

Air Products and Chemicals, Inc.

Box 538, Allentown, PA 18105
(215) 398-4911

10 March 1981

Mr. T. L. Carey:

I have updated the manufacturing
environmental strategy, attached
herewith.


A. J. Diglio

/nlb

AP00025275

ENVIRONMENTAL OVERVIEW

The policy of the Chemicals Manufacturing Organization on environmental issues is to meet the requirements of the applicable laws passed by Congress and the rules, regulations and statements promulgated by the Environmental Protection Agency, state and local environmental regulatory agencies by providing the appropriate facilities, technology, and operating procedures at the most effective cost to APCI. In addition, we attempt to influence the development of laws and regulations during the "public comment" period by suggesting change to proposals we judge to be not in the best interests of society as a whole. Plant compliance with those laws, rules, regulations and standards is monitored regularly through reports on any excursions from operating permit limits and through an annual formal environmental audit and semi-annual compliance surveys. Plant performance on environmental issues is an important factor in the "key results" system of performance measurement used by the Chemicals Manufacturing Organization.

Environmental issues cover a wide area of topics, including solid waste disposal, water pollution, air pollution, toxic substances, spill control, drinking water, noise and sanitation. A brief overview of solid waste, water pollution, and air pollution follows.

Solid Waste

The "Resource Conservation and Recovery Act of 1976" (RCRA) calling for closing or upgrading open dumps, and identifying and rigorously controlling hazardous waste has become effective in November 1980. Registration is required by all generators and permits are required for treatment, storage, and disposal of hazardous waste. The permits will be issued on an interim basis for existing facilities, with the final permitting period lasting several years. Most of the initial requirements are concerned with procedural, record-keeping, and management aspects of hazardous waste handling. Final technical standards were promulgated January 1981. Standards applicable to generators of hazardous waste makes them responsible for the overall management of their waste. Hazardous waste treatment, storage and disposal facilities are defined to include pits, ponds and lagoons. These facilities are required to have sophisticated lining systems with groundwater monitoring and leachate collection and treatment. Groundwater monitoring must be in place by November, 1981. Other requirements are to be in place at EPA's discretion, determined when a final permit is issued.

AP00025276

The rigorous design and operating requirements for these disposal sites has been to create a shortage of permitted disposal sites, and has resulted in increased cost of contract disposal. Regulations will require that many waste materials be incinerated. Additional manpower will be required to classify, select and investigate disposal companies. Since waste generators will be responsible for the overall management of their waste disposal, careful disposal practices will be followed to avoid liability to APCI.

The first set of RCRA regulations dealt mainly with good management and record keeping. Contingency plans, personnel training, and record keeping which includes a manifest system to track wastes from the point of generation to ultimate disposal was established by November 1980.

Hazardous waste landfills, landfarms, and lagoons will be required to have groundwater monitoring installed by November 1981. Currently lagoons at Escambia, Calvert and Pasadena do contain hazardous waste as defined under RCRA and will need wells at this time, but we plan to develop means to possibly convert the waste to non-hazardous.

Incineration requirements under RCRA have been established, and these regulations require extensive stack monitoring to determine the percent destruction of waste materials and residuals remaining in the exhaust gas. When they are implemented, existing incinerators owned or utilized by APCI may be shut down or required to add expensive monitoring and combustion control equipment. These costs could be significant at Calvert City, which incinerates over 2 million pounds per year of wastes at LWD, a local waste disposal firm. Onsite incinerators at Paulsboro and St. Gabriel could be affected if they are governed by the hazardous waste regulations. The overall waste stream incinerated at Paulsboro is not considered to be hazardous at this time, but the definition of a hazardous waste could change at any time. The incinerator at St. Gabriel will require upgrading if the wastes currently burned there can not be used as fuel. The date of implementation of incinerator controls, will be at EPA's discretion some time in the future.

An important exclusion to RCRA regulations is that waste burned for energy recovery is not governed. This may be important at several locations. At Pasadena, TDA tars are currently burned in the boiler for disposal and for recovery of fuel value. At St. Gabriel, the possibility of burning waste amine oils and process vent gases in the boiler will be investigated. The new oxygen activated sludge system eliminates the need to burn wastewater in the thermal oxidizer, so that the heat value of the waste oils will no longer be required for this process. The burning of PVOH (a non-hazardous waste) and other ignitable wastes in the coal fired boilers at Calvert will also be examined to see if this can reduce or eliminate the cost for disposal of these materials.

AP00025277

The proposed morpholine project at the Escambia Plant would produce a "bottoms" sludge which could be burned for energy recovery. The capital costs for equipment to recover this fuel value would be very high.

The disposal of biological sludge at St. Gabriel will become a more frequent expenditure once the oxygen activated sludge system is operating. The first lagoon cleaning was accomplished using the Chemfix process to treat the sludge to a non-hazardous condition so that it can be spread on land at the plant or used as diking material. The St. Gabriel sludge is no longer classified as hazardous because of the reductions in its metal content. Air Products has the option to buy 70 acres from Ciba Geigy which could be used for sludge disposal operations. This factor should be an important consideration in the decision on whether or not to purchase this land. There is also an open land area of 30 acres that can be used for sludge disposal. Fencing for security will be required if these areas are used for disposal.

The new landfill/landfarm area under construction at Calvert City will help solve many of the disposal problems at that site. However, closure of the old landfill site will incur expense to APCI despite the fact that the old site is owned by AIRCO. The closure includes covering of the fill with an impervious clay layer. The installation on monitoring wells may or may not be required. Closure and post-closure monitoring costs of this site and at St. Gabriel, Pasadena, and Escambia may be significant. The financial requirements of the Federal RCRA regulations may allow APCI to pass a financial test so that no funds will need to be committed until a site actually does close. However, regulations require that a closure trust fund or similar financial mechanism be set up with capital committed to the fund during the lifetime of the facility.

The new federal RCRA regulations make disposal of wastes more safe and under better control, but also more costly. Disposal costs that were once insignificant will become an important operating and capital expenditure. The final regulations have only begun to be promulgated. More stringent technical requirements have been issued January 1981. These regulations may have a higher impact on costs than the ones already promulgated.

Standards for pits, ponds, and lagoons will effect waste water treatment ponds at Escambia, St. Gabriel, Pasadena, and Calvert City. The cost for rebuilding, lining, and monitoring these ponds will be significant. We are now developing means to minimize these costs.

AP00025278

Water Pollution

The Clean Water Act of 1977 required that all direct discharges to navigable waters be treated by Best Practical Pollution Control Technology (BPT) by April 15, 1979 at the latest. The next milestone mandated by the Act is the installation of Best Available Pollution Control Technology (BAT) for toxic and certain other pollutants and Best Conventional Technology (BCT) for conventional pollutants. BAT for toxic pollutants and BCT must be implemented by July 1, 1984.

Compliance with BAT for non-conventional pollutants must also be achieved by July 1, 1984 but in the event guidelines are not promulgated in a timely manner, an extension of three years from promulgation, but not to extend past July 1, 1987, is provided by the Act. EPA is currently developing effluent guidelines for BPT, BCT, and BAT.

The primary emphasis of the BAT and BCT guidelines will be to regulate the 129 priority pollutants in addition to the more traditional pollutants. EPA's current projection for promulgation of these effluent guidelines for the organic chemicals and plastics industries is April 1982.

Four of the Chemical Group's largest plants (Escambia, St. Gabriel, Calvert City and Paulsboro) have direct process water discharges requiring permit renewals before the guidelines will be available. Middlesex has a cooling water discharge permit valid until 1984.

Since effluent guidelines will not be available for the next round of major NPDES permit renewals, the agencies will be forced to use "Best Engineering Judgement" (BEJ) in determining BAT and BCT discharge limitations. This should make the effluent limitations more negotiable.

In any event, the cost of installing and operating BAT/BCT control equipment is expected to be significantly higher than the cost associated with meeting BPT requirements.

In the case of those plants discharging to publicly owned treatment works (POTW's) - i.e., Pasadena, City of Industry, Cleveland, Eklton, Middlesex, and South Brunswick - compliance with pretreatment standards will be required within three years of promulgation of such standards, but not later than July 1984 for toxics. Currently the pretreatment standards for the organic chemicals and synthetic plastics industries are scheduled to be promulgated by April 1982, therefore requiring compliance by mid 1985. These standards will be established on the basis of preventing the discharge of any pollutant through the POTW which interferes with, passes through, or is otherwise incompatible with the POTW. It is expected that in most cases these standards will require technologies equivalent to BAT for direct discharges with equivalent capital and operating costs.

AP00025279

The agencies intent to regulate toxic and hazardous substances is obvious from the recently issued "consolidated permit application forms". Applicants for NPDES permits must provide data on the 129 priority pollutants and 297 hazardous substances as part of the application. Also, each plant will be required to develop a "Best Management Practices" (BMP) plan which will minimize any release of toxic or hazardous substances to the nation's waterways from non-point sources such as leaks, spills and runoff. As part of EPA's strategy to regulate these substances, extensive monitoring requirements including biomonitoring and toxicity testing of effluents are expected to be included in the renewal NPDES permits. Also, internal waste stream monitoring might be required for priority pollutants to expand the agencies data base for these parameters.

The expanded definition of navigable waters and new regulations on storm water discharges will require all plants to obtain permits for surface drainage sources not presently permitted. These permits will impose restrictive limitations and monitoring requirements on the discharges to insure that contamination is virtually eliminated.

AP00025280

Air Pollution

The Clean Air Act of 1970, and as amended in 1977, specify ambient levels for five pollutants that when attained will protect public health and welfare. These pollutants are:

(1) total suspended particulates (dust, soot, etc.); (2) sulfur dioxide; (3) photo-chemical oxidants (ozone resulting from hydrocarbons); (4) carbon monoxide; and (5) nitrogen dioxide.

Table I shows the ambient air quality for each of our plants.

City of Industry	$\frac{\text{TSP}}{1}$	$\frac{\text{SO}_2}{1}$	$\frac{\text{Ox}}{1}$	$\frac{\text{CO}}{1}$	$\frac{\text{NO}_2}{1}$
Cleveland	1	1	1	1	1
Elkton	PSD	PSD	PSDX	PSDX	PSDX
Paulsboro	PSD	PSD	1	PSDX	PSDX
South Brunswick	PSD	PSD	1	PSDX	PSDX
Middlesex	PSD	PSD	1	PSDX	PSDX
Calvert City	11	PSD	PSDX	PSDX	PSDX
Pasadena	1	PSD	1	PSDX	PSDX
St. Gabriel	1	PSD	1	PSDX	PSDX
Escambia	PSD	PSD	PSDX	PSDX	PSDX

Key:

- 1 Exceeds Primary Standards (Non-Attainment/Offsets Apply)
- 11 Exceeds Secondary Standards (Non-Attainment/Offsets Apply)
- PSD Meets National Standard (PSD Regulations Apply)
- X Cannot be Classified
- PSDX Cannot be Classified or Meets National Standards (PSD Regulations Apply)

Depending on how clean or dirty the ambient air is determines which regulations apply. Clean areas are subject to PSD (prevention of significant deterioration) regulations and dirty areas are subject to Non-Attainment/Offset regulations. Each state was prepared an SIP (State Implementation Plan, i.e. regulations) to attain the national ambient air quality standards. The Act also controls

AP00025281

emissions of Hazardous Air Pollutants. To date, only four substances have been declared hazardous. Of these, only vinyl chloride is of interest to us. These regulations specify extensive, and expensive, design parameters to which new plants must be designed and existing plants retrofitted.

New Source Performance Standards specify low emission limits for categories of air pollution sources constructed after the effective date of the regulation. The NSPS for nitric acid units and large steam boilers (250MM BTU/hr.) are currently applicable.

The requirements for Non-Attainment and PSD are specific. In order to get a permit to construct, the following must be done:

Non-Attainment

- The expansion must use emission controls that achieve the lowest achievable emission rate (LAER), which are independent of cost.
- The existing source must be retrofitted with reasonably available control technology (RACT).
- The existing plus expanded plant must have lower emissions than the pre-expansion plant (offsets).

PSD

- The expansion must use current best available control technology (BACT).
- Do air dispersion calculations to prove that the increase in emissions do not exceed a prescribed amount.
- Provide 1-year ambient monitoring data.
- Do an environmental impact analysis (EIA).
- Hold a public hearing.

Because of other provisions in NA/PSD, both can apply to any project. The net result is that any project can be delayed one to two years by PSD and prohibited by NA.

Although the NA/PSD regulations are quite clear. The SIP's will implement as a minimum NA/PSD, but is also an avenue for states to remedy any problems they may have. Although there will be some relaxation in past rules, by the new administration. The net result will be more emissions controls for existing and new plants.

AP00025282

At the present time, no additional substances manufactured by APCI, other than vinyl chloride, are considered hazardous air pollutants; however, substances are usually listed as a result of sensational media attention. Currently no impact is expected.

New Source Performance Standards for chemicals manufacturing is high on EPA's list of priorities. The results will be additional emissions controls for new facilities, but no impact on existing plants.

The Reagan Administration and Congress will debate and revise the Clear Air Act in September 1981. However, we anticipate the basic framework of the act to remain.

AP00025283

Superfund

Superfund legislation was enacted on 11 December 1980. This legislation covers any hazardous material released to the environment anywhere. The act is designed so that if the release of hazardous waste causes any damage, the government has broad authority to obtain compensation from the generator, transporter and disposer involved or they can fixup from money collected in the Superfund by taxation from industry.

In this event, they can seek treble damages as penalty from the responsible parties. This legislation imposes additional risks to manufacturing and associated increase in costs to compensate for them.

Superfund regulations are anticipated starting the 3rd quarter of 1981 continuing for some time to come.

AP00025284

CHEMICALS GROUP
ENVIRONMENTAL
OPERATING EXPENSES

	ENVIRONMENTAL	
	<u>COSTS</u>	<u>% *</u>
	<u>(\$MM)</u>	
FY 77	5.5	7.4
FY 78	6.7	8.3
FY 79	8.6	9.2
FY 80	11.8	10.6
FY 8L	14.3	11.7

* OF TOTAL OPERATING COSTS (EX. MATERIALS & ENERGY) FOR EACH YEAR.

FY 85 26.3

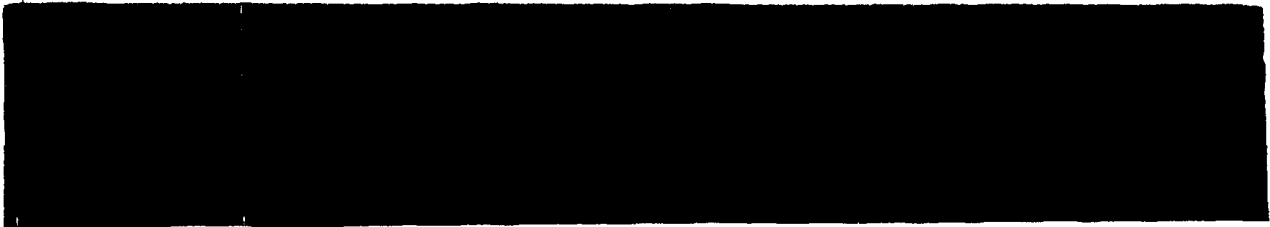
AP00025285

ENVIRONMENTAL CAPITAL PROJECTION

FY 1981 TO 1985

	<u>MM\$</u>			
	<u>AIR</u>	<u>WATER</u>	<u>SOLIDS</u>	<u>MISC.</u>
CLEVELAND		600		
ST. GABRIEL	1560	3785	500	500
S. BRUNSWICK	251	900		125
CITY OF INDUSTRY	40	635		75
ESCAMBIA	3930	5409	1750	
MIDDLESEX	85	983	190	125
PAULSBORO	820	550	165	390
CALVERT CITY	3100	7910	3050	1000
PASADENA	1000	8860	2530	
ELKTON	100	600		215
TOTALS	\$10,886	\$30,232	\$8,185	\$2,430
FY 81		6MM		
GRAND TOTAL =	\$51,733MM			

AP00025286



LETTERBOOK

May 1984

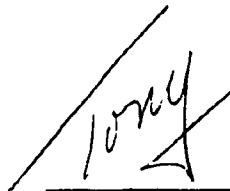
A. J. DIGLIO

AP00025287

24 August 1984

J. P. Desnoee
H. W. Pattillo

Please find attached John Pfeiffer's memo concerning the Vinyl Institute's plans to address municipal incineration off-gas issues.


A. J. Diglio

AJD:csb

Attachment: Memo to P. L. T. Brian from J. B. Pfeiffer,
dated 22 August 1984

cc: P. L. T. Brian
J. B. Pfeiffer

AP00025288