

DOCKET NUMBER
PROD. & MTL. FAC. 50-329,330

UNITED STATES OF AMERICA
ATOMIC ENERGY COMMISSION

In the Matter of
CONSUMERS POWER COMPANY
(Midland Plant)

)
Docket Nos. 50-329
50-330
)

PROTECTIVE ORDER

For good cause appearing, it is hereby ordered that all documents or copies thereof furnished by applicant to counsel for intervenors which both counsel for applicant and counsel for intervenors agree are to be governed by this order, shall be furnished to counsel for the intervenors subject to the following terms.

Unless and until otherwise ordered by the Board,

1. Counsel for intervenors will not disclose, or permit to be disclosed any such document, its content, or any portion thereof, except to persons assisting him in preparing for or the trying of this proceeding or any continuation thereof.

2. Information obtained from any such document will be treated as confidential by counsel for intervenors and any persons assisting him in preparing for or the trying of this proceeding, and shall be used solely in connection with his preparation for or trying of this proceeding or any continuation thereof.

EXHIBIT 4

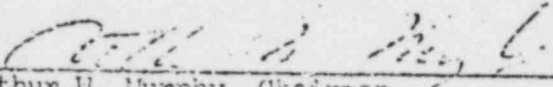
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3. Neither counsel for intervenors nor any persons assisting him will make any copies of any such documents.

4. At the conclusion of this proceeding and all appeals therefrom, counsel for intervenors will return all such documents to applicant or its counsel.

5. Counsel for intervenors shall not make these documents available to any persons assisting him in preparing for this proceeding or the trial or any continuation thereof unless they first undertake in writing to be bound by the provisions of this order.

For the Atomic Safety and Licensing Board



Arthur W. Murphy, Chairman

New York, New York
June 14, 1971

UNITED STATES OF AMERICA
ATOMIC ENERGY COMMISSION

In the Matter of)
CONSUMERS POWER COMPANY) DOCKET NOS. 50-329
Midland Plant, Units 1 and 2) 50-330

LIST OF ANTICIPATED 1975 DOW GASEOUS/LIQUID
EFFLUENTS TO EXTERNAL ENVIRONMENT

This list of liquid and gaseous effluents anticipated to be discharged by Dow at its Midland Plant location into the atmosphere or receiving streams, rivers and tributaries in the year 1975, is furnished to the Saginaw Intervenor for the limited purpose specified in the Hearing Board's June 21, 1971, Order (Tr. 1500-2, 1511-18, 1681-5, 2433-5).

The list is subject to, and may be used only in accordance with, the restrictive provisions of the Hearing Board's June 14, 1971, Protective Order, unless and until otherwise ordered by the Board (Tr. 2124-5). That Order provides as follows:

1. Counsel for intervenors will not disclose, or permit to be disclosed, any such document, its content, or any portion thereof, except to persons assisting him in preparing for or the trying of this proceeding or any continuation thereof.

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It is and has been Dow's contention from the inception of this area of inquiry by the Saginaw Intervenors, that there is no evidence of any synergism with respect to biological systems exposed to any chemical compound in combination with exposure to radioactivity at the applicable levels given in Code of Federal Regulations, Title 10, Part 20. Saginaw has not adduced any such evidence, despite its claim to the contrary. Dow understands that the Hearing Board's request that it furnish a list of its anticipated 1975 effluents is not based upon any determination that such synergism may in fact occur, but solely to permit Saginaw to conduct research to determine if it can produce evidence of possible synergism with respect to the specific identified Dow effluents.

The list includes all effluents discharged in such a manner as to permit the conceptual possibility of physical juxtaposition to radioactivity. It does not include solid waste disposal by land-fill nor deep well disposal, as to neither of which is there any anticipated external environmental concentration.

It reflects maximum anticipated concentrations, based upon the assumptions that the proposed Midland Nuclear Plant will be operational so that Dow may discontinue operation of its fossil fuel fired boilers, and that projects underway, or authorized or clearly needed to meet anticipated legal requirements, will be completed in accordance with schedules.

This list is based upon Dow's current information as of June 29, 1971. Effluents from any chemical plant necessarily change as products and methods change. Dow of course is hopeful and believes that improved technology will permit it to reduce the specified releases in order to minimize environmental impact.

The list furnishes relative concentrations as initially directed. Liquid effluent concentrations are given as released, and are, of course, subject to further dilution by the stream. Atmospheric concentrations at the nuclear site are estimated using extreme atmospheric conditions, Pasquill Type F stability, a specific wind direction toward the site and 1 meter/second windspeed and these concentrations would exist only as long as these extreme conditions prevail. The monthly mean concentrations would be orders of magnitude lower. However, as pointed out at the Hearing, downwind concentrations are exceedingly difficult to calculate because sources are distributed over 1,200 acres of production operations and because discharges are not necessarily at a continuous rate. In addition, instrument analysis for measurement of individual compounds other than at the vent, are for the most part impractical because of their extremely low concentrations. Accordingly, the list reflects averages and estimates, not projections, with a substantial probability of error on the conservative side. Should evidence be introduced by Seginar sufficient to satisfy the Hearing Board that synergistic

might result with respect to any of the effluents listed and the levels of radioactivity which may be released by the Midland Nuclear Plant, then detailed specifications as to quantities, concentrations, water flow and meteorology and other appropriate conditions would be needed in order to make more precise calculations for that specific effluent. Moreover, of course, at that point the Hearing Board's inquiry should be focused on the nature of the total effluent concentration at the relevant point - not Dow's alone. Dow believes that the reason its effluents alone have been demanded by Saginaw, is only because Dow is an Intervenor, which is not a proper consideration for creating an issue.

ANTICIPATED 1975 DOW LIQUID EFFLUENTS
TO RECEIVING STREAMS

	<u>Effluent Concentration mg/liter</u>
Inorganic Salts	
Chlorides (as Chloride ion)	1133
Bromides (as Bromide ion)	1.1
Sulfate (as Sulfate ion)	192
Bicarbonate (as Bicarbonate ion)	321
Sodium (as Sodium ion)	792
Calcium (as Calcium ion)	113
Strontium (as Strontium ion)	2.0
Iron (as Ferric ion)	1.0
Aluminum (total metal, all forms)	1.0
Boron (as Borate ion, B ₂ O ₃)	0.9
Nickel (total metal, all forms)	0.02
Copper (total metal, all forms)	0.02
Zinc (total metal, all forms)	0.2
Other heavy metals	*
Suspended Solids	35
Organic Components**	
Organic Acids (such as acetic, glycolic)	1.4
Aliphatic Ethers (such as polyglycol ether, methylal)	4.0
Phenol	0.04
Aldehydes - Ketones (such methyl ethyl ketone, acetaldehyde)	4.3
Esters (such as methyl acetate, octyl phthalate)	5.5
Polymer (such as methyl cellulose, polyacrylamide)	4.3
Aromatics (such as styrene, ethyl benzene)	1.2
Alkyl Halides (such as methylene chloride)	4.3
Aryl Halides (such as monochlorobenzene)	4.3

* Other heavy metals are in trace quantities and not above the background of the river water used as service water.

** No further current breakdown is available, although with respect to this category, research studies have been conducted to determine components.

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ANTICIPATED 1975 DOW GASEOUS EFFLUENTS
TO EXTERNAL ENVIRONMENT

<u>Compounds</u>	<u>Concentration mg/m³</u>
<u>I. Hydrocarbons</u>	
<u>A. Saturated Aliphatic Hydrocarbons</u>	
Ethane	15.6
Pentane	0.04
Methane	5.7
Iso-Butane	0.2
Heptane	0.1
Butane	0.1
<u>B. Unsaturated Aliphatic Hydrocarbons</u>	
Butene-1	0.5
Butadiene	0.2
Iso-Butylene	0.3
Acetylene	0.07
<u>C. Alkyl Halides</u>	
Methyl Chloride	3.9
Vinyl Chloride	1.0
Methyl Bromide	0.3
Ethylene Dichloride	0.1
Methylene Chloride	2.9
Vinyl Bromide	0.2
Carbon Tetrachloride	0.1
Chloroform	0.1
Vinylidene Chloride	1.1
Propylene Dichloride	0.7
Perchloroethylene	0.08
Organic Bromides	0.03
<u>D. Alcohols</u>	
Methanol	0.3
Ethanol	0.02
<u>E. Ethers</u>	
Dimethyl Ether	0.7
Glycol Ethers	0.06
<u>F. Aldehydes, Ketones, Acetates</u>	
Aldehydes	0.02
Acetone	0.09
Acetates	0.02

This quantity does not include methane vented from brine wells located up to a distance of 20 miles outside the plant boundary.

<u>Compounds</u>	<u>Concentration</u> <u>mg/m³</u>
G. <u>Acrylate</u> Methyl Methacrylate	0.001
II. <u>Amino Hydrocarbons</u> Aniline	0.001
I. <u>Aromatic Hydrocarbons</u> Benzene	1.2
Ethyl Benzene, Diethyl Benzene, Divinyl Benzene, Isopropyl Benzene, t-Butylethyl Benzene, Ethyl Toluene, Styrene & Dimer	0.45
Vinyl Toluene-Toluene	0.2
Xylene	0.4
o-Methyl Styrene	0.1
Napthalene	0.06
	0.004
Chlorinated Benzenes (mono, di, tri, tetra)	0.02
Ethyl Chlorobenzene	0.06
Chlorinated Phenols	0.08
Phenol	0.24
p-Phenyl Phenol	0.14
Diphenyl Oxide, Diphenyl, o-Phenyl Phenol	0.07
Butyl Phenols	0.05
J. <u>Undefined Aliphatic and Aromatic Hydrocarbons</u>	0.5
II. <u>Dust Mists</u>	
A. <u>Inorganic Dust</u> Combustion Particulate	6.3
Calcium Oxide	0.2
Magnesium Sulfate	0.06
Calcium Chloride	0.3
Sodium Chloride	0.7
Bromide Salts	0.02
Diatomaceous Earth	0.004
Sodium Carbonate	0.02
B. <u>Organic Dust</u> Bisph. Sol	0.02
Parabisphehol	0.1
Salicyelic Acid	0.07
C. <u>Polymer Dust</u> Vinylidene Chloride/Vinyl Chloride	0.3
Methylcellulose	0.09
Alkali Cellulose Prep	0.04
Ion Exchange Resin	0.07
Polycrylamide	0.05

CompoundsConcentration
mg/m³D. Agricultural Chemicals

Sodium Dichloropropionate	0.02
Dimethyl Dichloro Pyridinol	0.01
Butyl Chlorophenyl Methyl, Methyl Phosphoramidate	0.001
Dimethyl Trichlorophenyl Phosphorothioate	0.001
Phenoxy Herbicides	0.0004

III. Acid Gases

Sulfur Dioxide	0.8
Hydrochloric Acid	1.1
Chlorosulfonic Acid	0.009
Sulfur Trioxide	0.007
Nitrogen Oxides (NO-NO ₂)	7.9
Acetic Acid and Anhydride	0.07
Chloroacetic Acids (mono, di, tri)	0.008
Carbonyl Chloride	0.005
Chloropicrin	0.004
Sulfur Bromides	0.006
Carbon Dioxide	2400

IV. Miscellaneous Chemicals

Acrylonitrile	0.5
Amines	0.001
Ammonia	0.02
Hydrogen	21.0
Argon	6.3
Freon	0.6
Halogen and Ozone (Cl ₂ , Br ₂ and O ₃)	0.02
Carbon Monoxide	4.6
Ethylene Oxide	0.4
Propylene Oxide	0.2