



COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION

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SEP 15 2000

Mr. Sam Liggero
Vice President
Polaroid Corporation
1265 Main Street, Building W4
Waltham, Massachusetts 02454

RE: **WALTHAM** - Metropolitan
Boston/Northeast Region
310 CMR 7.02 Non-Major
Comprehensive Plan Application
Transmittal No. W003478
Appl. No. MBR-99-IND-001
CONDITIONAL APPROVAL

Dear Mr. Liggero:

The Metropolitan Boston/Northeast Region of the Department of Environmental Protection, Bureau of Waste Prevention, has completed its technical review of your non-major Comprehensive Plan Application (nmCPA) listed above. Polaroid submitted this nmCPA on January 29, 1999, for Buildings W1, W2, W3, W4, W5, W7, and W9 located at 1265 Main Street in Waltham, Massachusetts. This application proposes a number of modifications to the existing equipment in the above listed facilities. The application bears the seal and signature of Mr. Stephen G. Piper, Massachusetts PE No. 36039.

This review of the submitted information by Department engineers indicates that Polaroid Corporation received an Emission Control Plan Conditional Approval on September 16, 1996 for a group of buildings collectively referred to as the Chemical Operations Division as well as a group of buildings collectively referred to as the South Site and Wastewater Treatment Facility. This submitted application applies to Buildings W1, W2, W3, W4, W5, and W7, which are otherwise known as the South Site. Building W9 is the Wastewater Treatment Facility. Polaroid Corporation proposes to impose federally enforceable constraints herewith to supersede those conditions and requirements which pertain to the South Site and Building W9 under Application No. MBR-93-ECP-001. Polaroid Corporation also proposes to impose federally enforceable constraints herewith to supersede those conditions and requirements which pertain to several surface coating operations in Building W4 under Application No. MBR-95-IND-027.

This information is available in alternate format by calling our ADA Coordinator at (617) 574-6872.

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1. PROCESS DESCRIPTIONS

1.1 BUILDING W1

A Model Shop is located in Building W1 where processes such as grinding, milling, and Stereo Lithography take place. Building W1 sources subject to this Approval are the Model Shop, and the Optical Engineering Labs.

Appendix A contains a list of the subject equipment from Building W1.

1.2 BUILDING W2

The equipment in Building W2 is used to manufacture a variety of photographic reagents and developer products for all types of film in a batch processing mode. Warehousing of materials associated with photographic film manufacturing is also provided.

Process Equipment

The process equipment in Building W2 consists of tanks, filters, and miscellaneous processing equipment associated with the manufacturing of developer and pod materials. During manufacturing operations, the raw materials are combined, mixed, heated, and de-gassed in vessels. The mixture is then filtered and pumped into storage tanks, where it is kept under low nitrogen pressure. The reagent is then tested and transported to storage or pod manufacturing.

Other Equipment

Building W2 also includes a wastewater evaporator; analytical and research laboratories with hoods and benches in which various tests are performed; and maintenance activities.

Appendix A contains a list of the subject equipment from Building W2.

1.3 BUILDING W3

Operations conducted in Building W3 include film assembly, pod assembly, plastic molding, metal stamping, and packaging.

Process Equipment

The process equipment in Building W3 consists of pod assembly machines, film assembly machines, and packaging units. During manufacturing of the film, the pods are assembled, and the film is then assembled. The individual films are then packaged and ink is printed on the packaging.

Other Equipment

Associated with Building W3 are wastewater discharges from process areas directed to the wastewater evaporator located in Building W2 or to waste disposal; Quality Control and Dark Room Laboratories with hoods and benches in which various tests are performed; and maintenance activities, such as degreasing.

Appendix A contains a list of the subject equipment from Building W3.

1.4 BUILDING W4

Operations conducted in Building W4 include research and development activities. Building W4 houses a number of laboratories that are used in support of laboratory and bench scale activities in the areas of coating and drying operations, and mixing of photographic emulsions and solutions.

Laboratories

Laboratories in the building support research and development activities associated with the preparation of silver emulsions; general analytical services; preparation of photographic dyes and gel coatings; and basic research activities to improve existing processes and formulations.

Emissions from these areas include small quantities of VOCs that may be discharged with the wastewater.

Other Equipment

Associated with Building W4 are wastewater discharges from certain process areas to the silver pretreatment system located in Building W4; and maintenance activities, such as painting and degreasing.

Appendix A contains a list of the subject equipment from Building W4.

1.5 BUILDING W5

Associated with Building W5 are the Analytical and Quality Control laboratories which support production activities related to web coating operations; a hot oil hood; and maintenance activities, including painting.

Appendix A contains a list of the subject equipment from Building W5.

1.6 BUILDING W7

Building W7 includes fuel tanks that store No. 6 fuel oil and diesel oil for boiler and generator operations; and maintenance activities including a paint area and a degreaser. Building W7 primarily supports the site steam generation, compressed air supply, and emergency power generation.

Oil Tanks

Four (4) 40,000-gallon above ground tanks are used to store No. 6 fuel oil. Diesel fuel is stored in two (2) 275-gallon tanks.

Other Equipment

Support functions in Building W7 include a paint area, a petroleum-based degreaser, and conditioning of the boiler feedwater.

Appendix A contains a list of the subject equipment from Building W7.

1.7 BUILDING W9

Building W9 treats wastewater discharges from Buildings W1, W2, W3, W4, W5, W7, and part of W8 (purposeful discharges only), as well as all sanitary sewage from the 1265 Main Street, Waltham site. Building W9 has a maximum wastewater handling capacity of 680 gallons per minute or 357,408,000 gallons per year.

The equipment in Building W9 include one (1) 500,000-gallon equalization tank; one (1) 9,250-gallon primary neutralization tank; one (1) 24,550-gallon secondary neutralization tank; one (1) 6,500-gallon dilute sulfuric acid storage tank; one (1) 6,500-gallon caustic storage tank; one (1) 6,500-gallon sulfuric acid storage tank; one (1) carbon adsorption system for odor control; and ancillary equipment, such as pumps, mixers, blowers, monitoring equipment, etc.

In general, process wastewater and sanitary sewage are drained by gravity to the Building W9 lift station, and are subsequently pumped into the W9 equalization tank. The equalization tank provides blending of all water streams, as well as capacity for fluctuating flow rates. After the wastewater has been equalized, a side stream is continuously sent to the first neutralization tank. The wastewater is neutralized through the addition of either dilute sulfuric acid or dilute caustic. The first neutralization tank is continuously feeding a second neutralization tank, which ensures proper pH control.

2. BEST AVAILABLE CONTROL TECHNOLOGY (BACT) REQUIREMENTS

BACT for the processes in the South Site Buildings and in the Wastewater Treatment Facility will continue to be met by employing the current operating procedures and practices.

3. EMISSION LIMITS

The maximum allowable emissions⁽¹⁾ from the process equipment associated with the South Site and Building W9 are as follows:

TABLE 3-1: Summary of Potential Emissions

Building	Potential VOC Emission Rate (tons per rolling twelve-month period)	Potential HOC ⁽²⁾ Emission Rate (tons per rolling twelve-month period)	Potential HYC ⁽³⁾ Emission Rate (tons per rolling twelve-month period)
W1	0.01	0.01	0.05
W2	0.60	0.02	0.25
W3	0.67	0.01	0.05
W4	2.00	0.01	2.00
W5	0.45	0.01	0.10
W7	1.30	N/A	0.05
W9	0.21	⁽⁴⁾	⁽⁴⁾
Total	5.24	0.06	2.50

Notes:

- (1) Rows denoting building totals are supplied for reference only – the enforceable limits of Table 3-1 are found solely in the last row described as “Total”.
- (2) HOC = halogenated organic compounds.
- (3) HYC = hydrocarbons.
- (4) The VOC total for Building W9 also includes the HOC and HYC.

The monthly allowable emissions from the processes described in this Approval shall be no greater than one-fourth of the maximum allowable emission rates found in Table 3-1 above.

4. SUPERCEDEENCE OF PREVIOUS DEPARTMENT APPROVALS

The following list of existing approvals are hereby superseded in their entirety by this Approval:

- MBR-88-IND-181
- MBR-87-IND-065
- MBR-88-IND-353
- MBR-88-IND-311
- MBR-89-IND-302
- MBR-93-ECP-001
- MBR-95-IND-027
- MBR-89-IND-310

The Department has determined that this application is administratively complete and that the plans are in conformance with current air pollution control engineering practices. Therefore, the Department hereby grants **CONDITIONAL APPROVAL** for the proposed plan to continue to operate the South Site and the Wastewater Treatment Facility located at 1265 Main Street in Waltham, Massachusetts with the following provisos:

5. PROVISOS

GENERAL REQUIREMENTS

1. Polaroid Corporation shall maintain continuous compliance at all times with Sections 2 through 4 of this Approval. Section 1 of this Approval is descriptive and constitutes enforceable requirements only to the extent incorporated into a proviso in Section 5.
2. That if conflicting information is found between the application materials and this Approval, then the requirements of this Approval shall take precedence over the documentation in the application materials.
3. That the Department may suspend, modify, or revoke this Approval if at any time Polaroid Corporation violates any applicable Regulation(s) or conditions of this Approval letter.

4. That a copy of this Approval and any subsequent revisions shall be readily available at every building comprising the South Site and Wastewater Treatment Facility subject to this Approval.
5. That should any nuisance condition(s) such as smoke, dust, odor, or noise occur as a result of the operation of equipment and processes located at the South Site and Wastewater Treatment Facility, then appropriate steps shall be taken as soon as reasonably possible by Polaroid Corporation to abate said nuisance condition(s).
6. That Polaroid Corporation shall inspect all buildings subject to this Approval for malfunctions and deterioration of equipment or structures, operator error, and unpermitted discharges which may cause the release of hazardous constituents to the environment. Polaroid Corporation shall make its best efforts to conduct these inspections in such a manner so as to identify problems in time to correct them before they cause harm to public health, safety, or welfare, or the environment.
7. That Polaroid Corporation shall remedy all malfunctions, deteriorations, operator errors, and unpermitted discharges that are discovered in the inspections required by Proviso No. 6. When an unpermitted release to the air or threat of release to the air is discovered, Polaroid Corporation shall follow current Department regulations to notify and respond as specified in 310 CMR 40.000 - MASSACHUSETTS CONTINGENCY PLAN.
8. That should the construction, substantial reconstruction, or alteration at the South Site and Wastewater Treatment Facility violate any provisions of 310 CMR 7.00, Polaroid Corporation shall be subject to enforcement pursuant to Massachusetts General Laws, Chapter 111, sections 142A and B and Chapter 21A, section 16.
9. That Polaroid Corporation shall allow Department and/or USEPA personnel access to the buildings comprising the South Site and Wastewater Treatment Facility for the purpose of making inspections, surveys, collecting samples, obtaining data, and reviewing all pertinent records.
10. That Polaroid Corporation shall continue to investigate the feasibility of implementing alternative technologies or reformulated raw material inputs which will lead to the decrease of overall emissions from the equipment and processes located at the South Site and Wastewater Treatment Facility to the environment (air emissions, solvent waste, etc.). Polaroid Corporation shall seek assistance from outside sources such as raw material suppliers, vendors, or the Office of Technical Assistance [located at the Executive Office of Environmental Affairs, 100 Cambridge Street, Boston, Massachusetts, (Telephone No. (617) 727-3260)]. Polaroid Corporation's personnel shall record any information supplied to them relative to reducing overall emissions and pollution prevention techniques. This information, as well as any progress toward decreasing overall emissions to the environment shall be recorded in an Environmental Logbook (see Proviso No. 21).

11. That the Department has determined that the filing of an Environmental Notification Form (ENF) with the Secretary of Environmental Affairs, for air quality control purposes, was not required prior to this action by the Department. Notwithstanding this determination, the Massachusetts Environmental Policy Act (MEPA) and Regulation 301 CMR 11.00, Section 11.03, provide certain "Fail-Safe Provisions" which allow the Secretary to require the filing of an ENF and/or an Environmental Impact Report at a later time.
12. That this Approval, which is issued under 310 CMR 7.02 (2), does not negate the responsibility of Polaroid Corporation to comply with this or any other applicable federal, state, or local regulations now or in the future. Nor does this Approval imply compliance with this or any other applicable federal, state, or local regulations now or in the future.
13. Twenty-two (22) percent of the volatiles exiting the plant in the wastewater is deemed to constitute a secondary air emission. The secondary emission rate was based on information in EPA document EPA-450/3-91-012a.
14. That Polaroid Corporation shall be permitted to add or delete auxiliary suction trunks from existing laboratory vents in Building W4 and may add or remove UV curing lights from the coaters in Building W4, as long as these actions do not: result in a net emission increase above the de minimis level, and/or cause or contribute to a condition of air pollution.

AIR EMISSION REQUIREMENTS

15. That Polaroid Corporation shall comply with the long-term emission limits listed in Table 3-1 above.
16. That Polaroid Corporation shall comply with the short-term emission limits specified in Section 3 above.

COMPLIANCE TESTING REQUIREMENTS

17. That Polaroid Corporation shall, upon request of the Department, conduct air emissions testing to demonstrate compliance with the requirements of this Approval. Testing shall be conducted in accordance with USEPA Method 24 and/or Method 25 as described in CFR Title 40 Part 60, Appendix A, or by other methods approved by the Department and USEPA. Any required air emission compliance testing shall be witnessed by Department personnel.

18. That if the Department requires Polaroid Corporation to conduct the compliance testing specified in Proviso No. 17 above, then a pretest protocol shall be submitted to this Office, attention Permit Chief, Bureau of Waste Prevention, at least 30 days prior to commencement of said air emissions testing. The pretest protocol shall, as a minimum, describe sampling point locations, sampling equipment, sampling and analytical procedures, and the operating conditions for the required testing. A final report with the emissions test results shall be submitted to the Department within 30 days of completion of said testing for review and Department approval.

RECORDKEEPING AND REPORTING REQUIREMENTS

19. That Polaroid Corporation shall keep adequate on-site records for the South Site and the Wastewater Treatment Facility. These records shall contain the following information:
- a) Monthly amount of wastewater processed through Building W9;
 - b) Total VOC/HOC/HYC emissions, including direct and secondary emissions for Building W9 per month, and for each rolling 12-month period, in tons;
 - c) Total VOC/HOC/HYC (process and fugitive) emissions for each of the South Site buildings per month, and for each rolling 12-month period, in tons; and
 - d) Total VOC/HOC/HYC emissions for the entire South Site Facility and the Wastewater Treatment Facility per month, and for each rolling 12-month period, in tons.

These records shall be maintained at the facility for five years and shall be made available to Department personnel and/or USEPA upon request.

20. That Polaroid Corporation shall keep adequate on-site maintenance log books, which shall contain, at a minimum, the following information:
- a) All malfunctions and deteriorations of process equipment and air pollution control equipment subject to this Approval that cause or could reasonably be expected to cause unpermitted air emissions; and
 - b) All relevant maintenance and repairs performed on the equipment listed in item a) above; and
 - c) Dates and duration of abnormal operation of air pollution control equipment.

These records shall be maintained at the facility for five years and shall be made available to Department personnel and/or USEPA upon request.

21. That Polaroid Corporation shall maintain an Environmental Logbook, or equivalent recordkeeping system, which shall record actions associated with environmental issues and overall emissions changes at the South Site and the Wastewater Treatment Facility. Polaroid Corporation shall record information such as the results of federal, state, or local environmental inspections; maintenance or corrective actions related to air pollution control equipment; and measures taken to lower overall emissions to the environment (air, solvent waste, etc.). This Logbook, or equivalent, shall be made available to Department and/or USEPA personnel upon request.

APPEAL PROCESS

This Conditional Approval is an action of the Department. If you are aggrieved by this action, you may request an adjudicatory hearing. A request for a hearing must be made in writing and postmarked within twenty-one (21) days of the date of issuance of this Approval.

Under 310 CMR 1.01(6)(b), the request must state clearly and concisely the facts, which are the grounds for the request, and the relief sought. Additionally, the request must state why the Conditional Approval is not consistent with applicable laws and regulations.

The hearing request along with a valid check payable to Commonwealth of Massachusetts in the amount of one hundred dollars (\$100.00) must be mailed to:

Commonwealth of Massachusetts
Department of Environmental Protection
P.O. Box 4062
Boston, MA 02211

The request will be dismissed if the filing fee is not paid, unless the appellant is exempt or granted a waiver as described below.

The filing fee is not required if the appellant is a city or town (or municipal agency), county, or district of the Commonwealth of Massachusetts, or a municipal housing authority.

The Department may waive the adjudicatory hearing filing fee for a person who shows that paying the fee will create an undue financial hardship. A person seeking a waiver must file, together with the hearing request as provided above, an affidavit setting forth the facts that believed to support the claim of undue financial hardship.

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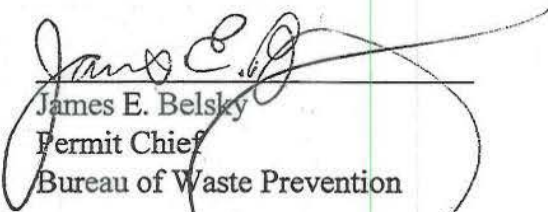
The Department strongly recommends that Polaroid Corporation audit any and all of its discharges of pollutants to the environment (in all media: air, sewer, ground and surface water discharges, hazardous or solid waste disposal, etc.) to verify compliance with all applicable regulations and/or standards.

Should you have questions concerning this matter, please do not hesitate to contact Mr. Mun Wong at the Metropolitan Boston/Northeast Regional Office, 205A Lowell Street, Wilmington, MA 01887.

Sincerely,



Mun Wong
Environmental Engineer



James E. Belsky
Permit Chief
Bureau of Waste Prevention

cc: USEPA, Office of State Implementation, Planning, and Assistance, J.F. Kennedy Federal Building, Boston, MA 02203 Attention: Mr. David B. Conroy, Associate Director
Board of Health, 119 School Street, Waltham, MA 02154
Fire Headquarters, 175 Lexington Street, Waltham, MA 02154
Mayor's Office, 610 Main Street, Waltham, MA 02154 Attention: Mr. William F. Stanley
Metropolitan Area Planning Council, 60 Temple Place, Boston, MA 02111
Attention: Mr. David Soule
DEP, DAQC, Boston - Attention: Mr. Donald Squires, Mr. Yi Tian
DEP, NERO - Attention: Mr. Mun Wong, Ms. Maureen Hancock

Appendix A
Equipment list and Emissions Limitation

Notes:

1. "HYC" (hydrocarbons) is a term Polaroid has adopted from the SSEIS report instructions. It is defined as non-VOC, non-HOC organic chemicals (e.g. acetone).
2. "Non-VOC HAPs" includes NH₃ and HCl for example.
3. "Reference Emissions" referred to in the tables below do not constitute enforceable emission limitations, but are detailed for the purpose of providing a general understanding of the relative distribution of emissions. "Total Allowable Emissions" shown below is an enforceable emission limitation.

1. Building W1

Source	VOC	HOC	HYC	Non-VOC HAPS	PM10
Model Shop	X	X	X		
Optical Engineering Area	X	X	X		
Total Reference Emission	.01	0.01	.05		

2. Building W2

Source	VOC	HOC	HYC	Non-VOC HAPS	PM10
Reagent manufacturing equipment					X
Chemical weigh station					X
Analytical Lab hoods (third floor)	X	X	X	X	
Adhesives Lab (second floor north)	X	X	X	X	
Photographic standards lab hood (third floor)	X	X	X	X	
Wastewater evaporator	X		X		
Evaluation / Sensitometry Lab (2nd floor)	X	X			X
Paint booth, first floor	X		X		
Total Reference Emission	0.6	0.02	.25	0.1	0.2

3. Building W3

Source	VOC	HOC	HYC	Non-VOC HAPS	PM10
Packaging units	X				
2 Lab hoods (2nd floor QC lab; Dark	X	X	X		

room lab)				
Degreasers	X		X	
Pod Machines	X			
Total Reference Emission	0.67	0.01	0.05	0.1

4. Building W4

ROOM NO.	VENT NO.	FAN NO.	DESCRIPTION	VOC	HOC	HYC	Non-VOC HAPS	PM10
WEST ADDITION								
W-215	6833	EF-19A	Lab hood	X	X	X		
W-215	-	-	Oven	X	X	X		
W-215	-	-	Lab hood	X	X	X		
W-215	-	-	Oven	X	X	X		
W-214	6832	EF3WEST	Loop coater #17	X	X	X		
W-213	6832	EF3WEST	Two (2) elephant trunks - for two UV curing units	X	X	X		
FIRST ADDITION (4TH FLOOR)								
446	5455	-	Lab hood (on far wall)	X	X	X		
446	-	-	Oven w/ 2 stacks	X	X	X		
331B			Loop coater #12 (relocated to 3 rd fl.)	X	X	X		
444	2510	EF-15	Lab hood	X	X	X		
FIRST ADDITION (3RD FLOOR)								
310	5359	-	Lab hood	X	X	X		
310	2501	EF-10	Metal pipe/vent into ceiling on far side of room	X	X	X		
324	2501	EF-10	Exhaust for chemical storage cabinet	X	X	X		
324	2501	EF-10	Lab hood	X	X	X		
324	2601	EF-10	Oven	X	X	X		
324	2501	EF-10	Elephant trunk	X	X	X		
324A	2501	EF-10	Lab hood	X	X	X		
324A	2501	EF-10	Convection oven w/ stack into ceiling	X	X	X		
323	3004	EF-67	Exhaust for chemical storage cabinet	X	X	X		
323	5359	HEF-32	Lab hood	X	X	X		
312	5359	HEF-32	2 ovens with a stack each into ceiling	X	X	X		
312	5359	HEF-32	Lab hood	X	X	X		
312	5359	HEF-32	Equipment vents	X	X	X		
313	5425	EF-58	Loop coater #1	X	X	X		
313	5425	EF-58	Anti-explosive unit/electrical panel next to loop coater with 2 stacks into ceiling	X	X	X		
313	2501	EF-10	Process exhaust	X	X	X		
314	5359	EF-314	Lab hood	X	X	X		

334B	3001	EF-11	Loop coater #4	X	X	X		
334D	5051	EF-78	4 mixers/tanks along wall	X	X	X		
334C	5051	EF-78	Mixer: 2 exhausts	X	X	X		
331	3001	EF-11	Exhaust for chemical storage cabinet	X	X	X		
331	3001	EF-11A	Lab hood	X	X	X		
331	3001	EF-11B	Lab hood	X	X	X		
331B	N/A	N/A	Loop Ctr. #12	X	X	X		
332B	2501	EF-10	Loop coater #3	X	X	X		
335	5058	EF-3	Lab hood	X	X	X		
FIRST ADDITION (2ND FLOOR)								
234	5454	EF-4C	Lab hood	X	X	X		
235	6672	HEF-26A	Exhaust hood	X	X	X		
239	5066	HEF-25	Lab hood	X	X	X		
238	5068	EF-91	Loop coater #10	X	X	X		
238A	5065	EF-92	Loop coater #11	X	X	X		
237	5051	EF-78	Exhaust that splits into 2 open-ended elephant trunks - feeds into exhaust in rm 334C	X	X	X		
SECOND ADDITION (2ND FLOOR)								
A-225	2614	HEF-17	Lab hood	X	X	X		
A-225	2614	HEF-17	Weigh station - cabinet w/ three scales	X	X	X		
A-225	2614	HEF-17	3 pipes coming in from ceiling - open-ended	X	X	X		
A-201	5407	HEF-20	Lab hood	X	X	X		
A-201	5407	HEF-20	Forced air oven w/ exhaust	X	X	X		
A-201A	5407	HEF-20	Process exhaust	X	X	X		
A-204D	2676	HEF-13	Process exhaust	X	X	X		
A-203B	5093	HEF-27A	Lab hood	X	X	X		
A-226B	5080	HEF-20	Lab hood (exhausts in A-226A and A-226C run off this hood)	X	X	X		
A-226A	5080	HEF-20	Small hood with connection to hood in rm A-226B)	X	X	X		
A-226C	5080	HEF-20	Loop Coater	X	X	X		
A-204E	5080	HEF-20	Elephant trunk from ceiling	X	X	X		
A-217	2609	HEF-15	2 process exhausts	X	X	X		
A-217	2608	HEF-16	3 process exhausts - in middle of room	X	X	X		
A-210	2685	HEF-12A	Lab hood	X	X	X		
A-204	2676	HEF-13	Lab hood	X	X	X		
A-208	2686	HEF-10	2 process exhausts	X	X	X		
A-208	2683	HEF-11	2 process exhausts	X	X	X		
A-208A	2681	PEF-6	Hood-type exhaust and light lock exhaust in A-208B	X	X	X		
A-203	2699	HEF-4	Loop coater #5	X	X	X		
A-222	5094	HEF-5	3 sets of process exhausts across wall	X	X	X		
A-207	2691	HEF-9	Lab hood: loop coater #13	X	X	X		

A-207A	2691	HEF-9	Small hood-type box w/ elephant trunk. Also, second elephant trunk, open-ended.	X	X	X		
A-227	2586	HEF-6	Process exhaust	X	X	X		
A-227	2586	EF-6	Lab hood: 6 ft.	X	X	X		
A-229	2594	EF-81	Loop coater #8.	X	X	X		
A-230	2579	HEF-14A	Lab hood	X	X	X		
O-BUILDING (2ND FLOOR)								
O-200	5057	EF-8	Shaft containing air exhausts, vents, ducts, dehumidifier etc.	X	X	X		
O-218	5063	EF-1F	Lab hood	X	X	X		
SECOND ADDITION (1ST FLOOR)								
A-107	2584	HEF-317	Lab hood	X	X	X		
A-112	2582	HEF-2A	Lab hood	X	X	X		
A-112	5413	EF-95	Research oven w/ stack	X	X	X		
A-109	5401	PEF-9D	Exhaust along wall	X	X	X		
A-109	5099	PEF-2	Homogenizer w/ stack and 2 additional elephant trunks coming off of it	X	X	X		
A-108	5401	PEF-9C	Large process exhaust/hood	X	X	X		
A-108	5401	PEF-9B	Lab hood	X	X	X		
A-108	5401	PEF-9A	Lab hood	X	X	X		
A-108	5402	HEF-1	Process exhaust re-ducted to A-110	X	X	X		
A-108	2581	PEF-1	Lab hood	X	X	X		
A-108	2581	PEF-1	Lab hood	X	X	X		
A-108	2581	PEF-1	Elephant trunk from ceiling	X	X	X		
A-108	2581	PEF-1	Elephant trunk from ceiling	X	X	X		
A-105	2583	PEF-3	Various solvent storage tanks with exhausts	X	X	X		
A-105	2585	PEF-4	Various solvent storage tanks with exhausts	X	X	X		
A-101	6846	EF-18E	Lab hood	X	X	X		
A-101	6846	EF-18E	Exhaust for solvent storage cabinet	X	X	X		
A-101	6846	EF-18E	Oven w/ hood/stack	X	X	X		
A-101	6846	EF-18E	Elephant trunk from middle of ceiling	X	X	X		
A-101F	5081	EF-72	Lab hood: loop coater #9	X	X	X		
A-110	6841	EF-65	Lab hood	X	X	X		
A-110	5402	HEF-1	2 elephant trunks from ceiling	X	X	X		
SOUTH ADDITION (1ST FLOOR)								
S-103	5453	EF-69	Process exhaust	X	X	X		
S-103	5452	EF-68	Lab hood w/ two large elephant trunks	X	X	X		
FIRST ADDITION (1ST FLOOR)								
105	2585	PEF-4	Lab hood	X	X	X		

105	5061	EF-65	2 elephant trunks that vent chromatograph	X	X	X		
105	2585	PEF-4	3 free-standing elephant trunks	X	X	X		
105	5457	HEF-34	Acid Hood – Analytical	X	X	X		
107	5454	EF-4A	Lab hood	X	X	X		
107	5454	EF-4A	Elephant trunk	X	X	X		
107	5454	EF-4A	Elephant trunk	X	X	X		
107	5454	EF-4A	Elephant trunk	X	X	X		
107	5454	EF-4A	Elephant trunk	X	X	X		
107	5454	EF-4A	Exhaust from ICP 2.5	X	X	X		
108	5454	EF-4B	Lab hood	X	X	X		
108	5454	EF-4B	Process exhaust	X	X	X		
O-BUILDING (1ST FLOOR)								
O-110	5057	EF-8A	Lab hood (door of room says O-103a)	X	X	X		
O-110	-	-	Free-standing elephant trunk	X	X	X		
O-118	5059	EF-6A	Lab hood	X	X	X		
O-118	-	-	Free-standing metal pipe/trunk	X	X	X		
O-124	5060	EF-9A	Lab hood	X	X	X		
O-124	5063	EF-1	Process exhaust - next to hood	X	X	X		
O-124	5063	EF-1L	Elephant trunk	X	X	X		
O-124	5063	EF-1	Open-ended elephant trunk	X	X	X		
O-124	5063	EF-1	Exhaust for chemical storage cabinet	X	X	X		
O-120	5063	EF-1	Elephant trunk for gas chromatograph	X	X	X		
O-120	5063	EF-1	Closed/sealed metal pipe from ceiling	X	X	X		
O-120	5063	EF-1B	Lab hood	X	X	X		
O-120	5063	EF-1C	Lab hood	X	X	X		
O-120	5063	EF-1	Exhaust from ceiling - splits into 2 elephant trunks and open-ended over separate GCs	X	X	X		
O-120	5063	EF-1	Exhausts for chemical storage cabinet and adjacent hood for hazardous wastes	X	X	X		
O-127	5063	EF-1A	Lab hood	X	X	X		
O-127A	2549	EF-55	Exhausts for 5 chemical storage cabinets	X	X	X		
O-127A	2548	EF-56	Elephant trunk that splits into three ends	X	X	X		
O-132	5063	EF-1E	Lab hood	X	X	X		
O-132	5063	EF-1	Open-ended pipe from ceiling	X	X	X		
O-139	2649	EF-2J	Open-ended elephant trunk	X	X	X		
O-139	2649	EF-2I	Elephant trunk venting "sampling box"	X	X	X		
O-139	2649	EF-2L	Lab hood	X	X	X		
O-151	2649	EF-2	Lab hood	X	X	X		
O-151	2649	EF-2	CTU coater	X	X	X		
O-153	2649	EF-2E	Large pipe end in ceiling	X	X	X		
O-153	2649	EF-2G	Pipe end in ceiling	X	X	X		

O-153	2649	EF-2D	Pipe end in ceiling	X	X	X		
O-166	-	-	X-105 coater	X	X	X		
O-169	5088	EF-12A	Lab hood	X	X	X		
O-169	2649	EF-2C	Hood/exhaust over oven	X	X	X		
O-169	2649	EF-2B	Hood/exhaust over oven	X	X	X		
O-170	2649	EF-2H	Elephant trunk	X	X	X		
O-172	5087	EF-16	Lab hood	X	X	X		
O-172	2649	EF-2	Process exhaust and with open-ended trunk coming off of it	X	X	X		
O-176	5085	EF-62	Elephant trunk: sump exhaust	X	X	X		
O-185	2649	EF-2F	Closed metal pipe-end in ceiling	X	X	X		
BASEMENT FLOOR								
B-10D	6865	N/A	Pipe off of tank S-908.	X	X	X		
B-3	5455	EF-50	Lab hood	X	X	X		
B-5	5455	EF-50	Process exhaust/hood	X	X	X		
B-5	5455	EF-50	Piping along ceiling splits and comes down into 3 ends	X	X	X		
O-001	2568	EF-53	Large fan	X	X	X		
O-001	6854	PEF-10	Elephant trunk by filter	X	X	X		
O-001	5064	EF-54	Several vents. Also serving rooms 5064, 6665, 2570, 6674.	X	X	X		
C-TOWER								
CT-1M	2520	EF-5	3 process exhausts	X	X	X		
CT-3	2520	EF-5	Process exhaust from vessel	X	X	X		
CT-2M	2520	EF-5	Walk-in hood	X	X	X		
CT-5	2510	EF-15	Black plastic tube vent over two small tanks	X	X	X		
CT-5	5053	PEF-9	Room 443: large vents/air filters against wall - C-tower exhaust	X	X	X		
B-TOWER								
BT-1M	5052	EF-18	Local exhaust w/ elephant trunk	X	X	X		
BT-2M	5052	EF-18	Vent	X	X	X		
BT-4	5052	EF-18	4 process exhausts and one open end. Four tanks feeding vent #5052, EF-18b	X	X	X		
BT-4A	5052	EF-18	Room 439: lab hood	X	X	X		
X4-11	-	-	Penthouse: two fans, EF-73 and EF-10	X	X	X		
E-BUILDING PENTHOUSE								
E-BLDG	-	-	Research coater chiller for RTC	X	X	X		
Portable	N/A	N/A	Loop coater #6	X	X	X		
Portable	N/A	N/A	Loop coater #7	X	X	X		
Portable	N/A	N/A	Loop coater #14	X	X	X		
310	N/A	N/A	"Spin" coater	X	X	X		
General			Chemical handling				X	X

Total Reference emissions			2.0	0.01	2.0	0.2	0.2
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4. Building W5

Source	VOC	HOC	HYC	Non-VOC HAPS	PM10
A-Lab hoods	X	X	X		
Paint shop	X		X		
Hot oil hood	X				
Total Reference Emission	0.45	0.01	0.1		0.1

4. Building W7

Source	VOC	HOC	HYC	Non-VOC HAPS	PM10
Oil tanks #2, #3, #4, #5	X				
2 diesel tanks	X				
Degreaser	X				
Paint area	X		X		
Boiler conditioner	X				
Total Reference Emission	1.3	0.0	0.05		

4. Building W9

Source	VOC	HOC	HYC	Non-VOC HAPS	PM10
Various tanks, pumps, mixers, and blowers described in Paragraph 1.7.	X	X	X	X	
Total Reference Emission	.21	N/A	N/A	N/A	

TOTAL ALLOWABLE EMISSIONS FOR THE SOUTH SITE AND BUILDING W9

	VOC	HOC	HYC	Non-VOC HAPS	PM10
Total Allowable Emissions per month	1.31	0.015	0.625	0.075	0.15
Total Allowable Emissions per rolling twelve month calendar period	5.24	0.06	2.5	0.3	0.6