SAMPLE POLLUTION PREVENTION PLAN PREPARED IN ACCORDANCE WITH THE NEW JERSEY POLLUTION PREVENTION ACT AND PROGRAM RULES

(Printing Example)

New Jersey Department of Environmental Protection
Office of Pollution Prevention and Right to Know

Revised May, 2006

How to Use This Sample Pollution Prevention Plan

The New Jersey Department of Environmental Protection, Office of Pollution Prevention and Right to Know, has prepared a Sample Pollution Prevention Plan for a hypothetical paint formulation facility regulated under the New Jersey Pollution Prevention Act and Program Rules (N.J.A.C. 7:1K). Although the Plan has been written in the manner that a typical facility might prepare a Plan, numerous guidance notes from the Department are inserted in comment boxes throughout the document. These notes are intended to provide tips and options to the users of this Sample Plan in the preparation of their actual Plan. The style and format used in this document are also simply an example, and may be varied as desired by the facility. The order in which the information is presented does not have to adhere to the order as given in the program rules. In this Sample Plan the order deviated in parts from the rules to follow a more logical progression. The order of information is therefore optional, but the content must include all rule requirements. It is also encouraged that additional information not specifically required by the rule be included in the Plan if it is deemed useful. It is recommended that this Sample Plan be used in conjunction with the Program Rules and with the guidance documents entitled, "Industrial Pollution Prevention Planning (Planning Guidance Document)," "Pollution Prevention Fill in the Blank Plan" and "Pollution Prevention Planning Administrative Review." These documents are available at the Office of Pollution Prevention and Right to Know's website, http://www.nj.gov/dep/opppc/figdoc.htm.

POLLUTION PREVENTION PLAN

For

Garden State Paint Company
Jerseyville, New Jersey

FACID: 0123450000

NAICS 325510
Base Year 2003

Revision 1.0

Date: June 30, 2005

POLLUTION PREVENTION PLAN

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INTRODUCTION

Note: It is recommended that a narrative description of the facility, its products and any other information pertinent to future pollution prevention planning be included in an introduction to the Plan. The Introduction should also include, as inserts or addendum on replacement pages, a summary of any Plan revisions that may have been made during the year.

1.0 GENERAL INFORMATION

Garden State Paint Company maintains an active paint formulation facility at 123 Industrial Avenue, Jerseyville, New Jersey. The facility uses hazardous substances in several paint formulation processes. The facility formulates paint from purchased components. The three basic components are pigments, extender and bases.

The pigments used are chromium oxide (Cr2O3), titanium dioxide (TiO2) and ferric oxide (FeO). Chromium, a component of chromium oxide (Category No. N090, chromium compounds), is a hazardous substance covered under the pollution prevention planning rules. The other two are non-hazardous substances, and are not covered.

The extender in paint formulation for each process is calcium carbonate (Ca2CO3), a non-hazardous substance.

Two paint bases are used in the various paint products: (1) the solvent, methyl isobutyl ketone (MIBK) (CAS No.108-10-1), a hazardous substance covered under the pollution prevention planning rules, and (2) water.

Other substances used at the Garden State Paint Company, such as detergents, anti-foaming agents, etc., are either non-toxic or in quantities below the threshold.

The products include red, white and green paint formulations. Both MIBK and water based paints are formulated in these different colors, with water-based paint production greater than MIBK-based paint production in a ratio of 3 to 1. Different shades of colors are produced through varying combinations of pigments. The same equipment is used to make the different paints; therefore cleaning between runs is required. The steps to making different paints are very similar and may be depicted by a general process flow diagram as given in Figure 1 on page 34.

A listing of the various product lines is given in section 4.1 on page 18.

In the previous planning cycle (1998 base year through 2003), a pollution prevention initiative was evaluated for two of the processes (NHP1/WB and NHP2/WB), both using non-hazardous pigments and water base. ("NHP" means "non-hazardous pigment" and "WB" means "water base.") In these processes a hazardous substance, MIBK, had been used only in the equipment cleaning stage. The implementation of the pollution prevention initiative first began on an experimental basis. Since these processes,

NHP1/WB and NHP2/WB, are water-based, MIBK deliveries were always made to the far section of the facility in the vicinity of MIBK-based processes. Rather than transport storage containers to these processes for equipment cleaning only, it was decided to evaluate cleaning with mineral spirits and with an alkaline cleaner, which were readily available in this section of the facility. It was found that both options are technically and economically feasible. The use of an alkaline cleaner in the equipment cleaning step of Process NHP1/WB and NHP2/WB was initiated in January 2004, and at the writing of this Plan (June, 2004) has resulted in the elimination of MIBK in this process. The annual use total of MIBK will be only 25 pounds, and will be reported in the P2-115 Progress Report for 2005. **(Revision 1.0 - June 30, 2005: This P2-115 data is included on page 27 of this Plan revision.)** The option of substituting an alkaline cleaner or mineral spirits in the cleaning step will continue to be evaluated for the other processes, and will be implemented in general in this five-year Plan.

Garden State Paint Company has been filing TRI Form R's to the USEPA and Release and Pollution Prevention Reports (RPPR's) to the NJDEP since prior to the first base year for Pollution Prevention Planning in 1993. The facility originally had an SIC code 2851 for paint manufacture, and thus had established base years of 1993, 1998, 2003, etc., according to the original rules. A New Jersey statute now requires all SIC codes to be converted to North American Industry Classification (NAICS) codes in environmental regulations. The facility now has an NAICS code 325510 for paint manufacture.

According to new rules N.J.A.C. 7:1K-3.1(i) and (j), facilities will continue to use original base year cycles, and thus will not be affected by the change from SIC to NAICS codes.

The current base year therefore remains 2003.

According to N.J.A.C. 7:1K-3.19(f), the base year for a new facility is the year after the first submittal of an RPPR Sections A and B, thus establishing five-year cycles and base years not affected by the change from SIC to NAICS codes.

Revision 1.0 - June 30, 2005: This Plan was revised to include changes in Section 13.0, Schedule of Implementation, page 49.

PART 1A OF THE PLAN
N.J.A.C.7:1K-4.3(a) and (b)

2.0 PERSONNEL INFORMATION AND CERTIFICATIONS

2.1 Personnel Information

Company: Garden State Paint Company
123 Industrial Avenue
Jerseyville, New Jersey 12345
(609) 555-1234

Highest Ranking Corporate Official at the Facility:
Mr. William Sherman
Title: President
Phone: (609) 555-1234

Highest Ranking Corporate Official with Direct Operating Responsibility (Operator):
Mr. Henry Pinto
Title: Vice-President
Phone: (609) 555-1234

Non-Management Employee Representative:
Mr. Richard Coates
Operator – Union Steward
Phone: (609) 555-1234

2.2 Certifications

"I certify under penalty of law that I have read the Pollution Prevention Plan and that the Pollution Prevention Plan is true, accurate and complete to the best of my knowledge."

Henry Pinto June 30, 2005
Henry Pinto, Vice President Date

"I certify under penalty of law that I am familiar with the Pollution Prevention Plan and that it is the corporate policy of this industrial facility to achieve the goals of the Pollution Prevention Plan."

William Sherman June 30, 2005
William Sherman, President Date

3.0 FACILITY-LEVEL INFORMATION

> Note: It is recommended that all substances, both hazardous and non-hazardous (un-regulated), be listed, to provide an indication of the extent of the entire facility's operations.

3.1 Substances used

The following substances/chemicals are used at Garden State Paint Company's facility:

Titanium dioxide, TiO2
Chromium oxide, Cr2O3
Ferric oxide, FeO
Calcium carbonate, CaCO3
Methyl isobutyl ketone, MIBK
Water

3.2 Facility–Level Materials Accounting Summary for all Substances

> Note: A complete materials accounting of all hazardous substances at the facility level is required. You may include Sections A and B of the RPPR in the plan to fulfill the requirement, except for USE quantities, which may have to be calculated since it was not included in previous versions of the electronic RPPR (eRPPR). For more recent years, USE is calculated by eRPPR in Section B. It is recommended that tables, such as Tables 2 through 7, be included in the Plan for ease of comparison in subsequent years, even if the RPPR is included.

> Note: You may also want to provide a base-year facility-level materials accounting summary for all substances, including non-hazardous substances, to provide a facility-wide perspective. The facility may decide to provide a materials accounting summary for non-hazardous substances in subsequent years in order to understand changes in facility operation.

Table 1 provides a summary for base year 2003 of facility-level use and NPO of all substances listed in 3.1 above. This summary does not include a complete itemization of NPO categories and quantities, but this data for regulated substances are included below. Only two substances on the above list are regulated under SARA 313 and therefore under Pollution Prevention planning.

3.3 Hazardous substances regulated

Tables 2 through 7 (including blank tables to be completed in subsequent years) provide year by year facility-level inventory data on the two hazardous substances used at Garden State Paint Company that are regulated under SARA 313. The two substances that are also subject to Pollution Prevention Planning are as follows:

Chromium oxide, Cr2O3 (N090, Chromium compounds)
Methyl isobutyl ketone, MIBK (108-10-1)

The data in these tables are the same as those reported on the New Jersey RPPR. Use quantities are calculated as follows:

Use = Consumed + Shipped (as/in product) + NPO.

Inclusion of the RPPR in the Plan along with the use calculation satisfies the requirement for facility-level information (N.J.A.C.7:1K-4.3(b)2). The RPPR's have not been included in this Plan but copies are available at the facility. These tables, as required, include a complete itemization of NPO categories and quantities.

Note: For regulated hazardous substances, as part of the Plan, you may want to include blank tables to be completed in future years, especially if these are entered by hand. The blank tables also serve as a reminder that the Plan is in progress and is to be updated annually. In any case, this data must be added in subsequent years.

Note: The difference between annual input quantities and annual output quantities must not exceed five percent. (N.J.A.C. 7:1K-4.3(b)x.)

TABLE 1 BASE YEAR 2003 FACILITY-LEVEL SUBSTANCE INVENTORY SUMMARY FOR ALL FACILITY SUBSTANCES

Substance	MIBK	Cr2O3	FeO	CaCo3	TiO2	Water
INPUTS: (pounds)						
Starting inventory	1040	1048	946	1006	1075	N/A
Produced onsite	0	0	0	0	0	0
Brought onsite	288016	134538	140862	276930	278460	830790
Recycled out of process/re-used onsite	0	0	0	0	0	0
OUTPUTS: (pounds)						
Consumed onsite	0	0	0	0	0	0
Shipped offsite as/in product	271500	131900	138100	271500	273000	814500
Total NPO	11,132	2507	2486	4073	5460	8145
Ending inventory	6424	1180	1222	2364	1075	N/A
USE	282,632	134,407	140,586	275,573	278,460	830,790

TABLE 2 FACILITY-LEVEL HAZARDOUS SUBSTANCE INVENTORY
FOR COVERED SUBSTANCES

Base Year 2003

Substance	MIBK	Cr2O3
CAS No.	108-10-1	N090
INPUTS: (pounds)		
Starting inventory	1040	1048
Produced onsite	0	0
Brought onsite	288016	134538
Recycled out of process/re-used onsite	0	0
OUTPUTS: (pounds)		
Consumed onsite	0	0
Shipped offsite as/in product	271500	131900
Ending inventory	6424	1180
Total NPO	11132	2507
NPO: (pounds)		
Recycled outside of process onsite	0	0
Destroyed through onsite treatment	0	0
Destroyed through onsite energy recovery	0	0
Release to air through stack emissions	2305	1000
Release to air through fugitive emissions	0	0
Discharged to POTW	217	40
Discharged to surface waters	0	0
Discharge to ground water	0	0
Onsite land disposal	0	0
Transferred offsite	8610	1467
USE (pounds)	282,632	134,407

NOTE:	USE = Consumed + Shipped (as/in product) + NPO

TABLE 3 FACILITY-LEVEL HAZARDOUS SUBSTANCE INVENTORY FOR COVERED SUBSTANCES

2004

Substance	MIBK	Cr2O3
CAS No.	108-10-1	N090
INPUTS: (pounds)		
Starting inventory	6424	1180
Produced onsite	0	0
Brought onsite	281,600	136,793
Recycled out of process/re-used onsite	0	0
OUTPUTS: (pounds)		
Consumed onsite	0	0
Shipped offsite as/in product	290,302	137,050
Ending inventory	6024	1080
Total NPO	4835	2217
NPO: (pounds)		
Recycled outside of process onsite	0	0
Destroyed through onsite treatment	0	0
Destroyed through onsite energy recovery	0	0
Release to air through stack emissions	1020	900
Release to air through fugitive emissions	0	0
Discharged to POTW	135	30
Discharged to surface waters	0	0
Discharge to ground water	0	0
Onsite land disposal	0	0
Transferred offsite	3680	1287
USE (pounds)	295,137	139,267

TABLE 4 FACILITY-LEVEL HAZARDOUS SUBSTANCE INVENTORY FOR COVERED SUBSTANCES

2005

Substance	MIBK	Cr2O3
CAS No.	108-10-1	N090
INPUTS: (pounds)		
Starting inventory		
Produced onsite		
Brought onsite		
Recycled out of process/re-used onsite		
OUTPUTS: (pounds)		
Consumed onsite		
Shipped offsite as/in product		
Ending inventory		
Total NPO		
NPO: (pounds)		
Recycled outside of process onsite		
Destroyed through onsite treatment		
Destroyed through onsite energy recovery		
Release to air through stack emissions		
Release to air through fugitive emissions		
Discharged to POTW		
Discharged to surface waters		
Discharge to ground water		
Onsite land disposal		
Transferred offsite		
USE (pounds)		

TABLE 5 FACILITY-LEVEL HAZARDOUS SUBSTANCE INVENTORY
FOR COVERED SUBSTANCES

2006

Substance	MIBK	Cr2O3
CAS No.	108-10-1	N090
INPUTS: (pounds)		
Starting inventory		
Produced onsite		
Brought onsite		
Recycled out of process/re-used onsite		
OUTPUTS: (pounds)		
Consumed onsite		
Shipped offsite as/in product		
Ending inventory		
Total NPO		
NPO: (pounds)		
Recycled outside of process onsite		
Destroyed through onsite treatment		
Destroyed through onsite energy recovery		
Release to air through stack emissions		
Release to air through fugitive emissions		
Discharged to POTW		
Discharged to surface waters		
Discharge to ground water		
Onsite land disposal		
Transferred offsite		
USE (pounds)		

TABLE 6 FACILITY-LEVEL HAZARDOUS SUBSTANCE INVENTORY
FOR COVERED SUBSTANCES
2007

Substance	MIBK	Cr2O3
CAS No.	108-10-1	N090
INPUTS: (pounds)		
Starting inventory		
Produced onsite		
Brought onsite		
Recycled out of process/re-used onsite		
OUTPUTS: (pounds)		
Consumed onsite		
Shipped offsite as/in product		
Ending inventory		
Total NPO		
NPO: (pounds)		
Recycled outside of process onsite		
Destroyed through onsite treatment		
Destroyed through onsite energy recovery		
Release to air through stack emissions		
Release to air through fugitive emissions		
Discharged to POTW		
Discharged to surface waters		
Discharge to ground water		
Onsite land disposal		
Transferred offsite		
USE (pounds)		

TABLE 7 FACILITY-LEVEL HAZARDOUS SUBSTANCE INVENTORY
FOR COVERED SUBSTANCES

2008

Substance	MIBK	Cr2O3
CAS No.	108-10-1	N090
INPUTS: (pounds)		
Starting inventory		
Produced onsite		
Brought onsite		
Recycled out of process/re-used onsite		
OUTPUTS: (pounds)		
Consumed onsite		
Shipped offsite as/in product		
Ending inventory		
Total NPO		
NPO: (pounds)		
Recycled outside of process onsite		
Destroyed through onsite treatment		
Destroyed through onsite energy recovery		
Release to air through stack emissions		
Release to air through fugitive emissions		
Discharged to POTW		
Discharged to surface waters		
Discharge to ground water		
Onsite land disposal		
Transferred offsite		
USE (pounds)		

4.0 PROCESS-LEVEL INFORMATION

4.1 Production Processes

The facility operates six paint formulation processes, identified as follows:

1. HP/SB - Formulation of green paints with hazardous pigment Cr2O3 in a hazardous solvent base, MIBK.

2. HP/WB -Formulation of green paints with hazardous pigment Cr2O3 in a water base.

3. NHP1/SB -Formulation of white paints with a non-hazardous pigment (TiO2) in a hazardous solvent base, MIBK.

4. NHP2/SB -Formulation of red paints with a non-hazardous pigment (FeO) in a hazardous solvent base, MIBK.

5. NHP1/WB - Formulation of white paints with a non-hazardous pigment (TiO2) in a water base. A hazardous solvent, MIBK, is used for equipment cleaning.

6. NHP2/WB - Formulation of red paints with a non-hazardous pigment (FeO) in a water base. A hazardous solvent, MIBK, is used for equipment cleaning.

Pollution prevention planning is required for all processes. A process flow diagram is required for each process (N.J.A.C. 7:1K-4.3(b)3iv). For a general example that represents all six processes, see Figure 1 on page 34.

4.2 Products/ Units of Product

The facility formulates a variety of paints in six production processes. Unit of product in all cases is a gallon of paint. All six processes use at least one hazardous substance. Table 8 shows production quantity (total units of product in gallons) for each year for each production line (or groupings) containing a hazardous substance. Groupings will now be discussed.

4.3 Grouping Decisions

A description of grouping decisions, if any, is required by N.J.A.C. 7:1K-4.3(b)3iii. The decision was made to group some of the six processes. It was decided to group processes that use similar ingredients to make similar products. For example, all shades of white are considered one process, and white and red could be combined in cases where the same base is used. The following table shows the groupings:

	MIBK hazardous solvent base	Water
Cr2O3 Hazardous pigment	1 process (HP/SB) (Process 1)	1 process (HP/WB) (Process 2)
Non-hazardous pigment	2 processes in group (NHP/SB) (Process 3 and 4)	2 processes in group (NHP/WB) (Process 5 and 6)

Process NHP1/SB and NHP2/SB are combined into a group identified as NHP/SB, and process NHP1/WB and NHP2/WB are combined into a group identified as NHP/WB.

TABLE 8 PRODUCTION QUANTITY (total units of production) (gallons)

PRODUCT	2003	2004	2005	2006	2007	2008
HP/SB	9618	10005				
HP/WB	28853	29993				
NHP/SB	29976	32276				
NHP/WB	89928	96828				

5.0 PROCESS-LEVEL INFORMATION AND INVENTORY DATA

The Pollution Prevention Process-level Data Worksheets (P2-115's) for each chemical in each process are given on the following pages. These fulfill all the requirements of N.J.A.C. 7:1K-4.3(b)3i and ii and 4i, for process-level data to be included in the Plan. The data in the P2-115's cover base year 2003, which was in the initial Plan, and the data for Year 1, 2004, which has been added in this Plan revision (Revision 1.0).

> Note: Revised text concerning the added data is recommended if the significance of the change is important for the implementation of the Plan. The revised text may be added in the Introduction or on separate pages. In this Sample Plan, a discussion of data changes for one process is included in the Introduction.

> Note: Additions of data into P2-115's in subsequent years of the five-year Plan must be made in the Plan. Further explanation of the four questions on the P2-115's may be included on separate pages.

Copies of the Pollution Prevention Process-level Data Worksheets (P2-115's) for each chemical in each process were submitted to the Department on June 30, 2005 to include data for 2004. These submittals fulfill the Progress Report requirement in accordance with of N.J.A.C. 7:1K-6.2. In subsequent years, 2005, 2006, 2007 and 2008, of the planning cycle, entries will be made into the P2-115's in the Plan and copies will be submitted to the Department by July 1.

> Note: If P2-115's are submitted as the progress reporting option in lieu of Sections C And D (Release And Pollution Prevention Report), facility-level reductions (Section 15.0) and targeted process-level reductions (Section 16.0) in Part IB are not required (see pages 21 through 27). The Department will perform these calculations and return the results to the facility to be incorporated into the Plan.

> It is recommended that the Plan include a statement of which progress reporting option will be used. Certification is required on only one P2-115, if multiple P2-115's are submitted.

5.1 Pollution Prevention Process-level Data Worksheets (P2-115's)

The following pages provide the Pollution Prevention Process-Level Data Worksheets (P2-115's) for each substance at each process.

NOTE: THIS WORKSHEET IS <u>REQUIRED</u> AS PART OF THE POLLUTION PREVENTION PLAN, AND IS OPTIONAL AS A SUBMITTAL IN LIEU OF SECTIONS C AND D OF THE RELEASE AND POLLUTION PREVENTION REPORT. ALL OPTIONAL SUBMITTALS ARE NOT CONFIDENTIAL.

POLLUTION PREVENTION PROCESS LEVEL DATA WORKSHEET (P2-115)

Base Year 2003

Garden State Paint Company
123 Industrial Avenue
Jerseyville, New Jersey 12345

PROCESS LEVEL INFORMATION: (Use one sheet for each hazardous substance at each process.)
PROCESS I.D. HP/SB
UNITS OF PRODUCTION (e.g. type of widget, lbs. of chemical, ft^2 of product) gallons
Is process targeted? (Y/N) Y Is this a grouped process? (Y/N) N

HAZARDOUS SUBSTANCE: MIBK					**CAS No. 108-10-1**	
	Base Year	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Production quantity	**9618**	**10005**				
USE (pounds)	**67269**	**69709**				
Consumed						
Shipped off-site as (or in) product	**65950**	**68759**				
NPO (pounds)	**1319**	**950**				
Recycled out of process						
Destroyed: on site treatment						
Destroyed: on site energy recovery						
Stack air emissions	**200**	**190**				
Fugitive air emissions						
Discharge to POTWS	**50**	**50**				
Discharge to groundwater						
Discharge to surface waters						
On site land disposal						
Transferred off site	**1069**	**710**				
End. Inv. as NPO – Beg. Inv. as NPO						
P2 techniques used in given year (use the code(s) from the Appendix of the RPPR Instructions)		**W42, W58**				
Was this process discontinued or sent off site in given year? (Y/N)		**N**				
Did facility make process change(s) that triggered Plan modification? (Y/N)		**N**				
Was facility's P2 progress (targeted process only) less than anticipated? (Y/N) (Attach explanation if Y.)		**N**				

CERTIFICATION OF OWNER OR OPERATOR (Required only on one P2-115) - I certify under penalty of law that the information submitted on this worksheet is true, accurate and complete to the best of my knowledge.

Signature *Henry Pinto* **Date** 6/30/05 **Phone** (609) 555-1234
Name (print) Henry Pinto **Title** Vice President

NOTE: THIS WORKSHEET IS <u>REQUIRED</u> AS PART OF THE POLLUTION PREVENTION PLAN, AND IS OPTIONAL AS A SUBMITTAL IN LIEU OF SECTIONS C AND D OF THE RELEASE AND POLLUTION PREVENTION REPORT. ALL OPTIONAL SUBMITTALS ARE NOT CONFIDENTIAL.

POLLUTION PREVENTION PROCESS LEVEL DATA WORKSHEET (P2-115)

Base Year <u>2003</u>

Garden State Paint Company
123 Industrial Avenue
Jerseyville, New Jersey 12345

Garden State Paint Company
123 Industrial Avenue
Jerseyville, New Jersey 12345

PROCESS LEVEL INFORMATION: (Use one sheet for each hazardous substance at each process.)
PROCESS I.D. <u>HP/SB</u>
UNITS OF PRODUCTION (e.g. type of widget, lbs. of chemical, ft^2 of product) <u>gallons</u>
Is process targeted? (Y/N) <u>Y</u> Is this a grouped process? (Y/N) <u>N</u>

HAZARDOUS SUBSTANCE: Cr2O3					**CAS No. N 090**	
	Base Year	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Production quantity	**9,618**	**10,005**				
USE (pounds)	**33,602**	**34,892**				
Consumed						
Shipped off-site as (or in) product	**32,975**	**34,325**				
NPO (pounds)	**627**	**567**				
Recycled out of process						
Destroyed: on site treatment						
Destroyed: on site energy recovery						
Stack air emissions	**500**	**450**				
Fugitive air emissions						
Discharge to POTWs	**20**	**15**				
Discharge to groundwater						
Discharge to surface waters						
On site land disposal						
Transferred off site	**107**	**102**				
End. Inv. as NPO – Beg. Inv. as NPO						
P2 techniques used in given year (use the code(s) from the Appendix of the RPPR Instructions)		**W42, W58**				
Was this process discontinued or sent off site in given year? (Y/N)		**N**				
Did facility make process change(s) that triggered Plan modification? (Y/N)		**N**				
Was facility's P2 progress (targeted process only) less than anticipated? (Y/N) (Attach explanation if Y.)		**N**				

CERTIFICATION OF OWNER OR OPERATOR (Required only on one P2-115) - I certify under penalty of law that the information submitted on this worksheet is true, accurate and complete to the best of my knowledge.

Signature _____ Date _____ Phone ( )_____
Name (print) _____ Title _____

NOTE: THIS WORKSHEET IS <u>REQUIRED</u> AS PART OF THE POLLUTION PREVENTION PLAN, AND IS OPTIONAL AS A SUBMITTAL IN LIEU OF SECTIONS C AND D OF THE RELEASE AND POLLUTION PREVENTION REPORT. ALL OPTIONAL SUBMITTALS ARE NOT CONFIDENTIAL.

POLLUTION PREVENTION PROCESS LEVEL DATA WORKSHEET (P2-115)

Base Year ____2003_____

Garden State Paint Company
123 Industrial Avenue
Jerseyville, New Jersey 12345

Garden State Paint Company
123 Industrial Avenue
Jerseyville, New Jersey 12345

PROCESS LEVEL INFORMATION: (Use one sheet for each hazardous substance each process.)
PROCESS I.D. ___HP/ WB_____
UNITS OF PRODUCTION (e.g. type of widget, lbs. of chemical, ft^2 of product) _____gallons_____
Is process targeted? (Y/N)__ Y___Is this a grouped process? (Y/N)___N__

HAZARDOUS SUBSTANCE: MIBK					**CAS No. 108-10-1**	
	Base Year	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Production quantity	**28,853**	**29,993**				
USE (pounds)	**1,385**	**762**				
Consumed						
Shipped off-site as (or in) product						
NPO (pounds)	**1,385**	**762**				
Recycled out of process						
Destroyed: on site treatment						
Destroyed: on site energy recovery						
Stack air emissions	**1,205**	**685**				
Fugitive air emissions						
Discharge to potws	**100**	**35**				
Discharge to groundwater						
Discharge to surface waters						
On site land disposal						
Transferred off site	**80**	**42**				
End. Inv. as NPO – Beg. Inv. as NPO						
P2 techniques used in given year (use the code(s) from the Appendix of the RPPR Instructions)		**W42, W58**				
Was this process discontinued or sent off site in given year? (Y/N)		**N**				
Did facility make process change(s) that triggered Plan modification? (Y/N)		**N**				
Was facility's P2 progress (targeted process only) less than anticipated? (Y/N) (Attach explanation if Y.)		**N**				

CERTIFICATION OF OWNER OR OPERATOR (Required only on one P2-115) - I certify under penalty of law that the information submitted on this worksheet is true, accurate and complete to the best of my knowledge.

Signature _____ Date _____ Phone ( )_____
Name (print) _____ Title _____

NOTE: THIS WORKSHEET IS <u>REQUIRED</u> AS PART OF THE POLLUTION PREVENTION PLAN, AND IS OPTIONAL AS A SUBMITTAL IN LIEU OF SECTIONS C AND D OF THE RELEASE AND POLLUTION PREVENTION REPORT. ALL OPTIONAL SUBMITTALS ARE NOT CONFIDENTIAL.

POLLUTION PREVENTION PROCESS LEVEL DATA WORKSHEET (P2-115)

Base Year ___2003_____

Garden State Paint Company
123 Industrial Avenue
Jerseyville, New Jersey 12345

Garden State Paint Company
123 Industrial Avenue
Jerseyville, New Jersey 12345

PROCESS LEVEL INFORMATION: (Use one sheet for each hazardous substance each process.)
PROCESS I.D. _____HP/WB_____
UNITS OF PRODUCTION (e.g. type of widget, lbs. of chemical, ft^2 of product) _____gallons_____
Is process targeted? (Y/N)__Y___ Is this a grouped process? (Y/N)___N__

HAZARDOUS SUBSTANCE: Cr2O3					CAS No. N090	
	Base Year	Year 1	Year 2	Year 3	Year 4	Year 5
Production quantity	28853	29993				
USE (pounds)	100805	104375				
Consumed						
Shipped off-site as (or in) product	98,925	102,725				
NPO (pounds)	1880	1650				
Recycled out of process						
Destroyed: on site treatment						
Destroyed: on site energy recovery						
Stack air emissions	500	450				
Fugitive air emissions						
Discharge to potws	20	15				
Discharge to groundwater						
Discharge to surface waters						
On site land disposal						
Transferred off site	1360	1185				
End. Inv. as NPO – Beg. Inv. as NPO						
P2 techniques used in given year (use the code(s) from the Appendix of the RPPR Instructions)		W42, W58				
Was this process discontinued or sent off site in given year? (Y/N)		N				
Did facility make process change(s) that triggered Plan modification? (Y/N)		N				
Was facility's P2 progress (targeted process only) less than anticipated? (Y/N) (Attach explanation if Y.)		N				

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POLLUTION PREVENTION PROCESS LEVEL DATA WORKSHEET (P2-115)

Base Year 2003

Garden State Paint Company
123 Industrial Avenue
Jerseyville, New Jersey 12345

Garden State Paint Company
123 Industrial Avenue
Jerseyville, New Jersey 12345

PROCESS LEVEL INFORMATION: (Use one sheet for each hazardous substance each process.)
PROCESS I.D. NHP/SB
UNITS OF PRODUCTION (e.g. type of widget, lbs. of chemical, ft^2 of product) gallons
Is process targeted? (Y/N) Y Is this a grouped process? (Y/N) Y

HAZARDOUS SUBSTANCE: MIBK					**CAS No. 108-10-1**	
	Base Year	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Production quantity	**29,976**	**32,276**				
USE (pounds)	**209,661**	**224,641**				
Consumed						
Shipped off-site as (or in) product	**205,550**	**221,543**				
NPO (pounds)	**4111**	**3098**				
Recycled out of process						
Destroyed: on site treatment						
Destroyed: on site energy recovery						
Stack air emissions	**200**	**140**				
Fugitive air emissions						
Discharge to potws	**50**	**50**				
Discharge to groundwater						
Discharge to surface waters						
On site land disposal						
Transferred off site	**3861**	**2908**				
End. Inv. as NPO – Beg. Inv. as NPO						
P2 techniques used in given year (use the code(s) from the Appendix of the RPPR Instructions)		**W42, W58**				
Was this process discontinued or sent off site in given year? (Y/N)		**N**				
Did facility make process change(s) that triggered Plan modification? (Y/N)		**N**				
Was facility's P2 progress (targeted process only) less than anticipated? (Y/N) (Attach explanation if Y.)		**N**				

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Signature _____ Date _____ Phone ( )_____
Name (print) _____ Title _____

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POLLUTION PREVENTION PROCESS LEVEL DATA WORKSHEET (P2-115)

Base Year _2003____

Garden State Paint Company
123 Industrial Avenue
Jerseyville, New Jersey 12345

Garden State Paint Company
123 Industrial Avenue
Jerseyville, New Jersey 12345

PROCESS LEVEL INFORMATION: (Use one sheet for each hazardous substance each process.)
PROCESS I.D. _NHP/WB_____
UNITS OF PRODUCTION (e.g. type of widget, lbs. of chemical, ft^2 of product) ____gallons_____
Is process targeted? (Y/N)___Y__Is this a grouped process? (Y/N)___Y__

HAZARDOUS SUBSTANCE: MIBK					**CAS No. 108-10-1**	
	Base Year	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Production quantity	**89,928**	**96,828**				
USE (pounds)	**4,317**	**25**				
Consumed						
Shipped off-site as (or in) product						
NPO (pounds)	**4,317**	**25**				
Recycled out of process						
Destroyed: on site treatment						
Destroyed: on site energy recovery						
Stack air emissions	**700**	**5**				
Fugitive air emissions						
Discharge to potws	**17**					
Discharge to groundwater						
Discharge to surface waters						
On site land disposal						
Transferred off site	**3,600**	**20**				
End. Inv. as NPO – Beg. Inv. as NPO						
P2 techniques used in given year (use the code(s) from the Appendix of the RPPR Instructions)		**W42, W58**				
Was this process discontinued or sent off site in given year? (Y/N)		**N**				
Did facility make process change(s) that triggered Plan modification? (Y/N)		**N**				
Was facility's P2 progress (targeted process only) less than anticipated? (Y/N) (Attach explanation if Y.)		**N**				

CERTIFICATION OF OWNER OR OPERATOR (Required only on one P2-115) - I certify under penalty of law that the information submitted on this worksheet is true, accurate and complete to the best of my knowledge.

Signature _____ Date _____ Phone ( )_____
Name (print) _____ Title _____

6.0 ANNUAL HAZARDOUS WASTE GENERATION, TREATMENT, STORAGE AND DISPOSAL

> Note: "Hazardous waste" is defined by the Pollution Prevention Act to be any solid waste defined as hazardous by the Department pursuant to the hazardous waste statute (N.J.S.A. 13:1E-1 et seq.), and includes any hazardous waste category included under this Act.

The program rules (N.J.A.C. 7:1K-4.3(b)5) require that information on annual hazardous waste generation, treatment, storage and disposal for the facility and annual amounts of waste generated for each process be included in the Plan. All hazardous waste should be included, not only wastes containing the substances regulated under the P2 Program. This Plan provides inventory data of all required waste categories at the facility, deposition and method of treatment or disposal, and wastes generated from each process.

> Note: Inclusion of your RCRA hazardous Waste Biennial Report is acceptable but must be supplemented with alternate year's data.

> Note: Completion of this section with all hazardous wastes meets the waste minimization planning requirements under RCRA. All hazardous wastes must be reported, whether or not they contain a covered substance under pollution prevention planning.

Table 9 provides facility inventory of the hazardous wastes generated at Garden State Paint Company in 2003. This table also provides estimates of quantities of regulated substances in the wastes, which is not required.

Table 10 presents the Treatment, Storage and Disposal (TSD) facility the waste was shipped to, and the treatment method used on each waste stream.

Table 11 presents the amounts of each hazardous waste category generated at each production process.

TABLE 9 ANNUAL FACILITY-LEVEL INVENTORY OF HAZARDOUS WASTE (POUNDS)

Hazardous waste category	2003		2004		2005	
	Waste solvents	**Waste solids**	**Waste solvents**	**Waste solids**	**Waste solvents**	**Waste solids**
Amount generated	9566	5868	9455	5757		
Amount treated outside of a production process	0	0	0	0		
Amount stored outside of a production process	9566	5868	9455	5757		
Amount Disposed outside of a production process	9566	5868	9455	5757		
Recycled onsite	0	0	0	0		
Recycled offsite	0	0	0	0		
Covered substance in waste	MIBK *	Cr2O3 **	MIBK	Cr2O3		
CAS No.	108-10-1	N090	108-10-1	N090		

* Hazardous substance was 90% of total weight of the associated hazardous waste
** Hazardous substance was 25% of total weight of the associated hazardous waste

TABLE 10 HAZARDOUS WASTE DISPOSITION

Receiving Facility Information	**Type of Waste**	**Treatment Method**
Solvents R Us 1000 Facility Road Greenfields, NJ 67890 NJD000000001	Solvent (D001)	Fuel blending/ Energy recovery
Friendly Landfill 2005 Facility Road Greenfields, NJ 67890 NJD000000002	Solids (D007)	Landfill disposal
Solvents R Us 1000 Facility Road Greenfields, NJ 67890 NJD000000001	Non-hazardous solvent (mineral spirits) (D001)	Fuel blending/ Energy recovery

TABLE 11 THE ANNUAL AMOUNTS OF EACH HAZARDOUS WASTE GENERATED AT EACH PRODUCTION PROCESS

PROCESS	2003		2004		2005	
	HAZ. WASTE TYPE	**QUANTITY (POUNDS)**	**HAZ. WASTE TYPE**	**QUANTITY (POUNDS)**	**HAZ. WASTE TYPE**	**QUANTITY (POUNDS)**
HP/SB	Solvent	1185	Solvent	1165		
HP/SB	Solids	428	Solids	408		
HP/WB	Solvent	90	Solvent	80		
HP/WB	Solids	5440	Solids	5420		
NHP/SB	Solvent	4290	Solvent	4270		
NHP/WB	Solvent	4000	Solvent	3990		

7.0 PART IA COST DATA

Part IA cost data (costs of using, releasing and generating hazardous substances for each process) is now estimated to enable a comparison in Part II of cost savings that may be realized by implementing pollution prevention options on targeted processes. The data for each process, before targeting, is given in Table 12.

TABLE 12 PART IA COST DATA: ESTIMATES OF USING, RELEASING AND GENERATING HAZARDOUS SUBSTANCES FOR EACH PROCESS

Process	Cost ($)	Notes
HP/SB		
Storage & Handling	7,440	A
Monitoring, Tracking & Reporting	4, 090	B
Treatment costs	5,050	C
Transportation & Disposal	26,750	D
Manifesting & Labeling	3,760	E
Permit Fees	3,720	F
Liability Insurance	12,000	G
Raw Materials	90,000	H
Safety & Health Compliance	7,440	I
	160,250	
HP/WB		
Storage & Handling	1,110	A
Monitoring, Tracking & Reporting	222	B
Treatment costs	5,050	C
Transportation & Disposal	9,500	D
Manifesting & Labeling	1,050	E
Permit Fees	930	F
Liability Insurance	3,000	G
Raw Materials	140,000	H
Safety & Health Compliance	1,110	I
	161,972	
NHP/SB (grouped)		
Storage & Handling	8.050	A
Monitoring, Tracking & Reporting	1,110	B
Treatment costs	0	C
Transportation & Disposal	42,500	D
Manifesting & Labeling	5,250	E
Permit Fees	4.650	F
Liability Insurance	15,000	G
Raw Materials	96, 444	H
Safety & Health Compliance	8, 050	I
	181, 054	

NHP/WB (grouped)		
Storage & Handling	**825**	**A**
Monitoring, Tracking & Reporting	**222**	**B**
Treatment costs	**0**	**C**
Transportation & Disposal	**1,000**	**D**
Manifesting & Labeling	**150**	**E**
Permit Fees	**930**	**F**
Liability Insurance	**3,000**	**G**
Raw Materials	**1.985**	**H**
Safety and Health Compliance	**825**	**I**
	8,938	
Total of all four processes		
Storage & Handling	**17,430**	**A**
Monitoring, Tracking & Reporting	**5,644**	**B**
Treatment costs	**10,100**	**C**
Transportation & Disposal	**79,750**	**D**
Manifesting & Labeling	**10,210**	**E**
Permit Fees	**10,230**	**F**
Liability Insurance	**33,000**	**G**
Raw Materials	**328,429**	**H**
Safety and Health Compliance	**17,430**	**I**
	512,214	

NOTES:

A – Costs of storage/handling involve 2 operators @ 20% of their time; 1 operator @ 10%; facility supervisor @ 5%; environmental engineer @ 2.5% - Plus 24% benefits.

B – Costs of monitoring/reporting involve one facility supervisor @ 5% of his time; one environmental engineer @ 2.5% - Plus 24% benefits

C – Operation of baghouse for hazardous pigments

D – Fuel blending for solvent – $26,250 each hazardous solvent process; landfill disposal for solids – $10,100 for each hazardous pigment process

E – Approximately 10-15% of transportation and disposal cost.

F – Air permit fees, RTK fees, DPPC fees, etc.

G – Based on 3% of manufacturing expense

H – MIBK cost = $0.46 per pound ($96,000 for process NHP/SB); Cr2O3 cost = approx. 3 x MIBK cost

I - Costs of safety and heath compliance involve 2 operators @ 20% of their time; 1 operator @ 10%; facility supervisor @ 5%; environmental engineer @ 2.5% - Plus 24% benefits.

TARGETING OF SOURCES/PROCESSES (N.J.A.C. 7:1K-4.4)

8.0 TARGETING

A "targeted production process" means any production process which significantly contributes to the use or release of hazardous substances or the generation of nonproduct output, as determined by the owner or operator of a priority industrial facility pursuant to criteria established by the Department at N.J.A.C. 7:1K-4.4.

All four processes, HP/SB, HP/WB, NHP/SB and NHP/WB were targeted because pollution prevention options and improved efficiency seemed likely in all processes.

Total NPO for both MIBK and Cr2O3 in each process is summarized in the following table:

Process	NPO (pounds)	NPO (%)
HP/SB	1,946	14
HP/WB	3,265	24
NHP/SB	4,111	30
NHP/WB	4,317	32
Facility	13,639	100.0

Note: This table is not required since all processes are targeted, but has nevertheless been provided to show how NPO is distributed.

Note: According to N.J.A.C. 7:1K-4.4(a)2, “the owner or operator of a priority industrial facility shall target for Part II pollution prevention planning all sources or production processes that use or generate persistent, bioaccumulative, toxic (PBT) chemicals as nonproduct output at the industrial facility, if the facility level quantities are above the reporting thresholds contained at 40 CFR 372.” In this Plan, there are no PBTs, so this rule does not apply. However, if for example, one of the processes used lead oxide in the paint, it would have to be targeted, whether or not it met the other targeting criteria, since lead compounds are PBTs.

9.0 SOURCE IDENTIFICATION

Figure 1 is a process Flow Diagram that depicts the various stages or steps of the paint formulation process, and is generally applicable to each process at the facility. At each step, sources of NPO have been identified as given in Table 13.

FIGURE 1 GENERAL PROCESS FLOW DIAGRAM REPRESENTING EACH PAINT FORMULATION PROCESS

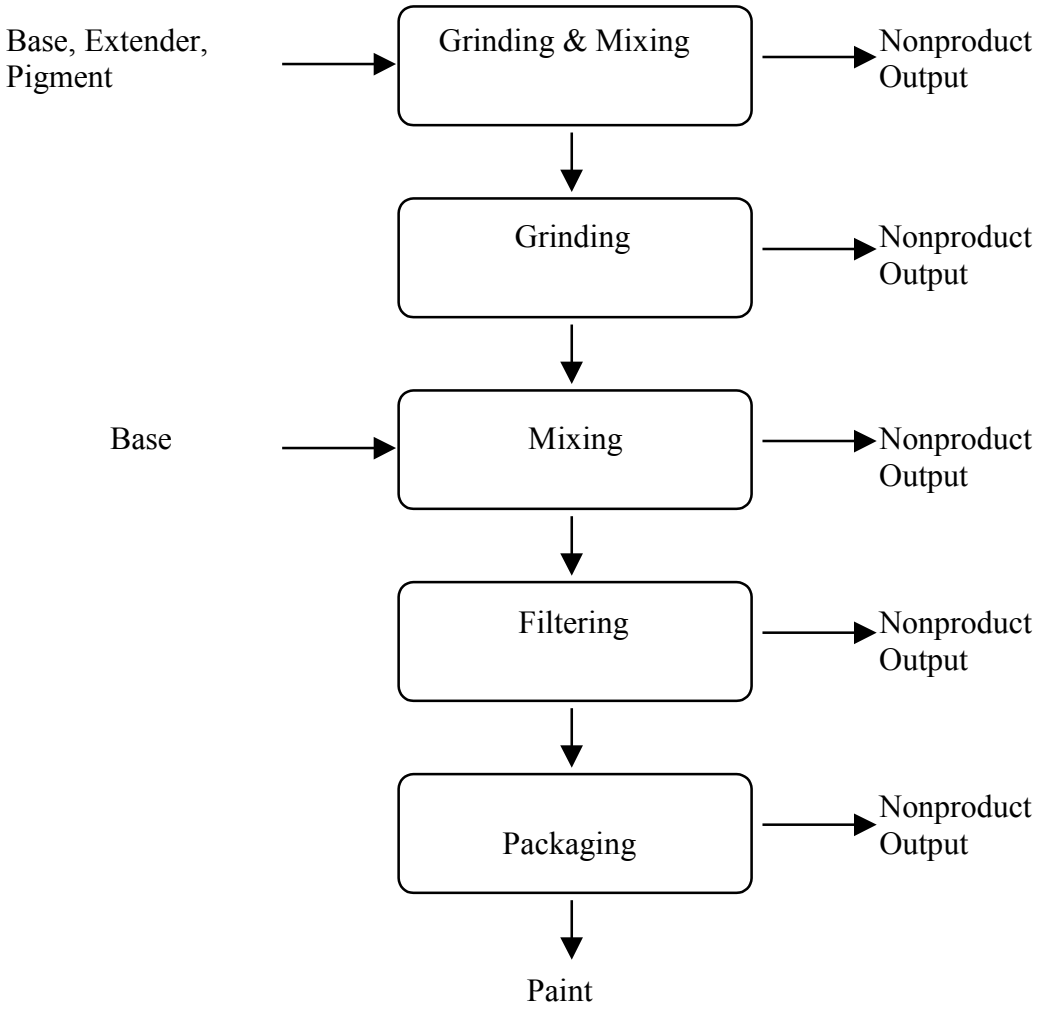

TABLE 13 SOURCES OF NPO AT EACH STEP OF THE PAINT FORMULATION PROCESS

Process Step	**Source Identification**	
Grinding and Mixing	RM1	Discarded raw materials containers
	DE1	Dust emissions
	VO1	Volatile organic emissions
	LO1	Leftover product
	EC1	Equipment cleaning
Grinding	DE2	Dust emissions
	VO2	Volatile organic emissions
	LO2	Leftover product
	EC2	Equipment cleaning
Mixing	VO3	Volatile organic emissions
	LO3	Leftover product
	EC3	Equipment cleaning
Filtering	FC1	Filter cartridge
	VO4	Volatile organic emissions
	LO4	Leftover product
	EC4	Equipment cleaning
Packaging	VO5	Volatile organic emissions
	LO5	Leftover product
	EC5	Equipment cleaning

PART II OF THE PLAN
N.J.A.C.7:1K-4.5

10.0 SOURCE-LEVEL NPO INVENTORY DATA

Table 14 shows source-level NPO (pounds) for one batch for Process HP/SB to indicate typical quantities of NPO generated for one batch.

> Note: Although this analysis on a batch level is not required in the Plan, additional information of this nature is useful in understanding the overall operation of a facility. It is suggested that such additional information be included in the Plan as appropriate.

Table 15 shows annual source-level NPO totals by process. From Table 15, it is evident that three sources provide significant opportunities for pollution prevention. These are as follows:

1. Discarded raw material containers (RM1) in the initial grinding and mixing step show a high chromium dioxide NPO in the hazardous pigment paint processes, HP/SB and HP/WB.
2. Equipment cleaning in each process step (EC1 through EC5) shows a high MIBK NPO for all processes.
3. The filter cartridge (FC1) at the filtering process step in the hazardous pigment paint processes, HP/SB and HP/WB, shows a high chromium oxide NPO.

These sources will be taken into account in the technical and economic feasibility analyses, Sections 11.1 and 11.2.

Table 16 shows NPO per source type (all processes combined) and percent of totals for each chemical by source type.

TABLE 14 SOURCE LEVEL NPO (POUNDS/GALLON) FOR PROCESS HP/SB (ONE BATCH)

Process Step	**Source**	**MIBK**	**Cr2O3**
Grinding and Mixing	RM1	0.00	4.89
	DE1	0.00	1.47
	VO1	2.06	0.00
	LO1	7.20	5.37
	EC1	10.29	0.00
Grinding	DE2	0.00	1.47
	VO2	1.03	0.00
	LO2	3.09	2.44
	EC2	5.14	0.00
Mixing	VO3	2.06	0.00
	LO3	7.20	4.40
	EC3	8.23	0.00
Filtering	FC1	29.83	21.50
	VO4	1.03	0.00
	LO4	7.20	4.89
	EC4	9.26	0.00
Packaging	VO5	2.06	0.00
	LO5	4.11	2.44
	EC5	3.09	0.00
Total		102.86	48.86

Production: 750 Gallons

MIBK NPO/Unit of Product:
= 102.86 lbs/750 gal
= 0.14 lbs/gallon

Cr2O3 NPO/Unit of Product:
= 48.86 lbs/750 gal
= 0.07 lbs./gallon

TABLE 15 ANNUAL SOURCE-LEVEL NPO (POUNDS) TOTALS BY PROCESS

SOURCE	HP/SB MIBK	Cr2O3	HP/WB MIBK	Cr2O3	NHP/SB MIBK	NHP/WB MIBK
RM1	0.00	62.65	0.00	187.96	0.00	0.00
DE1	0.00	18.80	0.00	56.39	0.00	0.00
VO1	26.38	0.00	0.00	0.00	82.22	0.00
LO1	92.33	68.92	0.00	206.75	287.77	0.00
EC1	131.90	0.00	395.76	0.00	411.10	1233.55
DE2	0.00	18.80	0.00	56.39	0.00	0.00
VO2	13.19	0.00	0.00	0.00	41.11	0.00
LO2	9.57	31.33	0.00	93.98	123.33	0.00
EC2	65.95	0.00	197.88	0.00	205.55	616.75
VO3	26.38	0.00	0.00	0.00	82.22	0.00
LO3	92.33	56.39	0.00	169.16	287.77	0.00
EC3	105.52	0.00	316.61	0.00	328.88	986.80
FC1	382.51	275.67	0.00	827.01	1192.19	0.00
VO4	13.19	0.00	0.00	0.00	41.11	0.00
LO4	92.33	62.65	0.00	187.96	287.77	0.00
EC4	118.71	0.00	356.19	0.00	69.99	1110.00
VO5	26.38	0.00	0.00	0.00	82.22	0.00
LO5	52.76	31.33	3.00	93.98	164.44	0.00
EC5	39.57	0.00	118.73	0.00	123.33	370.05
TOTALS	1319.00	626.53	1385.17	1879.58	4111.00	4317.24

TABLE 16 NPO PER SOURCE TYPE (ALL PROCESSES COMBINED) AND PERCENT OF TOTALS FOR EACH CHEMICAL BY SOURCE TYPE

NPO (pounds)	**MIBK**	**Cr2O3**	**%MIBK**	**%Cr2O3**
EC's	7,603	0	68	0
RM's	0	251	0	10
VO's	434	0	4	0
DE's	0	150	0	6
FC's	1,575	1,103	14	44
LO's	1,520	1,002	14	40
TOTALS	11,132	2,507	100	100

11.0 POLLUTION PREVENTION OPTIONS

11.1 Technical Analysis of Pollution Prevention Options

Pollution prevention options were reviewed and a list was developed as given in Table 17. Although all options have been demonstrated as feasible by other companies, some were not technically feasible at this facility or too involved to implement.

Options 1 and 3, using dedicated equipment and using a nitrogen blanket, would not be possible under present plant layout, space restrictions and production scheduling.

Option 2, using Teflon mixing tanks, is technically feasible.

Option 4, optimizing production schedule, is technically feasible.

Options 5 and 15, involving re-use, is technically feasible, but not pollution prevention, since it is out of process recycling.

Options 6 and 7 were both technically and economically feasible.

Option 8, using high-pressure nozzles, is technically feasible, but would be uneconomical.

Option 9, only cleaning when necessary, may lead to poor product quality, so at this point is not technically feasible, but will be reconsidered in the future.

Option 10, cleaning right after use, conflicted with timely scheduling needs, and therefore is not technically feasible.

Option 11, replacing filter cartridges with bag filters, is technically feasible and should lead to less waste.

Option 12, segregating hazardous and non-hazardous filters, is feasible but not pollution prevention. The facility will still segregate waste streams.

Options 13a and b: all raw material substitutions reviewed under Options 13a and b would result in poor product quality, and therefore are not technically feasible.

Option 14 is technically feasible but deemed uneconomical at this time.

11.2 Financial Analysis of Pollution Prevention Options

A financial analysis was performed as summarized in Table 18, and total costs (upper table) and savings (lower table) were projected for each option for all applicable processes. Several options showed higher costs than savings and were not financially feasible. All other options showed some savings, although savings below $5,000 were not considered at this time based on a corporate priority decision. This decision will be re-considered in subsequent years of this planning cycle. Notes on financial analysis follow Table 18.

TABLE 17 POLLUTION PREVENTION OPTIONS

Option No.	Affected Process	Affected Source	Description
1	All	EC1-EC5, LO1-LO5	Purchase and dedicate new equipment
2	All	EC1, EC3, LO1, LO3	Purchase Teflon mixing tanks
3	All	VO1, VO2	Nitrogen blanket
4	All	EC1-EC5, LO1-LO5	Optimize production schedule
5	All	EC1-EC5	Collect solvent and reuse
6	HP/SB HP/WB	RM1	Use solvent/water to clean raw material container
7	All	EC1-EC5	Replace MIBK wash with alkaline cleaner or mineral spirits
8	All	EC1-EC5	High pressure nozzle on cleaner
9	All	EC1-EC5, LO1-LO5	Only clean equipment when necessary
10	All	EC1-EC5	Clean equipment right after use
11	All	FC1	Replace filter cartridge with bag filters
12	NHP/WB	FC1	Segregate hazardous/non-hazardous filters
13a	HP/SB	VO1-VO5, FC1	Raw material substitution
	NHP/SB	LO1-LO5	Raw material substitution
13b	HP/WB	DE1-DE5, RM1	Raw material substitution
	HP/SB	LO1-LO5, FC1	Raw material substitution
14	All	EC1-EC5	Mechanical cleaning of tanks
15	All	EC1-EC5, LO1-LO5, RM1	Re-use cleanout material in next batch

TABLE 18 FINANCIAL ANALYSIS OF POLLUTION PREVENTION OPTIONS
(ESTIMATED TO NEAREST $500)

Option No.	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
COSTS								
Capital costs (Annualized)	140,000	60,000	6,000					2,000
R&D	10,000	7,000	1,000	7,500				2,000
Training	12,000	6,000	1,500	9,000	6,500			3,000
Overhead	150,000	32,000	1,500	2,000	9,500	1,000	1,000	4,000
Total costs	312,000	105,000	10,000	18,500	16,000	1,000	1,000	11,000
SAVINGS								
Storage & handling						2,000	500	
Monitor, track, report	5,500	1,000	3,500	5,500				
Treatment						3,000		
Transport. & disposal	5,000	4,000				5,000	4,000	
Manifesting & labeling	500	500				1,000	1,000	
Permit fees	500	500	500					
Liability insurance	2,000	1,000			2,000	5,000	1,500	1,000
Raw material purchases	5,500	5,000	1,000	500	1,500	2,000	6,500	5,000
Safety and Health Compliance						2,000	500	
Additional: Operations & maintenance savings	9,000	8,000	9,500	15,500	8,000	7,000	13,500	2,000
Subtotal savings	28,000	20,000	14,500	21,500	11,500	27,000	27,500	8,000
NET SAVINGS	-284,000	-85,000	4,500	3,000	-4,500	26,000	26,500	-3,000

TABLE 18 (CONTINUED) FINANCIAL ANALYSIS OF POLLUTION PREVENTION OPTIONS

Option No.	**9**	**10**	**11**	**12**	**13a**	**13b**	**14**	**15**
COSTS								
Capital costs (Annualized)			10, 500				9,000	
R&D					5,000	5,000	5,000	
Training	1,000		3,500	1,000			5,000	
Overhead	1,000	2,000	3,500	1,500	500	500	6,000	1,000
Total costs	2,000	2,000	17,500	2,500	5,500	5,500	25,000	1,000
SAVINGS								
Storage & handling				500			1,250	
Monitor, track, report	1,000		3,000					
Treatment			3,000					
Transport. & disposal			32,000	1,000			5,000	1,000
Manifesting & labeling			25,000	500			1,000	
Permit fees			1,000				1,000	
Liability insurance			5,000				5,000	
Raw material purchases	1,000		1,500	1,000	3,000	4,500	5,000	2,500
Safety & Health Compliance				500			1,250	
Additional: Operations & maintenance savings	3,000	3,000	5,500				4,000	
Subtotal savings	5,000	3,000	76,000	3,500	3,000	4,500	23,500	3,500
NET SAVINGS	3,000	1,000	58,500	1,000	2,500	-1,000	-1,500	2,500

Notes on Table 18:
1. Capital Costs for Options 1,2,3,8,11, and 14 are annualized with a five–year payback.
2. R&D is required for options 1,2,3,4,8,13 and 14 since these options involve new equipment or new raw materials that require test runs.
3. Options 1,2,3, 8 and 14 also require operator training costs on new equipment.
4. Overhead includes salaries and benefits, building maintenance, etc., associated with the option.
5. Since less hazardous substances are used, storage and handling, and safety and health compliance savings are realized by options 6, 7, 12 and 14.
6. Monitoring, tracking and reporting cost savings were highest with dedicated equipment and with optimizing production schedules.
7. Transportation, disposal, manifesting, labeling and permitting savings are realized by those options that result in handling less hazardous substances. Some of the options also merited reductions in liability insurance,
8. Raw materials savings is the savings of using lower quantities of hazardous materials, and of using less expensive cleaning materials, notably water.
9. Operations and maintenance savings are additional savings considered. These savings are the annual operation and maintenance savings realized by the option minus operations or maintenance costs during initial installation or implementation.
10. No entries were made for costs or savings below $250.

11.3 Selection of Pollution Prevention Options

It was decided that only three of analyzed options would be implemented at this time, since they are the only technically feasible and cost effective options.

Option 6: Use solvent/water to clean hazardous pigment raw material containers (processes HP/SB and HP/WB). By not using as much MIBK, $26,000 was saved in these processes.

Option 7: Replace MIBK wash with alkaline cleaner or mineral spirits in equipment cleaning step for each process. Substitution of alkaline cleaner or mineral spirits resulted in an average cost savings of $26,500.

Option 11: Replace filter cartridge with bag filters at filtering step of each process. Bag filters reduce solids leakage, capture more solids, and reduce need for equipment cleaning with MIBK. Cost savings in chromium oxide and MIBK use and disposal were $58,500.

Total cost savings for all three options are estimated at $ 111, 000 or 21.7% of the total cost of handling hazardous substances ($512,214) from Part I Cost Analysis.

12.0 POLLUTION PREVENTION GOALS

The rules require that the Plan provide the following:

1. Facility-level NPO and use reduction goals.
2. Targeted process-level NPO per unit product and use per unit product.

Source-level data on expected reductions in targeted processes due to selected options are first calculated and given in Table 19. (See also Table 15.)

The sum of the targeted process-level expected reductions would then yield projected facility-level reductions for each hazardous substance as shown in Table 20. Percent goals are then calculated for the total facility.

The data in Table 21 is then used to perform a per-unit-of-product analysis, which then is used to calculate per-unit-of-product goals in percentages for each process as required and shown in Table 21.

TABLE 19 EXPECTED REDUCTIONS AT SOURCE-LEVEL FROM SELECTED OPTIONS (IN POUNDS)

Source	HP/SB MIBK	HP/SB Cr2O3	HP/WB MIBK	HP/WB Cr2O3	NHP/WB MIBK	NHP/WB MIBK	Total MIBK	Total Cr2O3
OPTION 6: Reduce Cr2O3 @ RM1 by 80%								
RM1	0	62.65	0	187.96	0	0	0	250.61
RM1 x 80%	0	50.12	0	150.37	0	0	0	200.49
OPTION 7: Reduce MIBK @ EC1-EC5 by 90%								
EC1	131.90	0	395.76	0	411.10	1233.50	2172.26	0
EC2	65.95	0	197.88	0	205.55	616.75	1086.13	0
EC3	105.52	0	316.61	0	328.88	986.80	1737.81	0
EC4	118.71	0	356.19	0	369.99	1110.15	1955.04	0
EC5	39.57	0	118.73	0	123.33	370.05	651.68	0
EC Total	461.65	0	1385.17	0	1438.85	4317.25	7602.92	0
EC x 90%	415.49	0	1246.65	0	1294.97	3885.53	6842.63	0
OPTION 11: Reduce Cr2O3 and MIBK @ FC1 by 50%								
FC1	382.51	275.67	0	827.01	1192.19	0	1574.70	1102.68
FC1 x 50%	191.26	137.84	0	413.51	596.10	0	787.36	551.35
Total Reductn	606.75	187.96	1246.65	563.87	1891.07	3885.53	1629.98	751.83

TABLE 20 PROJECTED PROCESS-LEVEL NPO AND USE REDUCTIONS (POUNDS) AND PROJECTED FACILITY-LEVEL REDUCTION GOALS (%)

Pounds	**HP/SB**		**HP/WB**		**NHP/SB**	**NHP/WB**		**Facility**	
	MIBK	**Cr2O3**	**MIBK**	**Cr2O3**	**MIBK**	**MIBK**		**MIBK**	**Cr2O3**
Original NPO	1319	627	1385	1880	4111	4317		11132	2507
Reduction	607	188	1247	564	1891	3886		7630	752
New NPO	712	439	138	1316	2220	431		3502	1755
%NPO Goal	**------**	**-------**	**-------**	**------**	**------**	**------**		**69**	**30**
Original USE	67269	33602	1385	100805	209661	4317		282632	134407
Reduction	607	188	1247	564	1891	3886		7630	752
New USE	66662	33414	138	100241	207770	431		275002	133655
% USE Goal	**-------**	**-------**	**-------**	**------**	**------**	**-------**		**2.7**	**0.56**

$$\text{Facility \% NPO Goal} = \frac{\text{Original NPO - New NPO}}{\text{Original NPO}} \times 100$$

$$\text{Facility \% Use Goal} = \frac{\text{Original Use - New Use}}{\text{Original Use}} \times 100$$

TABLE 21 ANALYSIS OF NPO AND USE PER UNIT OF PRODUCT FOR EACH CHEMICAL AT EACH TARGETED PROCESS, CALCULATED FROM P2-115 DATA (SECTION 5.0, PAGES 22 TO 27)

Pounds/ Gallon	**HP/SB**		**HP/WB**		**NHP/SB**	**NHP/WB**
	MIBK	**Cr2O3**	**MIBK**	**Cr2O3**	**MIBK**	**MIBK**
Orig. NPO/ Unit Of Product.	0.1371	0.0652	0.0480	0.0652	0.1371	0.0480
Reduction	0.0631	0.0195	0.0432	0.0195	0.0631	0.0432
New NPO/ Unit of Product	0.0740	0.0456	0.0048	0.0456	0.0740	0.0048
%NPO Goal	**46**	**30**	**90**	**30**	**46**	**90**
Orig. USE/Unit of Product	6.9941	3.4937	0.0480	3.4937	6.9941	0.0480
Reduction	0.0631	0.0195	0.0432	0.0195	0.0631	0.0432
New USE/Unit of Product	6.9310	3.4741	0.0048	3.4741	6.9310	0.0048
% USE Goal	**<1**	**<1**	**90**	**<1**	**<1**	**90**

EXAMPLE: (For MIBK in Process HP/SB)
Orig. NPO/Unit of Product = 1319 pounds/ 9618 gallons
= 0.1371 pounds/ gallon

13.0 SCHEDULE OF IMPLEMENTATION

The initial implementation schedule and a revised schedule is given in Table 22. The revisions reflect the elimination of use of MIBK in Process NHP/WB in 2004, and also a re-evaluation of the time frame for implementing options in other processes.

TABLE 22 IMPLEMENTATION SCHEDULE FOR POLLUTION PREVENTION OPTIONS

Initial Schedule

Option No.	Process(es)	Start Date	Completion Date
6	HP/SB and HP/SW	July 1, 2004	October 1, 2004
7	All	July 1, 2004	October 1, 2004
11	All	October 1, 2004	January 1, 2006

Revised Schedule 6/30/2005

Option No.	Process(es)	Start Date	Completion Date
6	HP/SB and HP/SW	July 1, 2005	July 1, 2006
7	All except NHP/WB	July 1, 2005	July 1, 2006
11	All except NHP/WB	October 1, 2005	July 1, 2006

14.0 EXPECTED IMPACT OF IMPLEMENTED OPTIONS ON POST-TREATMENT MULTI-MEDIA RELEASES

Implementation of Options 6, 7 and 11 combined should result in significant facility reductions in post treatment releases from base year 2003 to 2003 for both MIBK and Cr2O3. The summary of expected reductions in air and water media and in waste (in pounds) is shown in Table 23 as follows:

TABLE 23 EXPECTED MULTI-MEDIA RELEASES (POUNDS)

		MIBK	**Cr2O3**
2003	Air	2,305	1,000
	Waste	8,610	1,467
	Water	217	40
2008	Air	807	720
	Waste	2,586	916
	Water	76	28
% Reduction	Air	65	28
	Waste	69	38
	Water	65	30

Base year air, water and waste data are the sum of stack emissions, POTW discharges and off-site transfers for each process as given in the P2-115's. MIBK air releases are mainly evaporative. MIBK and Cr2O3 waste (to disposal) and water releases (to the POTW) are mainly from spills and cleaning. The expected percent release reductions for air, water and waste are approximately equal to percent NPO reductions for the facility. Each is expected to be reduced proportionally.

INFORMATION REQUIRED IN THE POLLUTION PREVENTION PROGRESS REPORT

PART IB OF THE PLAN (N.J.A.C.7:1K-4.3 (c))

Note: Sections 15.0 and 16.0 must be included in the Plan *only if* the facility does not submit P2-115's to the Department as the Progress Report instead of Sections C and D of the Release and Pollution Prevention Report. It is presented in this Sample Plan since the submittal of P2-115's is optional.

15.0 FACILITY-LEVEL INFORMATION ON REDUCTIONS

Table 24 shows facility-level information on reductions in Use and NPO of MIBK from base year 2003 to 2004. Data for 2005, 2006, 2007 and 2008 are to be completed in subsequent years. The rows designated " + / - " indicate change in given units as compared to base year.

Table 25 shows facility-level information on reductions in Use and NPO of Cr3O2 from base year 2003 to 2004. Data for 2005, 2006, 2007 and 2008 are to be completed in subsequent years.

In both Tables 24 and 25, the first two columns are the actual Use and NPO amounts independent of production. The Actual Use and NPO reductions (%) take into account the Production Index as calculated in the RPPR instructions. Calculations are given on the following two pages.

Note: Refer to latest RPPR instructions, SECTION C: FACILITY-LEVEL SUBSTANCE-SPECIFIC POLLUTION PREVENTION PROGRESS, for the calculation methods.

CALCULATIONS FOR MIBK

Production Ratio:

[(10,005/9816 x 67,269) + (29,993/28,853 x 1,385) + (32,276/29,976 x 209,661) + (96,828/89,928 x 4317)] / (67,269 + 1,385 + 209,661 + 4,317) = 1.068

% Change for MIBK USE:

$$\frac{[(67{,}269 + 1{,}385 + 209{,}661 + 4{,}317) \times 1.068 - (69{,}709 + 762 + 224{,}641 + 25)]}{(67{,}269 + 1{,}385 + 209{,}661 + 4{,}317) \times 1.068} \times 100$$

=2.21%

% Change for MIBK NPO:

$$\frac{[(1{,}319 + 1{,}385 + 4{,}111 + 4{,}317) \times 1.068 - (950 + 762 + 3{,}098 + 25)]}{(1{,}319 + 1{,}385 + 4{,}111 + 4{,}317) \times 1.068} \times 100 = 59.3\%$$

(Calculated using the P2-115s.)

CALCULATIONS FOR Cr2O3

Production Ratio:

[(10,005/9,618 x 33,602) + (29,993/28,853 x 100,805)] / (33,602 + 100,805) = 1.040

% Change for Cr2O3 USE:

$$\frac{[(33{,}602 + 100{,}805) \times 1.040 - (34{,}892 + 104{,}375)]}{(33{,}602 + 100{,}805) \times 1.040} \times 100 = 0.34\%$$

% Change for Cr2O3 NPO:

$$\frac{[(627 + 1{,}880) \times 1.040 - (567 + 1650)]}{(627 + 1{,}880) \times 1.040} \times 100 = 14.9\%$$

(Calculated using the P2-115s.)

TABLE 24 MIBK - FACILITY-LEVEL INFORMATION ON REDUCTIONS QUANTITIES IN POUNDS

Year	USE pounds	NPO pounds	USE reduct. goal (%)	Actual USE reduct. (%)	NPO reduct. goal (%)	Actual NPO reduct. (%)
2003	282632	11132	2.7	N/A	69.0	N/A
2004	295137	4835	2.7	2.21	69.0	59.3
+ / -	12505	-6297	0	N/A	0	N/A
2005						
+ / -						
2006						
+ / -						
2007						
+ / -						
2008						
+ / -						

TABLE 25 CR3O2 - FACILITY-LEVEL INFORMATION ON REDUCTIONS QUANTITIES IN POUNDS

Year	USE pounds	NPO pounds	USE reduct. goal (%)	Actual USE reduct. (%)	NPO reduct. goal (%)	Actual NPO reduct. (%)
2003	134407	2507	0.56	N/A	30.0	N/A
2004	139267	2217	0.56	0.34	30.0	14.9
+ / -	4860	-290	0	N/A	0	N/A
2005						
+ / -						
2006						
+ / -						
2007						
+ / -						
2008						
+ / -						

16.0 PROCESS-LEVEL INFORMATION ON TARGETED PROCESS REDUCTIONS

Note: This Section 16.0 must be completed *only if* the facility does not submit P2-115's to the Department as the Progress Report.

Tables 26a through 29 show process-level information on reductions in Use and NPO of MIBK and Cr2O3 in targeted processes from base year 2003 to 2004.

Table 26a shows process-level information on reductions for targeted process HP/SB in Use and NPO of MIBK.

Table 26b shows process-level information on reductions for targeted process HP/SB in Use and NPO of Cr2O3.

Table 27a shows process-level information on reductions for targeted process HP/WB in Use and NPO of MIBK.

Table 27b shows process-level information on reductions for targeted process HP/WB in Use and NPO of Cr2O3.

Table 28 shows process-level information on reductions for grouped targeted processes NHP1/SB and NHP2/SB (called NHP/SB as a group) in Use and NPO of MIBK.

Table 29 shows process-level information on reductions for grouped targeted processes NHP1/WB and NHP2/WB (called NHP/WB as a group) in Use and NPO of MIBK.

For each of the tables, data for 2005, 2006, 2007 and 2008 are to be completed in subsequent years.

Note: Refer to latest RPPR instructions, SECTION D: PROCESS-LEVEL POLUTION PREVENTION INFORMATION FOR TARGETED PROCESSES, for the calculation methods.

TABLE 26a MIBK - PROCESS-LEVEL INFORMATION ON REDUCTIONS FOR TARGETED PROCESS HP/SB
Unit of product: gallons of HP/SB paint

Year	No. of Units of Prod. (gal)	USE pounds	USE/ Unit Prod.	NPO pounds	NPO/ Unit Prod.	USE/ Unit Prod. reduct. goal (%)	Actual USE/ Unit Prod. reduct. (%)	NPO/ Unit Prod. reduct. goal (%)	Actual NPO/ Unit Prod. reduct. (%)
2003	9618	67269	6.99	1319	0.137	0.9	N/A	46.0	N/A
2004	10005	69709	6.97	950	0.095	0.9	0.38	46.0	30.8
+ / -	+388	+2440	-0.38 %	-369	-30.8 %	0	N/A	0	N/A
2005									
+ / -									
2006									
+ / -									
2007									
+ / -									
2008									
+ / -									

Pollution prevention techniques used to achieve reductions: Options 7 and 11 in Table 17.

$$\% \text{ USE} = \frac{(67{,}269/9{,}618) - (69{,}709/10{,}005)}{(67{,}269/9{,}618)} \times 100 = 0.38\%$$

$$\% \text{ NPO} = \frac{(1{,}319/9{,}618) - (950/10{,}005)}{(1{,}319/9{,}618)} \times 100 = 30.8\%$$

TABLE 26b Cr2O3 - PROCESS-LEVEL INFORMATION ON REDUCTIONS FOR TARGETED PROCESS HP/SB
Unit of product: gallons of HP/SB paint

Year	No. of Units of Prod. (gal)	USE pounds	USE/ Unit Prod.	NPO pounds	NPO/ Unit Prod.	USE/ Unit Prod. reduct. goal (%)	Actual USE/ Unit Prod. reduct. (%)	NPO/ Unit Prod. reduct .goal (%)	Actual NPO/ Unit Prod. reduct. (%)
2003	9,618	33,602	3.49	627	0.065	0.56	N/A	30.0	N/A
2004	10005	34.892	3.48	567	0.057	0.56	0.18	30.0	13.1
+ / -	+388	+1290	-0.18 %	-60	13.1 %	0	N/A	0	N/A
2005									
+ / -									
2006									
+ / -									
2007									
+ / -									
2008									
+ / -									

Pollution prevention techniques used to achieve reductions: Options 6 and 11 in Table 17.

$$\% \text{ USE} = \frac{(33{,}602/9{,}618) - (34{,}892/10{,}005)}{(33{,}602/9{,}618)} \times 100 = 0.18\%$$

$$\% \text{ NPO} = \frac{(627/9{,}618) - (567/10{,}005)}{(627/9{,}618)} \times 100 = 13.1\%$$

TABLE 27a MIBK - PROCESS-LEVEL INFORMATION ON REDUCTIONS FOR TARGETED PROCESS HP/WB
Unit of product: gallons of HP/WB paint

Year	No. of Units of Prod. (gal)	USE pounds	USE/ Unit Prod.	NPO pounds	NPO/ Unit Prod.	USE/ Unit Prod. reduct. goal (%)	Actual USE/ Unit Prod. reduct. (%)	NPO/ Unit Prod. reduct. goal (%)	Actual NPO/ Unit Prod. reduct. (%)
2003	28,853	1,385	0.0480	1,385	0.0480	90.0	N/A	90.0	N/A
2004	29,993	762	0.0254	762	0.0254	90.0	47.1	90.0	47.1
+ / -	+1140	-623	-47.1 %	-623	-47.1 %	0	N/A	0	N/A
2005									
+ / -									
2006									
+ / -									
2007									
+ / -									
2008									
+ / -									

Pollution prevention techniques used to achieve reductions: Options 7 and 11 in Table 17.

$$\% \text{ USE} = \frac{(1{,}385/28{,}853) - (762/29{,}993)}{(1{,}385/28{,}853)} \times 100 = 47.1\%$$

$$\% \text{ NPO} = \frac{(1{,}385/28{,}853) - (762/29{,}993)}{(1{,}385/28{,}853)} \times 100 = 47.1\%$$

TABLE 27b Cr2O3 - PROCESS-LEVEL INFORMATION ON REDUCTIONS FOR TARGETED PROCESS HP/WB
Unit of product: gallons of HP/WB paint

Year	No. of Units of Prod. (gal)	USE pounds	USE/ Unit Prod.	NPO pounds	NPO/ Unit Prod.	USE/ Unit Prod. reduct. goal (%)	Actual USE/ Unit Prod. reduct. (%)	NPO/ Unit Prod. reduct. goal (%)	Actual NPO/ Unit Prod. reduct. (%)
2003	28853	100805	3.49	1880	0.065	0.56	N/A	30.0	N/A
2004	29993	104375	3.48	1650	0.055	0.56	0.39	30.0	15.6
+ / -	+1140	+3570	-0.39 %	-230	-15.6 %	0	N/A	0	N/A
2005									
+ / -									
2006									
+ / -									
2007									
+ / -									
2008									
+ / -									

Pollution prevention techniques used to achieve reductions: Options 6 and 11 in Table 17.

$$\% \text{ USE} = \frac{(100{,}805/28{,}853) - (104{,}375/29{,}993)}{(100{,}805/28{,}853)} \times 100 = 0.39\%$$

$$\% \text{ NPO} = \frac{(1{,}880/28{,}853) - (1{,}650/29{,}993)}{(1{,}880/28{,}853)} \times 100 = 15.6\%$$

TABLE 28 MIBK - PROCESS-LEVEL INFORMATION ON REDUCTIONS FOR TARGETED PROCESS NHP/SB (two processes grouped)
Unit of product: gallons of NHP/WB paint

Year	No. of Units of Prod. (gal)	USE pounds	USE/ Unit Prod.	NPO pounds	NPO/ Unit Prod.	USE/ Unit Prod. reduct. goal (%)	Actual USE/ Unit Prod. reduct. (%)	NPO/ Unit Prod. reduct. goal (%)	Actual NPO/ Unit Prod. reduct. (%)
2003	29976	209661	6.99	4111	0.137	0.9	N/A	46.0	N/A
2004	32276	224641	6.96	3098	0.096	0.9	0.49	46.0	30.0
+ / -	+2300	+29960	-0.49 %	-1013	-30.0 %	0	N/A	0	N/A
2005									
+ / -									
2006									
+ / -									
2007									
+ / -									
2008									
+ / -									

Pollution prevention techniques used to achieve reductions: Option 7 and 11 in Table 17.

$$\% \text{ USE} = \frac{(209{,}661/29{,}976) - (224{,}641/32{,}276)}{(209{,}661/29{,}976)} \times 100 = 0.49\%$$

$$\% \text{ NPO} = \frac{(4{,}111/29{,}976) - (3{,}098/32{,}276)}{(4{,}111/29{,}976)} \times 100 = 30.0\%$$

TABLE 29 MIBK - PROCESS-LEVEL INFORMATION ON REDUCTIONS FOR TARGETED PROCESS NHP/WB (two processes grouped)
Unit of product: gallons of NHP/WB paint

Year	No. of Units of Prod. (gal)	USE pounds	USE/ Unit Prod.	NPO pounds	NPO/ Unit Prod.	USE/ Unit Prod. reduct. goal (%)	Actual USE/ Unit Prod. reduct. (%)	NPO/ Unit Prod. reduct. goal (%)	Actual NPO/ Unit Prod. reduct. (%)
2003	89,928	4317	0.0480	4317	0.0480	90	N/A	90	N/A
2004	96,828	25	0.0003	25	0.0003	90	99.5	90	99.5
+ / -	6900	- 4292	-99.5 %	- 210	-99.5 %	0	N/A	0	N/A
2005									
+ / -									
2006									
+ / -									
2007									
+ / -									
2008									
+ / -									

Pollution prevention techniques used to achieve reductions: Option 7 and 11 in Table 17.

$$\% \text{ USE} = \frac{(4{,}317/89{,}928) - (25/96{,}828)}{(4{,}317/89{,}928)} \times 100 = 99.5\%$$

$$\% \text{ NPO} = \frac{(4{,}317/89{,}928) - (25/96{,}828)}{(4{,}317/89{,}928)} \times 100 = 99.5\%$$