Kay Gottesman

memorandum

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K. GOTTESMAN

TO: Pat Toner, Ron Bruner, Lew Freeman, Chuck O'Connell, Staff and Regional Directors FROM: Margaret Rogers DATE: November 20, 1985	REFERENCE List of Acutely Hazardous Substances, a component of EPA's Chemical Emergency Preparedness Program, formerly Acute Hazards

Attached is an article which appeared in the November 20 New York Times which contains a list of 403 "very toxic chemicals." This is not EPA's final official list of chemicals which the agency is preparing as a component of its Chemical Emergency Preparedness Program to aid communities in developing programs to haggle chemical emergencies. EPA does not expect to publish its final list until late December.

The list was apparently compiled by the newspaper from bits and pieces of information provided by someone within the government, according to the New York Times' reporter. Even though it is not the official list, one should be prepared for public focus on substances found in the list. There are a number of substances on the list which can be found in the plastics industry. Our primary concern would be the misuse of the list.

You will note in the article that the Times created the categories using various resources.

I will keep you apprised of further developments on this issue.

Enclosure

cc: John Dubek

THE NEW YORK TIMES Wednesday, November 20, 1985

Federal List of 403 Very Toxic Chemicals, With Effects on Human Health

The following list, compiled by the Environmental Protection Agency, names 403 substances manufactured, used and stored in the United States that the agency says can pose an "immediate threat to life and health" in the event of an accident at a chemical facility. The agency has urged municipalities to determine which companies handle them and in what quantities so that any excessive risks can be minimized.

Breakdown into categories was done by The New York Times, based on chemical reference manuals and consultation with experts, who also supplied the description of toxic effects. Some chemicals overlap different categories; the primary use or health effect was chosen.

Acids — 5

Reactive, corrosive. Burn skin, eyes, nasal passages on contact.

Chloroacetic acid
Hydrochloric acid
Hydrogen fluoride (hydrofluoric acid)
Nitric acid
Sulfuric acid

Cyanides — 16

Prevent oxygen absorption by the body; some are very highly toxic. Some are used to make plastics; the finished product loses the toxicity. Others are used in extraction of metal from photographic films and ores.

Acrylonitrile (vinyl cyanide)
Adiponitrile
Benzyl cyanide
Cyanogen bromide
Cyanogen iodide
Formaldehyde cyanohydrin
Hydrocyanic acid (hydrogen cyanide)
Isobutyronitrile
Lactonitrile
Malononitrile
Methacrylonitrile
Potassium cyanide
Potassium silver cyanide
Propionitrile
Propionitrile, 3-chloro-
Sodium cyanide

Industrial Gases — 17

Basic building blocks for many chemicals. Since they are already gases, they can rapidly spread beyond a plant fence after a leak.

Ammonia
Arsine
Bromine
Chlorine
Diborane
Fluorine
Hydrogen selenide
Hydrogen sulfide
Methyl mercaptan
Nitric oxide
Nitrogen dioxide
Ozone
Phosphine
Sulfur dioxide
Sulfur tetrafluoride
Sulfur trioxide
Tellurium hexafluoride

Pharmaceuticals — 25

Designed to kill specific organisms, such as bacteria, in small doses. Larger doses are highly toxic to humans.

Amphetamine
Bacitracin
C.I. basic green 1 (brilliant green)
Cantharidin
Carbachol chloride
Colchicine
Digitoxin
Digoxin
Dithiazanine iodide
Emetine dihydrochloride
Ergocalciferol (vitamin D)
Ergotamine tartrate
Fluorouracil
Indomethacin
Mechlorethamine
Mitomycin C
Muscimol
Ouabain
Phenylthiourea
Phylloquinone (vitamin K)
Physostigmine
Physostigmine salicylate
Picrotoxin
Tris(2-chloroethyl)amine
Valinomycin

Chemical Intermediates — 91

Made from basic chemicals, used to produce more complex commercial chemicals. Often much more toxic than finished chemicals.

Acetone cyanohydrin
Acetone thiosemicarbazide
Acrolein
Acryiyi chloride
Allyl alcohol
Allyl amine
Aniline
Aniline, 2,4,6-trimethyl-
Benzal chloride
Benzenamine, 3-(trifluoromethyl)-
Benzene, 1-(chloromethyl)-4-nitro-
Benzenesulfonyl chloride
Benzotrichloride
Benzyl chloride
Bis(chloromethyl)ketone
2-Butene, 1,4-dichloro-,(E)-
Butyl vinyl ether
Chloroacetaldehyde
Chloroethanol
Chloroethyl chloroformate
Chloromethyl ether
Chloromethyl methyl ether
Cresylic acid
Crotonaldehyde
Cyanuric fluoride
Cyclohexylamine
Dichloroethyl ether
Dichloromethylphenylsilane
Diethyl-p-phenylenediamine
Diglycidyl ether
Dimethyl sulfate
Dimethyl sulfide
Dimethyl-p-phenylenediamine
Dioxolane
Epichlorohydrin
Ethanesulfonyl chloride, 2-chloro-
Ethanol, 1,2-dichloro-, acetate
Ethyl thiocyanate
Ethylenediamine
Ethylene fluorohydrin
Ethylene imine
Ethylene oxide
Fluoroacetyl chloride
Formaldehyde
Furan
Hexamethylenediamine, N,N'-dibutyl-
Hydrazine
Hydrogen peroxide
Hydroquinone
Isocyanic acid, 3,4-dichlorphenyl ester
Isopropyl chloroformate
Mesitylene
Methacrolein diacetate
Methacrylic anhydride
Methacryloyl chloride
Methanesulfonyl fluoride
Methyl chloroformate
Methyl disulfide
Methylhydrazine
Methyl isocyanate
Methyl isothiocyanate
Methyl phosphonic dichloride
Methyl thiocyanate
Nitrobenzene
Nitrocyclohexane
Pentadecylamine
Phenol
Phenylhydrazine hydrochloride
Phosgene
Phosphorous trichloride
Phosphorus
Phosphorus oxychloride
Phosphorus pentachloride
Phosphorus pentoxide
Piperidine
Propargyl bromide
Propriolactone, beta-
Propyl chloroformate
Propylene imine
Propylene oxide
Pseudocumene
Selenium oxychloride
Selenous acid
Semicarbazide hydrochloride
Sodium selenate
Sodium selenite
Sodium tellurite
Thiocarbazide
Thiophenol
Thiosemicarbazide
Trichloracetyl chloride

Pesticide Compounds — 147

Designed to kill target organisms in small doses. Harmful to humans in large doses.

Aldicarb
Aldrin
Aluminum phosphide
Aminopterin
Amiton
Amiton oxalate
Antimycin A
Antu
Arsenic pentoxide
Arsenous oxide
Arsenous trichloride
Azinphos-ethyl
Azinphos-methyl
Bitoscanate
Bromadiolone
Calcium arsenate
Camphechlor
Carbofuran
Carbophenothion
Chlordane
Chlorfenvinfos
Chlormephos
Chlormequat chloride
2-exo-Chloro-6-endo-cyano-2-norbornanone O-(methylcarbamoyl)oxime
Chlorophacinone
Chloroxuron
Chlorthiophos
Coumafuryl
Coumaphos
Coumatetralyl
Crimidine
Cyanophos
Cycloheximide
Demeton
Demeton-S-methyl
Dialifos
Dichlorobenzalkonium chloride
Dichlorvos
Dicrotophos
Diepoxybutane
Diethyl chlorophosphate
Diethylcarbamazine citrate
Dimefox
Dimethoate
Dimethyl phosphorochloridothioate
Dimetilan
Dinitrocresol
Dinoseb
Dinoterb
Dioxathion
Diphacinone
Diphosphoramide, octamethyl-
Disulfoton
1,3-Dithiolane-2-carboxaldehyde, 2,4-dimethyl-, O-(methylcarbamoyl)oxime
EPN
Endosulfan
Endothion
Endrin
Ethion
Ethoprophos
Fenamiphos
Fenitrothion
Fensulfothion
Fluenetil
Fluoroacetamide
Fluoroacetic acid
Fonofos
Formetanate
Formothion
Formparanate
Fosthietan
Fuberidazole
Hexachlorocyclopentadiene
Isobenzan
Isodrin
Isopropylmethylpyrazolyl dimethylcarbamate
Leptophos
Lindane
Mephosfolan
Methamidophos
Methidathion
Methiocarb
Methomyl
Methyl bromide
Methyl phenkapton
Metolcarb
Mevinphos
Mexacarbate
Monocrotophos
Nicotine
Nicotine sulfate
Norbormide
Oxamyl
Oxydisulfoton
Paraquat
Paraquat methosulfate
Parathion
Parathion-methyl
Paris green
Pentachlorophenol
Perchloromethylmercaptan
Phenarsazine oxide
Phenol, 2,2'-thiobis(4-chloro-6-methyl)-
Phenol, 2,2'-thiobis(4,6-dichloro)-
Phenol, 3-(1-methylethyl)-, methylcarbamate
Phorate
Phosacetim
Phosfolan
Phosmet
Phosphamidon
Phosphonothioic acid, methyl-, O-(4-nitrophenyl)O-phenyl ester
Phosphonothioic acid, methyl-, O-ethyl O-[4-(methylthio)phenyl] ester
Phosphonothioic acid, methyl-, S-(2-(diisopropylamino)ethyl) O-ethyl ester
Phosphoric acid, dimethyl 4-(methylthio)phenyl ester
Piprotal
Pirimifos-ethyl
Potassium arsenite
Promecarb
Prothoate
Pyriminil
Sodium arsenate
Sodium arsenite
Sodium cacodylate
Sodium fluoroacetate
Sodium pentachlorophenate
Strychnine
Strychnine sulfate
Sulfotep
TEPP
Terbufos
Tetraethyl tin
Thiocyanic acid, (2-benzothiazolylthio)-methyl ester
Thiofanox
Thiometon
Thionazin
Thiourea, (2-chlorophenyl)-
Thiourea, (2-methylphenyl)-
Triamiphos
Triazofos
Trichloronate
Trichlorphon
Trimethyl tin chloride
Triphenyl tin chloride
Warfarin
Warfarin sodium
Zinc phosphide
Zinc, dichloro[4,4-dimethyl-5-[[[(methylamino)carbonyl]oxy]imino] pentanenitrile]-,(T-4)-

Plasticizing Compounds — 26

Some overlap with cyanides. These are small molecules, much more dangerous than finished product, that are chained together to form stable plastics and synthetic rubbers.

Acrylamide
Butadiene
Dibutyl phthalate
Dimethyl phthalate
Dioctyl phthalate
Dimethyldichlorosilane
Dithiobiuret
Isophorone di-isocyanate
Methacryloyloxyethyl isocyanate
Methyl 2-chloroacrylate
Methyl vinyl ketone
Methyltrichlorosilane
Oxetane, 3,3-bis(chloromethyl)
Propylene glycol, allyl ether
Pyridine, 2-methyl-5-vinyl
Silane, (4-aminobutyl)diethoxymethyl-
Toluene, 2,4-di-isocyanate
Toluene, 2,6-di-isocyanate
Trichloro(chloromethyl)silane
Trichloro(dichlorophenyl)silane
Trichloroethylsilane
Trichlorophenylsilane
Triethoxysilane
Trimethylchlorosilane
Vinylnorbornene
Vinyl acetate monomer

Metals and Compounds — 29

Wide variety of uses, from photochemicals to pesticides to gasoline additives. Typically they interfere with human enzymes, inhibiting the metabolism of food and other substances.

Cadmium oxide
Cadmium stearate
Chromic chloride
Cobalt
Cobalt carbonyl
Ethylmercuric phosphate
Gallium trichloride
Iridium tetrachloride
Iron pentacarbonyl
Mercuric acetate
Mercuric chloride
Mercuric oxide
Methoxyethylmercuric acetate
Methylmercuric dicyanamide
Nickel
Nickel carbonyl
Osmium terroxide
Phenylmercury acetate
Platinous chloride
Platinum tetrachloride
Rhodium trichloride
Tellurium
Tetraethyl lead
Tetramethyl lead
Thallic oxide
Thallous carbonate
Thallous chloride
Thallous malonate
Thallous sulfate

Solvents — 6

Widely used in paints and cleaning materials. They cause damage to the liver, nervous system and other systems.

Cyclopentane
Carbon disulfide
Chloroform
Cumene
Isopropanol
Methanol (methyl alcohol)

Chemical Warfare Agents — 7

Often chemically related to pesticides, they are designed to harm humans. Some cause violent respiratory system blistering. Others cause nerve damage. Most have been made for the Defense Department and stored at classified sites.

Ethylbis(2-chloroethyl)amine (nitrogen mustard gas)
Isofluorphate
Lewisite
Mustard gas
Sarin
Tabun
Tetranitrometnane (nitr gas)

Flavors and Fragrances — 3

Used in manufacture and processing. Like medicines, beneficial in small doses, harmful in large doses.

Butyl isovalerate
Carvone (peppermint, caraway)
Orotic acid

Catalysts and Reagents — 12

Used to assist and measure chemical reactions.

Ammonium chloroplatinate
Antimony pentafluoride
Benzenearsonic acid
Boron trichloride
Boron trifluoride
Boron trifluoride compound with methyl ether
Lithium hydride
Phenylacetic acid
Pyridine, 4-amino-
Sodium azide
Titanium tetrachloride
Vanadium pentoxide

Miscellaneous — 19

Chemicals for which no use is known; those used largely in research; those with odd uses.

Cobalt (II), N,N'-ethylenebis(3-fluorosalicylideneiminato)-
Decaborane(14)
Dimethylhydrazine
Hexachloronaphthalene
Isopropyl formate
Manganese, tricarbonyl methylcyclopentadienyl
Nitrosodimethylamine
Organorhodium complex
Pentaborane
Pentachloroethane
Phenyl dichloroarsine
Phenylsilatrane
Pyrene
Pyridine, 4-nitro-, 1-oxide
Salcomine
Sodium anthraquinone-1-sulfonate
Sulfoxide, 3-chloropropyl octyl
Trimethylolpropane phosphite
Xylylene dichloride

E.P.A. Program on Toxic Chemicals Is Criticized

By STUART DIAMOND

The Environmental Protection Agency's program for safer handling of dangerous chemicals came under fire yesterday from some legislators who attacked its voluntary nature and from some companies that said they sold quantities too small for concern.

The program includes the identification of 403 toxic chemicals that could cause injury or death from chemical plant accidents. At least 577 companies handle those chemicals at thousands of locations, according to an analysis of the list by The New York Times. The agency relies on municipalities to find the plants handling the chemicals and on chemical plants to disclose the information and make any changes to reduce excessive risks.

James J. Florio, Democrat of New Jersey, criticized those voluntary aspects. "This program hopes for the good will of the people running the plants and that people in the towns will have enough expertise to understand the chemicals," said Mr. Florio, chairman of the House Energy and Commerce Subcommittee on Commerce, Transportation and Tourism, which oversees the enforcement of various major environmental laws.

Differing Standards Feared

In an interview, he said that even if such programs worked, they would result in different safety standards in different communities. "There will be no uniformity," he said.

E.P.A. officials and chemical industry executives have said that the chemical industry is so large and diverse that it is difficult, if not impossible, to have uniform standards, as there are with nuclear power plants. The Chemical Manufacturers Association, an industry group, has a program to encourage companies to cooperate with local communities in emergency planning.

Some of the companies that handle the most toxic chemicals are small concerns that sell sample quanitities to laboratories and universities. Chemical experts said that the total inventory of the many small individual quantities could be significant in an explosion or fire. But some of the companies said they should not be lumped with the giant concerns that often store millions of pounds of toxic chemicals.

"We are more like a drugstore than a giant chemical plant," said Arthur J. Turco, president of the Crescent Chemical Company in Hauppauge, L.I.