number of vehicles produced) for determination of the prorated daily VOC emissions for compliance with the daily PAL. Documentation is available for calculation of the daily emission factors (daily and monthly VOC usage, calculated VOC emissions, and prorated vehicle production rates). No problems were noted during the EPA Permit Review. NO_x emission factors are used for calculating NO_x emissions from the boilers and the RTO (incinerator). No emission factor updates have been used during the permit period. No problems were encountered with the use of the EPA AP-42 emission factors.

No problems were identified by DNREC with regard to implementation of the replicable testing procedures included in the permits (see section 2.1 for a description of this provision).

No problems were identified with regard to information required and/or contained in various logs required by the permits. VOC usage records; performance test data for transfer efficiency, capture efficiency, and destruction efficiencies; waste material analysis; and production records necessary for conducting the material balance and determining the daily and annual VOC emissions for the PAL are available and were reviewed. The combustion temperature of the RTO is monitored and logged automatically (via computer system). The EPA Review Team viewed samples of each of the logs during the July 2001 site visit and found all required information to be in order.

DNREC representatives indicated that they have not encountered any problems related to advance notices associated with implementation of advance-approved changes. It should be noted that not all pre-approved changes require advance notice prior to implementation. For example, some changes must only be reported in the monthly reports, following their implementation. See section 2.1 for specific information regarding the change notice requirements.

Quality/Quantity of Information

4.3 What was the quality and the quantity of monitoring data received?

4.3.a. Are CEMS in place? If yes, were data provided?

4.3.b. Were stack tests performed? If yes, were results provided?

4.3.c. Was parametric monitoring performed? If yes, were results provided?

4.3.d. Were any other monitoring approaches used? If yes, were data provided?

DNREC believes that the quality and quantity of monitoring data received is sufficient to determine compliance with applicable permit provisions, and the enhanced and more frequent reporting requirements for the PALs provides better assurance that this data is reviewed and any potential discrepancies are uncovered in a timely manner.

The facility does not use continuous emissions monitoring systems (CEMS). Stack tests were performed at the facility. Initial testing was conducted on the RTO in 1997 and the test results showed an average of 95.5 percent destruction efficiency at 1,530EF. Parametric monitoring was also performed as part of the monitoring approach. Combustion temperature and inlet pressure are the parameters monitored for the RTO. The average combustion temperature is calculated automatically for all five combustion chambers in the RTO. The parametric monitoring records were reviewed by the EPA Review Team, and no problems or issues were noted. As previously mentioned, a material balance of VOC usage is the primary monitoring approach. All October 30, 2000 data necessary for conducting the material balance were provided. Daily and monthly records were reviewed. The type and amount of fuel used in the boilers and RTO is monitored. Documentation for the No. 6 fuel oil sulfur content was provided. That fuel usage information is then used in conjunction with emission factors to calculate daily and annual NO_x emissions.

4.4 What was the percentage/amount of site-wide emissions subject to enhanced monitoring, recordkeeping, reporting and/or controls that were greater than required by applicable requirements under a traditional permitting approach?

DaimlerChrysler representatives believe that their ability to track emissions is improved under the PALs (as opposed to tracking multiple emissions limits for multiple emissions units). While VOC monitoring would likely have been comparable under a conventional permitting approach, the facility did not previously have automated monitoring for NO_x, and this improved approach would not have been likely absent the NO_x PAL.

The applicable requirements for this source under a "conventional" permit would be comparable in terms of level of detail and the amount of effort (labor) required to maintain and provide the required records. The requirements for daily and annual (12-month rolling totals) involved some up-front recordkeeping planning and design, but did not present a significant burden compared to typical title V recordkeeping and reporting requirements.

4.5 Did actual changes made match their up-front descriptions? If not, why not and how were the discrepancies addressed?

DNREC representatives stated that information submitted for installation of the hot water boilers (utilizing permit condition 7; see section 2.1) was initially inconsistent, but this was corrected in an amendment request submitted in June of 1996 and issued on August of 1996. No other problems matching changes to up-front descriptions were identified by DNREC or the EPA Review Team.

4.6 How many changes (e.g., potential NSR triggering events) are identified in the logs?

See section 4.1.a for discussion regarding the number of changes (approximately 90) identified in the logs between 1995 and June 2001.

4.7 What types of information and level of documentation detail are included in the logs?

See section for 2.1.b for a description of the information contained in logs documenting advance-approved changes made and alternate operating scenarios implemented at the NAP. DNREC representatives indicated that they believe that the level of detail contained in on-site logs at the NAP provides sufficient detail for Department personnel to understand the changes and to determine compliance with permit conditions and applicable requirements.

4.8 Was there any confusion over the location of new emissions units and what requirements are applicable to them? If so, please describe the confusion and how it was resolved.
Neither DNREC nor DaimlerChrysler identified any confusion over the location of new emissions units or the associated applicability of requirements.

4.9 What types of information and level of documentation detail are included in the notices?
Under the PAL and title V permits, no advance notices are required for individual changes implemented using the conventional and PAL advance approval provisions. Notice of changes made using these advance approval provisions is made in the monthly emissions and advance-approved change reports and the Annual Compliance Certification reports submitted to DNREC. For example, the Annual Compliance Certification for 1998 (submitted on March 30, 1999) listed 17 changes that had been implemented during the 1998 calendar year using the conventional and PAL advance approval provisions. Table 4.9 below lists these changes as they were described in the 1998 Annual Compliance Certification.

Table 4.9 **DaimlerChrysler NAP Advance-Approved Changes for 1998**

Item	Description of Change / New Construction	Initial Startup Date
1	New/less odorous water borne purge solvent - #04889291	2/16/98
2	New/less odorous clear coat purge solvent - #04889320AA	3/16/98
3	New BIW hot water boiler #1 - 4.0 million BTU	4/13/98
4	New BIW hot water boiler #2 - 4.0 million BTU	4/13/98
5	New main administration building hot water boiler - 333,000 BTU	4/13/98
6	New vehicle roll test exhaust system	4/13/98
7	New material loctite #04187443 (Material for securing bolts on engine line)	5/6/98
8	New material powder anti-chip - #04889216	6/18/98
9	New BIW hot water boiler #3 - 4.0 million BTU	7/26/98
10	New six (6) additional Air Supply Handling Houses (ASH) for general building exhaust (ASH 104, 105, 106, 108, 111, and 120)	7/26/98
11	Installation and exemption of the Spraymation Lab - for the purpose of spraying out samples of paint prior to loading into the system	7/26/98
12	Installation of eight (8) new base coat exhaust stacks. Was 111 feet above ground level, now 134 feet above ground level.	7/26/98
13	Installation of four (4) new clear coat exhaust stacks. Was 111 feet above ground level, now 184 feet above ground level.	8/2/98
14	New material / color - water borne base coat patriot blue - part #04889293AA	9/3/98

15	New material / color - water borne base coat bright platinum - part #04889293AA	9/14/98
16	New material - BIW Car Wash Henkel - 1500 CL - part #00201774	9/17/98
17	New material - BIW Car Wash Henkel - 1523 S - part #04889099AA	9/17/98

Under the title V permit, an advance notice is required for "operational flexibility" changes made under Condition 4 of the permit. See section 2.1.a for a list of the information required in this advance notice. An emergency generator was installed under Condition 4. The notice to DNREC included a description of the change, a list of applicable requirements related to the change, and the plant's proposed approach for monitoring and recordkeeping (consistent with the permit conditions). The notice was accompanied by AQM Form 1001v, which includes a table listing applicable requirements for the new equipment.

4.10 Were the calculations required by the permit included in or attached to the on-site log?

Calculations and data required by the permit are maintained on paper copies as well as electronic spreadsheets. DaimlerChrysler representatives reported that emissions monitoring data is manually entered into the spreadsheets, and the numbers are routinely reviewed for discrepancies. These spreadsheets are used to generate files and monitoring reports submitted to DNREC.

5. DESIGN ADEQUACY OF THE FLEXIBLE PERMITS

General inquiries based on subsequent implementation of the flexibility provisions

5.1 Were any applicable requirements omitted?

DNREC representatives indicated that all applicable requirements were addressed by the permit. The EPA Review Team did not find evidence of any currently applicable requirements that were omitted from the permit.

5.2 Was monitoring sufficient?

5.2.a Does the permit utilize appropriate monitoring methodologies based on the types of emissions units involved?

DNREC representatives reported that they believe that the monitoring methods utilized in the DaimlerChrysler Newark Assembly Plant (NAP) PAL and title V permits were sufficient to demonstrate compliance accurately and consistently with all applicable requirements and to ensure that the permits were practicably enforceable. See section 4.3 for a more detailed discussion of DNREC's perspective on the adequacy of the selected monitoring approach.

The EPA Review Team concluded that the NAP flexible permits utilize appropriate monitoring methodologies given the types of emissions units present at the facility. The material balance methodology (which is based on EPA's automotive protocol) used for determining the VOC emission rate from the NAP is appropriate. The parametric monitoring requirements for combustion temperature associated with the RTO are appropriate and consistent with those used for similar

emissions sources. The emissions factor/fuel usage approach used to monitor boiler emissions is also appropriate for calculating NO_x emissions.

5.3 Were there any problems translating the advance approval concepts into actual permit provisions?

DNREC stated that while development of advance approval permit provisions took time, they did not have any difficulties translating concepts into permit provisions.

5.4 Were the advance-approved categories of changes sufficiently well-defined to cover the actual changes made? If not, how were these changes made?

NAP and DNREC representatives believed the changes were sufficiently well defined; however, DNREC and the NAP have at times held discussions regarding the applicability of changes to the flexibility provisions to ensure proper implementation.

5.5 Did the permit contain all calculation procedures/ROPs needed by the source to determine applicability and assure practical enforceability? If not, how did the source determine applicability and assure practical enforceability?

DNREC representatives stated that they believe the permit contained clear and replicable procedures for determining applicability and ensure compliance. The EPA Review Team found that all calculation procedures necessary to determine compliance were included in the permit (or included by reference in the EPA protocol).

5.6 Were all critical assumptions for ROPs use and/or emissions tracking also included in the permit? If not, how were these gaps addressed?

The EPA Review Team found that all assumptions associated with the replicable testing procedures and emissions tracking were included in the permits. See section 2.1 for a description of the replicable testing procedures provisions contained in the permits.

Tool Specific Inquiries

5.8 Replacement Conditions

5.8.a Were the mass balance based formulae adequate to limit actual emissions? If not, what were the inadequacies and how were they corrected by the source and permitting authority?

5.8.b Were all critical assumptions for using the formulae contained in the permit? If not, what were the inadequacies and how were they corrected by the source and permitting authority?

Not applicable.

5.9 P2 Provisions

5.9.a Was P2 adequately recognized and encouraged by the design of the permit? If not, why not and what changes could be made to better recognize and encourage P2?

DNREC representatives and the EPA Review Team stated that they were comfortable with the use of P2 in the permit, and pleased with the P2 results so far. The DaimlerChrysler permit is rather unique in that it includes an enforceable P2 goal targeting VOC emissions reductions associated with topcoat coating operations that must be achieved by September 2003. In addition, the design of the

permit encourages P2, since emissions reductions resulting from P2 create additional compliance margin under the PALs that can be used to allow for increased production or to further reduce risk of exceeding the emissions limits. The advance-approved change provisions also reduce the regulatory friction (e.g., uncertainty, time delay) associated with making changes that result in P2 gains. For example, by facilitating the upgrading of robot nozzles for coating operations, the facility can improve the transfer efficiency of coating activities, thereby reducing excess VOC emissions.

5.10 Fugitive Emissions

5.10.a How dependent on changes in fugitive emissions was the ability of the source to comply with any cap?

Changes in fugitive emissions have little impact on the NAP's PAL compliance, due to the facility's significant margin of compliance under its PALs, and the fact that automobile manufacturing does not vary significantly on a day-to-day basis. Therefore, significant fluctuations in fugitives are unlikely. Additionally, the mass balance approach to VOC emissions monitoring takes into account fugitive VOC emissions.

6. PRACTICAL ENFORCEABILITY OF THE FLEXIBILITY PROVISIONS

6.1 Assess the overall practical enforceability of the permit's flexibility provisions.

6.1a Does the permit require monitoring, recordkeeping and reporting in appropriate time intervals (e.g., daily records for daily limits)?

6.1b Can an inspector visiting the site determine historical and contemporaneous compliance with the flexible permit from records maintained on site?

6.1c Does the permit contain a legal obligation for the source to adhere to the terms and conditions of the limitation?

6.1d Does the permit rely on the efficiency of an air pollution control device for compliance with an emissions limit? If so, how is that efficiency determined and shown to be accurate?

DNREC representatives indicated that they believe that the DaimlerChrysler flexible permits are practicably enforceable. They further indicated that DNREC inspectors were able to determine historical and contemporaneous compliance with the permits during on-site inspections. DNREC representatives also indicated that the monthly reports enabled DNREC staff to closely monitor the facility's compliance with the emissions caps. DNREC inspectors further indicated that they believe that, under the flexible permits, they have more detailed information available to them in advance of an inspection regarding changes made at the facility than they typically have available under a more conventional permit. The permits contain a legal obligation for the source to adhere to the terms and conditions contained in the permit, including the PALs.

The EPA Review Team found that the conditions contained in the permits are practicably enforceable. As mentioned, the EPA Review Team was able to exactly reproduce DaimlerChrysler's emissions calculations from a selected time period using the data maintained in records and logs. See sections 4.2, 4.3, and 4.4 for discussion of the appropriateness of required monitoring and recordkeeping information to support the practical enforceability of the permit conditions.

The permits rely on the efficiency of an air pollution control device for compliance with the VOC PALs. The current coating operations at the Newark Assembly Plant include the capture and destruction of VOC emissions from the solvent flash-off areas and the drying ovens. The destruction efficiency associated with the control device (RTO) is one of many factors included in the VOC emissions calculations. Per the permit conditions which reference EPA's "Protocol for Determining the VOC Emission Rate of Automobile and Light-Duty Truck Topcoat Operations," the destruction efficiency is included in the VOC calculations. The permit specifies that performance testing must be done on the RTO in accordance with EPA-approved test methods and the test results must be approved by the State. Only then can the approved destruction efficiency numbers be used in the emissions rate calculations. There is also an annual requirement for the source to review the process and control equipment and certify that no significant changes have occurred.

6.2 Does the permit require the correct type and amount of information (in logs, notices, monitoring data, etc.) to determine the number and duration of any deviations?

DNREC representatives indicated that they believe that the monitoring, reporting, and recordkeeping requirements specified in the permit is sufficient to determine whether any deviations have occurred.

The EPA Review Team found that the permit requires the correct type of information for conducting and documenting the material balance and for reporting the results and any deviations. The monitoring specifications referenced in EPA's protocol for performance testing of control devices (see section 6.1 for additional discussion) do not specify any minimum required frequency for performance testing, although sources are required to conduct an annual review and certification. Under the protocol, certain significant changes made by a source trigger the need for the source to conduct a test of control device performance to ensure that no performance degradation has occurred. In addition, DNREC reviews all process changes and if DNREC believes that a change may affect the efficiency of a piece of equipment, it has the legal authority to require a performance test. Specific to the history of testing at NAP under the flexible permits, the destruction efficiency of the RTO has been tested twice since it was placed in service in 1997 and the topcoat system has been tested according to the protocol twice since it came on line in 1997. EPA is considering the need to revise the protocol to ensure that a minimum frequency of actual control device tests are conducted by sources (e.g., once per permit term). The EPA Review Team suggests that DNREC and DaimlerChrysler consider, upon permit renewal, establishing a required frequency of actual testing of at least once per permit period (e.g., five years).

6.3 What was the nature and duration of any deviations?

DaimlerChrysler experienced two malfunctions with emissions control equipment, the regenerative thermal oxidizer (RTO), at the NAP. One malfunction occurred in August 1999, when the RTO fell at least 50 degrees below the setpoint for at least three hours on three different days in one week. This malfunction was previously discussed in section 4.2.

In February of 2000, a fire occurred in the RTO burner tubes at the end of a second shift. At 5:30 AM the following morning, the NAP began production without the RTO running. Although no violations of the short-term emissions limits occurred, this was a violation of the permit provisions stating that the RTO must be functioning during coating operations, unless an emergency situation exists. DNREC representatives stated that they did not agree that this was an emergency situation.

DNREC brought enforcement action on DaimlerChrysler for these two incidents in April of 2001. Fines totaled $25,000.

6.4 Can all calculations required by the permit, including ROPs, be duplicated? Can everyone understand and apply them consistently?

DNREC inspectors indicated that they have not had any problems understanding the calculations or duplicating calculations during inspections.

During the July site visit, the EPA Review Team also tested calculations for a selected period of time and was able to replicate the NAP's numbers. The calculations are contained in a spreadsheet format and are sufficiently documented. The EPA protocol and PAL permits include several long equations that utilize several different terms and factors. While these equations are long and may appear to be complex, they basically follow an "IN - OUT" material balance approach. Once all the variables (or inputs) from the daily reporting are obtained, they can be plugged into the equations to perform simple calculations to demonstrate compliance with the PALs.

6.5 Does the permit clearly set forth the applicable requirements for every change made by the source? If not, what additional information is necessary

The permit contains a tiered approach to changes, depending on the type of change and resulting emissions increase: conventional advance-approved changes and PAL advance-approved changes (for VOC and NO_x sources only) can be made if the NAP complies with all certification, recordkeeping and reporting requirements, and does not violate the short and long-term emissions limits. Other changes subject to new applicable requirements with less than 25 tons/year potential VOCs or NO_x emissions can enter into an expedited review process if all other requirements, including completed application and public notice, are met. Changes subject to new applicable requirements and increased VOC or NO_x emissions greater than 25 tons/year must ensure compliance with the PALs, address toxics concerns, and install BACT. DNREC reserves the right to add additional requirements if deemed necessary.

6.6 Were there any issues associated with off-permit notices (e.g., adequacy of descriptions)?

As of July 2001, the NAP has not had any off-permit notices associated with the title V permit.

6.7 Compare the "ease" of inspecting sources with flexible provisions to that of inspecting similar sources with conventional permits. For the units affected by flexibility provisions, what worked well and what posed difficulties?

DNREC inspectors indicated that the "ease" of inspecting sources with flexible provisions is approximately the same as under a conventional permit. In some cases, inspecting a source with a flexible permit may be easier, if the number of unit-specific requirements has been streamlined or reduced. With automobile assembly plants, inspections are mostly a matter of "accounting", whereas as chemical facilities might be more complicated.

6.8 Compare the compliance rate (to date) of flexible provisions within the permit with compliance rates of conventional regulatory permits governing the same types of changes at similar sources, and for similar types of changes with the same source under previous conventional permits.

DNREC representatives stated that when comparing the NAP permit to another similar manufacturer in their jurisdiction, the effect of the emissions cap may actually facilitate better compliance. For example, the other facility installed burners that were larger than those described in the permit application. This turned out to be a significant problem triggering more requirements. For the NAP, however, such an installation would have fallen under the PALs without any compliance issues. The other facility also had leaky spray booth valves which leaked about 500 tons of xylene over the course of two years. Had this facility had a PAL and monthly emissions reporting requirement like the NAP, this leak may have been detected much sooner.

7. PERMIT COSTS, BENEFITS & VALUE ADDED

7.1 Did the flexible permits provide you with benefits in terms of: practical enforceability; information flow; environmental/emissions results; economic results; etc.?

Representatives from DNREC and DaimlerChrysler both reported that they were pleased with the benefits derived from the flexibility provisions in the NAP's flexible air permits. The following benefits were identified by DNREC and DaimlerChrysler.

DNREC representatives identified the following benefits associated with the permits:

- *Lower Allowable Emissions*: The PAL permits capped annual facility emissions at a rate below the level which would have been required under a conventional permitting scenario. DNREC could have instead capped the facility at current actuals rather than historical actuals, which would have made the effective limit higher. As well, the permit required the NAP to make additional VOC reductions to comply with LAER.

- *Lower Actual Emissions*: While the flexible permits cannot be directly credited with reductions in actual emissions reductions during the permit term (i.e., the reductions were not required by the permit), DNREC and DaimlerChrysler representatives reported that the flexible permits created a framework that encouraged emissions reductions and pollution prevention. First, the emissions caps provided an incentive for the facility to increase its margins of compliance below the caps to reduce risk of noncompliance and to create room for potential production increases. Second, the advance-approved changes reduced the administrative "friction" (e.g., uncertainty, delay) associated with making changes that reduced emissions. During the permit terms, the NAP lowered its annual actual VOC emissions from 1165 tons/year in 1994 to 776 tons/year in 2000. Most of these reductions have resulted from P2, including significant efforts to reduce VOCs and HAPs associated with coating processes. The NO_x emissions have dropped from 174 tons/year in 1994 to 61 tons/year in 2000, remaining under the 150.71 tons/year PAL set in 1995.

- *Enforceable P2 Goals*: The permit contains an enforceable target for decreasing emissions associated with topcoat coating technologies. If the facility is unable to implement powder clearcoat technology by September 2003, they must either reduce VOC emissions from existing topcoat activities to below 7 pounds of VOCs per gallon of applied coating solids on an interim basis until powder is commercially available. If DaimlerChrysler does not believe that it will be able to meet the requirement to use powder clearcoat, it must submit a plan for

DNREC approval by September 1, 2002 to expeditiously achieve 6 pounds of VOCs per gallon of applied coating solids.

- *Increased Information Flow*: DNREC stated that the enhanced flow of information (e.g., monthly PAL reports) provides them with significantly more information than would be available under a conventional permitting scenario. Monthly reports include information on facility-wide emissions, providing an easy-to-understand accounting of overall facility emissions. Monthly reporting of advance-approved changes implemented at the facility provides DNREC staff (and the public through the agency files) with frequent information on facility changes. DNREC staff indicated that the low administrative friction associated with making advance-approved changes creates incentives for the facility to report changes made that might not even trigger minor NSR applicability under a conventional permitting process, increasing the availability of information regarding facility operations. DaimlerChrysler is also required to report on pollution prevention activities undertaken.

- *State Economic Benefit*: DNREC representatives indicated that their willingness to work with DaimlerChrysler to develop the initial flexible permit likely was a major factor in DaimlerChrysler's decision to invest in renovating the NAP (e.g., $325 million was invested to construct the new paint shop facility) to produce the Dodge Durango. DNREC representatives believe that the flexible permit has helped to secure the approximately 2,900 jobs associated with the plant.

DaimlerChrysler representatives identified the following additional benefits associated with the NAP's flexible permits:

- *Increased Market Responsiveness*: DaimlerChrysler representatives indicated that the permit has increased the facility's ability to respond to short-term changes in market demand, as well as to accommodate the tight project time lines associated with occasional model changeovers. DaimlerChrysler representatives identified that over 90 changes that have utilized the advance-approved change provisions of the permits. DNREC and DaimlerChrysler representatives reported that under a conventional permitting scenario, some of these changes would likely have triggered case-by-case applicability determinations and potential permitting actions that could have extended to 6 to 9 months each. They anticipate that the advance-approved change provisions in the title V permit will be used more over the next few years, as DaimlerChrysler makes changes to the Durango for new model years and potentially manufactures new vehicles at the plant.

- *Increased Certainty and Regulatory Predictability*: DaimlerChrysler representatives indicated that the advance-approved change provisions in the permit eliminated the need to conduct NSR applicability determinations for desired changes (e.g., determining what constitutes routine maintenance and repair and replacement in-kind), provided the changes met the advance-approved change criteria and facility emission remained below the established PALs. This increased the certainty around how various changes would be handled and enhanced the predictability associated with making those changes, enabling the facility to better plan facility upgrades and projects, including pollution prevention activities.

- *Reduced Complexity*: DaimlerChrysler representatives reported that a primary reason for pursuing the flexible PAL permits was to reduce the complexity of the facility's air permits and to make them more intuitive. DaimlerChrysler was interested in streamlining permit conditions and reducing unit-specific controls so that the resulting air permit would be easier to understand and comply with. In addition, environmental personnel found the flexible permit requirements easier to communicate to operations personnel, since the focus of the permits is on overall facility emissions levels, and less on numerous unit-specific production, content, and emissions limitations. Focus on overall facility emissions has helped to increase awareness among facility personnel of the permit requirements and the reasons for them. These objectives dovetailed with DaimlerChrysler's lean manufacturing initiatives that seek - in all areas of the business - to reduce complexity and wasted time and energy.

- *Facilitated Pollution Prevention*: With respect to pollution prevention, DaimlerChrysler indicated that the flexible permit, by creating a more operational change friendly environment, lowered the administrative "friction" (e.g., uncertainty, delay) associated with undertaking iterative operational change needed to increase the resource productivity of its operations. DaimlerChrysler indicated that their operational changes typically produce a range of pollution prevention benefits (fewer emissions per unit of product, less scrap, lower energy requirements) as many changes are geared to improving the reliability and/or material utilization associated with a piece of production equipment. See section 7.3 for additional discussion of pollution prevention benefits derived from the flexible permits.

- *Resource Savings*: DaimlerChrysler representatives estimated that the flexible permits save the facility significant staff time that would have been associated with applicability determinations and permit actions for changes made using the advance approval provisions. They estimated that approximately 505 hours of staff time were saved under the initial flexible permit (see section 4.1.c). These savings are projected to increase in the future as the facility makes more changes utilizing the advance approval provisions in the permit.

See sections 4.1.c and 7.2 (below) for additional discussion of permit benefits experienced by DaimlerChrysler.

7.2 Did the flexible permit allow you (the source) to better plan your operations (e.g., longer planning horizon)? If so, how? Please give examples of activities that could be planned better with flexible permit, with details as to how typical permits do not allow similar planning.

DaimlerChrysler representatives indicated that the compression of the vehicle development time frame to 18-22 months has significantly increased the company's interest in ensuring that air permitting activities are predictable (e.g., that the company know what they will need to do to assure compliance) and can be addressed within the project time line. As a result, DaimlerChrysler stated that if there is any question that they will not be able to meet their product development time frame due to air permitting constraints or delays, they must decide when and where to make sacrifices. Several options may exist, including: (1) DaimlerChrysler may have to move the project to a location with more flexible permitting requirements (e.g., facilities in Canada can begin construction prior to completion of permits); (2) DaimlerChrysler may have to alter operations to save time (such as

implement add-on controls); or (3) DaimlerChrysler may not be able to move forward with the project on the desired time frame or at all.

DaimlerChrysler also stated that planning operations can be difficult under conventional minor and major NSR, where applicability, resulting requirements, and the amount of time it takes to complete the permit process are all very uncertain. The netting equations for major NSR are not only time consuming, but may be subject to considerable discussion between source and permitting authority, with uncertain results. Similarly, both DNREC and the NAP stated that minor NSR applicability criteria are not always necessarily clear. Once applicability has been determined, DNREC has a "first-in-first-out" policy for reviewing minor and major permits, so the amount of time it takes to complete a conventional permitting process may vary depending on how many other permits are in queue and on how many permitting engineers are available. The uncertainty associated with applicability and timing of review can exacerbate planning difficulties at the NAP.

With the flexible permit, changes that would trigger many minor and major NSR are covered as long as the PAL limits are not exceeded. This has, according to the NAP, effectively eliminated problems associated with operational planning previously experienced under conventional permitting. The NAP can begin work on process changes and refinements when it is expeditious to do so, even if the exact scope of the change was still under development (provided the change is advance-approved). DaimlerChrysler believed this to be an important benefit to competitiveness and overall business success.

7.3 What P2 activities did you undertake during the term of the flexible permit?

7.3.a Which P2 activities, if any, would you have performed even without the flexible permit?

7.3.b Did having the flexible permit change the timing or extent of your P2 efforts?

7.3.c What emissions reductions were achieved as a result?

7.3.d How much environmental benefit do you perceive in P2 provisions?

7.3.e Have P2 provisions helped enhance permit flexibility and/or efficiency?

DaimlerChrysler representatives indicated that the NAP has undertaken numerous P2 activities during the terms of the flexible permits. As previously mentioned, P2 is central to DaimlerChrysler's compliance strategy. They indicated that many of the P2 initiatives described in section 1.25 (e.g., transition to waterborne coating operations, lean manufacturing) were supported and promoted by the flexible permit. DaimlerChrysler representatives reported that, in the absence of the flexible permits, the facility might have still pursued many of these P2 initiatives since the company has made a strong commitment to P2 instead of add-on pollution control equipment, where options exist. They added, however, that under a conventional permitting scenario many of these P2 initiatives would have been delayed to coincide with permit renewal time frames. They emphasized that the flexible permits significantly reduce the regulatory friction (e.g., uncertainty, delay) associated with making P2 changes, increasing incentives for P2.

DaimlerChrysler representatives reported the following P2 activities, along others, that have been implemented during the permit terms.

- Implementation of lead-free E-Coat process.
- Implementation of powder primer surfacer/antichip coating technology to reduce VOC emissions.

- Conversion to waterborne basecoat process.
- Development of clearcoat system compatible with subsequent conversion to powder technology.
- Implementation of energy-efficiency improvements to RTO.
- Development of low HAP formulations of all coatings, solvents, and adhesives.
- Installation of solvent management system to reduce emissions of purge and clean-up solvents.
- Installation of paint sludge dryer for sludge recycling.
- Elimination of high bake repair.
- Grate coating and machine covers used to reduce cleaning solvent use.
- Implementation of main boilers shutdown in the summer, through installation of water heaters.

Many of the above listed P2 activities resulted in per vehicle reductions of VOC emissions. Information on the actual emissions reductions associated with these specific activities were not available.

7.4 How useful is the annual P2 report?

7.4.a How useful was it to have the source track P2 activities and their results?

DNREC representatives indicated that tracking source P2 activities is useful to DNREC's Office of Business and Permitting Services. Reporting successful P2 initiatives can help the Engineering and Compliance branch of DNREC apply these concepts to other facilities. Interest in NAP P2 accomplishments among DNREC's Engineering and Compliance group has primarily focused on the facility's progress towards meeting the 2003 P2 targets associated with vehicle topcoat emissions.

From DaimlerChrysler's perspective, because of the flexibility under this permit, the NAP is better able to experiment with new clearcoat applications and material technology, many innovations of which could result in pollution prevention. Those successes are then considered for use at other company sites. DaimlerChrysler representatives indicated that P2 reporting helps the facility track P2 initiatives and better enables the facility to communicate these accomplishments and seek opportunities to transfer the projects to other DaimlerChrysler facilities.

7.5 Describe the type and amount of emissions reductions made to comply specifically with emissions caps/PALs (e.g., when you added or expanded units, or increased use of units, how did you ensure that emissions would stay below the PAL or emissions cap?).

7.5a Did your emissions per unit of production (e.g., lbs/widget or lbs/mmBTU) go down, stay the same or go up during the term of the flexible permit?

7.5.b In the absence of a PAL or emissions cap, please explain how you would have accommodated those same expansions or increases in use.

- **Would emissions may have differed?**
- **Would you have been able to net out of NSR/PSD review?**
- **Would you still have triggered Title V permit modification tracks?**
- **Would you not have made the change?**

The NAP has not yet had to reduce emissions beyond those accomplished through P2 to remain under the PALs because it has not made significant changes resulting in emissions increases that need to be offset. However, the NAP has reduced VOC emissions, partly through P2, resulting in

a relatively large margin of compliance currently at the facility. See section 1.20 for information on actual emissions and the PALs.

7.6 Did the timing and/or design of the PAL influence the timing of additional control equipment and/or pollution prevention? If so, how and why?

DaimlerChrysler representatives indicated that the flexible permit has enabled the facility to implement additional P2 measures that have reduced the need for additional pollution control equipment.

DaimlerChrysler compared the situation at NAP to the permitting situation and environmental performance of another assembly plant, which has similar operations to the NAP, but operates under conventional air permits. DaimlerChrysler representatives reported that the need for frequent permit changes has inhibited the other plant's ability to modernize production methods and reduce emissions. Whereas the NAP facility has seen a decrease in emissions under the PALs, emissions at the other plant have remained the same. Part of this lack of P2 attention at the other facility is the fact that it has incineration on part of the topcoat booth emissions and the company is not sure that P2 improvements will allow them to reduce the use of incineration. With a significant investment in a pollution control device that cannot be turned off and which may not perform as well on a lower emissions load, the facility has a reduced incentive to undertake P2 efforts, such as converting to water borne basecoat. The other facility does continue to seek ways to reduce emissions and improve overall emissions performance at the site, but DaimlerChrysler believes this is more difficult and costly under the conventional permitting system.

7.7 Do you believe any of the flexible approaches are transferable to other jurisdictions/sources? If so, which ones? For what sources? Why are these approaches transferable?

DaimlerChrysler hopes that the PAL concepts and other permit flexibility provisions can be applied to all of its facilities across the country. DaimlerChrysler representatives indicated that the company has set a goal of having flexible permits for all DaimlerChrysler facilities within two years. However, DaimlerChrysler representatives indicated that they have encountered hesitance from some states that are opting to hold off on negotiating PALs and/or flexible permits until EPA guidance or rulemaking is complete.

DNREC representatives stated that they will consider these approaches for other sources, but their decision will largely depend on the source's commitment to compliance and pollution prevention, as well as the source's technical capacity for effectively managing under a flexible permit. See section 1.18 for discussion of factors that DNREC considers when determining the appropriateness of flexible permitting techniques for a source. See section 1.10 for information on other sources in Delaware with which DNREC has pursued flexible permitting.

7.8 Compare a conventional permitting approach to that taken under the flexible permits in terms of:

7.8.a Environmental performance, including emissions trends, emissions increases/reductions, emissions gaps between actual and allowable emissions, and other notable environmental results;

7.8.b Overall development effort and ongoing maintenance costs (what were/ have been the investments of both the permitting authority and the source?)

- **Which type of permit has more up-front costs (uses more resources)?**
- **What is the difference in up-front transaction costs?**
- **Which type of permit has fewer implementation costs?**
- **What is the difference in the implementation costs?**

7.8.c Number of permit actions/modifications required, as well as associated transaction costs or costs avoided (e.g., source reductions in opportunity cost, permitting authority value added for advance notice, of MRR, control devices, etc.)

DaimlerChrysler representatives presented a comparison of the implementation of the NAP flexible permit with that of conventional air permits at another DaimlerChrysler plant. In the late 1980s, this plant also wanted to construct a new paint shop and went through federal non-attainment NSR (which included a LAER review). The site was permitted to build a new paint shop with solvent borne basecoat and an add-on control for part of the booth emissions (as part of LAER).

The other site has eight permits, each has multiple, unit-specific technology limits, emissions limits for different time periods, and a variety of operating conditions specific to each emissions unit. Since the late 1980s, the facility has been addressing permit modifications and other concerns on a continuous basis. More specifically, since 1992 the plant has had to obtain 12 permits or permit revisions, two involving federal NSR. The last three amendments, on average, each took over a year to complete. DaimlerChrysler believes that had the site been under a flexible/PAL permit, this number of permit transactions could have been reduced to only two, saving time and money as well as facilitating timely completion of P2 activities.

DaimlerChrysler also stated that due to the specificity and prescriptive nature of the conventional permits, the facility has been out of compliance on a number of occasions with non-substantive requirements (e.g., stack height parameters). The need for constant permit attention had also diminished the plant's ability to make changes to reduce emissions and/or modernize production processes.

Comparing permitted limitations between the two facilities, while the other site has 127 specific emissions limits, the NAP 1995 permit only had 16. Similarly, while the other site has 162 specific limits on equipment, materials, and operations, the NAP 1995 permit had only 20, without reducing environmental protection. (The other site has not yet received its title V permit so it is not possible to compare the complexity of the permitting of the two sites in the title V context.)

8. OTHER ISSUES

Future Flexible Permit Development

8.1 Do you anticipate any changes in the next version of the flexible permit?

8.1.a If so, what changes would you request/make (e.g., additions and subtractions) and why?

8.1.b Do you believe the existing regulations already provide for such changes? If so, how? If not, why not?

DNREC representatives indicated that they do not, as of July 2001, anticipate many changes to the flexibility provisions in the next version of the flexible title V permit. The current title V permit (issued in 1999) includes all of the flexibility provisions that were included in the facility's original flexible permit (issued in 1995).

There are a few areas in which changes are likely to appear in the next version of the facility's title V permit. First, the new permit will likely include PALs that are adjusted downward to account for the effect of any new state NO_x and VOC regulations (see Condition 3 in the original PAL permit). Second, the new permit will need to address the status of the LAER/P2 provision that requires DaimlerChrysler to begin using powder clearcoat technology in September 2003 or to achieve a lower LAER topcoat limit (7 lbs. of VOCs per gallon of applied coating solids on an interim basis or 6 lbs./gallon of applied coating solids on a permanent basis).

8.2 Do you believe there be any value added by EPA's finalizing guidance in this area? If not, why not? If so, how?

DNREC representatives stated that finalized guidance, although not necessary in their opinion, could be helpful in other areas of the country, as long as the guidance is not too prescriptive and grants permitting authorities discretion in how the provisions are implemented. They further indicated that clarification of "permit streamlining" should be addressed in any guidance, rulemaking, or regulations addressing flexible permitting. DNREC encouraged EPA to consider developing a guidance document which could serve as a tool to attain consistency between the Regions and to promote the PAL concept among the states while maintaining a state's discretion in issuing PALs. DNREC indicated that they prefer guidance on how PALs can be issued under the existing NSR rules in order to promote higher utilization and acceptance in other jurisdictions.

DaimlerChrysler representatives indicated that they strongly believe there is value in finalizing the NSR rulemaking and EPA guidance related to flexible permitting, so long as it accommodates industry flexibility needs, including needs outside of the energy and utility sectors. They stated that "a rule or policy that is elegant but unused is not worth issuing". DaimlerChrysler representatives offered the following comments on PAL policy and NSR reform that relate to flexible permitting.

- PALs should be an option for the source and air agency.
- PALs should be available to a source for a minimum of a 10 year duration without being decreased, to enable effective business planning. "Ratcheting PALs" will not address the needs of DaimlerChrysler facilities.
- PALs need to be designed on a case-by-case basis to address the nature of the source, the needs and commitments of the permittee, and the concerns of the air agency.
- Any PAL, PAL policy, or PAL rule must be evaluated in its entirety to assess the overall impact on emissions, pollution prevention, practical enforceability, and flexibility.
- PAL policy should preserve State and local authority to implement State NSR while encouraging and promoting selective advance approval of changes.
- PAL policy should help to streamline permit conditions in general, but retain the essence of past BACT, LAER, NSPS, and RACT decisions.
- PAL policy should ensure that new major units are well controlled.
- PAL policy should minimize the administrative burden to sources and permitting authority without sacrificing practical enforceability.

- PAL policy should allow for rapid changes in equipment and operations.
- PAL policy should avoid adverse air quality impacts through self-implementing mechanisms or permit limitations.
- PAL policy should encourage and/or reward pollution prevention.
- Current PAL options should not be based solely on netting.

DNREC representatives indicated that they take exception to one of these principles and feel instead that the PAL should have a duration consistent with the title V permit. They stated that PALs should not be designed to preclude the permitting authority from adjusting the cap when appropriate. For instance if a facility which is permitted under a PAL becomes subject to a new RACT standard, the permitting authority should review the impact on the source and reduce the emissions limits to reflect the credit associated with the new standard in the SIP, if any. The PAL limits should be reviewed for their appropriateness at a frequency which exceeds once in every ten years.

DaimlerChrysler further indicated that they believe final PAL rulemaking will be needed to get certain states, other than Delaware, to consider PAL permitting opportunities. They expressed frustration that the willingness to engage in the development of flexible permits varies significantly among EPA regions and State agencies. They also suggested that EPA should not hold a PAL rule back while waiting for a broader set of air regulations decisions.

8.3 Will you have any flexible permit writing/implementation training needs?

DNREC representatives stated that training in flexible permit writing and implementation would be helpful for selected DNREC permitting staff.

8.4 Do you have recommendations for web-site materials?

DNREC and DaimlerChrysler representatives indicated that an EPA web site addressing flexible permitting techniques would be beneficial. No specific recommendations were offered regarding appropriate web site content.

8.5 What else could EPA do to limit the up-front design costs?

DNREC representatives stated that the NAP PAL permitting process moved quickly and smoothly, in part, due to critical and timely support from EPA Region 3. They believe that without effective and streamlined EPA regional support, guidance may not be as helpful.

8.6 How do you predict your up-front transactions costs would have compared if you had undertaken the same flexible permit for the same source with EPA guidance and the mentioned support structure already in place?

DNREC representatives stated that guidance, if not too prescriptive, could have reduced up-front transaction costs somewhat. They also indicated, however, that overly prescriptive and detailed guidance could add time necessary to review, interpret, and address the specifics contained in the guidance.

8.7 How much time do you believe must pass before the reduced costs of overseeing the flexible permit would compensate for the higher up-front design cost?

DNREC representatives indicated that the payback time frame is difficult to estimate and is likely to vary for each permit.

Source Screening Criteria

8.8 What criteria should be used to reject inappropriate flexibility proposals from sources (e.g., relevance of compliance history, P2 commitment, potential for environmental benefit, sustainable compliance over the long term)?

DNREC representatives stated that a source's willingness and ability to live with the monitoring, recordkeeping, and reporting associated with a PAL/flexible permit is critical when considering appropriate sources for flexible permitting techniques. See section 1.18 for additional discussion on source screening criteria.

Public Outreach

8.9 How can these permits be better communicated to the public (e.g., consistency with air program goals; potential improvements to monitoring, recordkeeping, reporting, etc.)?

DNREC representatives stated that they believe there is significant room for improvement related to public outreach around permitting information, but that this applies broadly to air permitting and is not specific to flexible permitting techniques. They indicated that DNREC's Community Involvement Advisory Committee recently commissioned a report that identifies steps that the Department should take to improve public involvement in areas under DNREC's jurisdiction, including air permitting. The report was issued on March 22, 2001, and prepared for the Advisory Committee by Global Environmental Resources, Inc.

The report includes the following recommendations related to air permitting, among others:

- Develop a brief "Citizen's Guide to the Permitting Process".
- Conduct training sessions for the public to promote community understanding of the regulatory decision-making process and ways in which the public can become involved.
- Expand distribution of major permit-related announcements (e.g., public comment period for draft permit) to include local outlets that reach more people (e.g., community groups, community and youth centers).

8.10 What fact sheets would be useful to the permitting authority, source and the public?

DNREC and DaimlerChrysler representatives indicated that EPA fact sheets addressing flexible permitting techniques would be beneficial. No specific recommendations were offered regarding fact sheet topics.

8.11 When and how should up-front meetings (i.e., before the public comment period) be used to address potential public concerns? How should concerns from those meetings be addressed?

DNREC representatives indicated that in cases involving major projects in any targeted community, it would be extremely helpful to conduct workshops and public meetings to educate the community and solicit their comment and input. These comments should be considered and addressed in the design of the permit application and the subsequent permit.