Pat Heisack
Typed.

(Worked for Don Olson at the time)

PCB LETTER SIGNED BY D. A. OLSON DATED FEBRUARY 18, 1970, ALSO SENT TO THE FOLLOWING CUSTOMERS WITH ATTACHED LETTER ON MAY 12, 1970

Note: This list is attached to the Feb 18, 1970 mailing as a cross reference to the May 12, 1970 mailing.
[illegible]

Mr. Joe Hupp
Head Engineer
ACME ELECTRIC COMPANY
20 Water Street
Cuba, New York 14724

Mr. Walter Garlick, Jr.
President
MAGNATRAN, INC.
248 Schuyler Avenue
Kearny, New Jersey 07032

cc: Mr. Ralph Preston, Design Engineer
Mr. Theodore W. Stauber, Vice President, Purchasing

Mr. Jack Sands
Purchasing Agent
MAGNETIC ENGINEERING AND MANUFACTURING CO.
851 Van Hauten Avenue
Clifton, New Jersey 07013

cc: Mr. A. W. Hamilton, Chief Engineer

Mr. Gunther F. Horn
General Manager
PAUL MORROW COMPANY
Basin Road
New Castle, Delaware 19720

Mr. Robert M. Regney
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R. E. UPTEGRAFF MANUFACTURING CO.
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Scottdale, Pennsylvania 15683

Mr. G. R. Fleming
Purchasing Agent
WAGNER ELECTRIC CORPORATION
6400 Plymouth Avenue
St. Louis, Missouri 63133

Monsanto Company
800 N. Lindbergh Boulevard
St. Louis, Missouri 63166
Phone: (314) 694-1000

February 10, 1970

Dear Sir:

Recently several newspaper and magazine articles have been published indicating that Polychlorinated Biphenyls (PCBs) have been discovered at some points in some marine, aquatic and wildlife environments. The quantities detected are said to be in the parts per million and parts per billion categories.

It is claimed that the PCBs found strongly resemble chlorinated biphenyls containing 54% and 60% chlorine by weight. Products which are sold by Monsanto under the trade names of Aroclor® 1254 and 1260 do contain chlorinated biphenyls. In addition to Aroclor® 1254 and 1260, Monsanto sells certain functional fluids containing Aroclor® 1254. These include Pydraul® 625, Pydraul® AC, Pydraul® AC - Winter Grade, Pydraul® 540, Therminol® FR-3 and certain dielectric formulations. Several other companies around the world also produce products containing chlorinated biphenyls.

As your supplier of Aroclor® 1254 and 1260 and formulated products containing 1254, we wish to alert you to the potential problem of environmental contamination as referred to in the newspaper and magazine articles.

We would like to point out the following additional facts:

1. Products such as Pydraul® 90, 135, 230, 312, A-200, F-9, 150, and 60, Turbinol® 153 and Therminol® FR-1 and FR-2 are not formulated with Aroclor® 1254 or 1260.

2. PCBs with a chlorine content of less than 54% have not been found in the environment and appear to present no potential problem to the environment.

MCL000192

We have developed, and are now testing, new formulations to replace the Aroclor® 1254 and 1260 components in our Pydraul® products. The new products appear to be equal in performance and to have similar physical properties.

We feel that all possible care should be taken in the application, processing and effluent disposal of these products to prevent their becoming environmental contaminants. Of interest to you may be an article in Chemical Week, October 29, 1969, regarding water pollution standards set by each state in the Union. It is attached. This article reflects that good manufacturing practice in the future may require that no product used by any company should find their way into waterways.

We realize that you have marketed or may now market transformers and other electrical equipment containing dielectric fluids which include Aroclor® 1254 and 1260. Although these fluids are sealed into such equipment it is recognized that occasionally the fluid may be lost through leaks resulting from equipment misuse or equipment repair necessitating replacement of the fluid. Since the dielectric fluid contained in this equipment is only an incidental part of the over-all unit manufactured by you, we are not notifying the purchasers of such equipment of the potential environmental contamination problem described in this letter. We do recommend, however, that you notify such equipment users of this problem.

Sincerely yours,

Donald A. Olson
Director of Sales
Functional Fluids Group

lb

Attachment

MCL000193

Environment

The huge water requirements of the chemical industry—now the nation's third largest user—make water quality and availability increasingly important factors for site selectors. Legislation enacted in recent years has forced planners to pay close attention to pollution control standards.

All 50 states have had their water quality standards approved entirely or in part by the Federal Water Pollution Control Administration (FWPCA). Recently a state-by-state summary of key standards was put together for the first time. Surprisingly, it was not the FWPCA that did the job. Instead it was handled by an American Public Health Assn. (APHA) subcommittee headed by TVA Health Director F. E. Garrell, assisted by the APHA Engineering and Sanitation Section. A portion of the study, covering standards for surface industrial water, is summarized in the tables starting on p. 80.

Contrary to widely held opinions, there is considerable variation in state standards. Take the dissolved oxygen (DO) standard, for example. Minimum allowable DO (as milligrams per liter or percent saturation) is the single most important standard to chemical site evaluators. As a rough rule of thumb, a 2-mg./l. standard is considered to be one industry can live with comfortably, while a 6.0 mg./l. value is pegged "extremely tough."

California, Wyoming and Washington have set the standard at 6 mg./l. or higher. But a few states such as Connecticut, Maine, Illinois, Indiana, Massachusetts, Virginia and Wisconsin require 2 mg./l. or lower.

Other standards—notably turbidity, taste, odor, color and solids—may also be important, depending upon the nature of the chemical plant's waste effluents. These standards also exhibit state-by-state differences. Moreover, they are generally less specific than the straight numerical DO standards.

Although chemical plant site experts see little point in "running from tough standards," the criteria do make a difference: Plans for two nonferrous metals plants in Puerto Rico are now on the shelf, because of standards that call for a 4.5 mg./l. DO, no wastes that interfere with the esthetics of the waters and other specifications.

No compilation of ground water standards has yet been published. Ground water standards may prove important in the future as companies are forced to use costly deep-well disposal for wastes. Availability of ocean waste disposal services is also looming more important.

Waste Cost: The price tag for pollution control is high. A recent FWPCA study on the organic chemicals industry estimated that water waste-treatment facilities can increase installed capital equipment costs 40% or more. Between '69-'73, the organic chemical industry would have to shell out $182.5 million to remove 10% of its biological and chemical oxygen demand waste and 65% of its suspended solids. Removal levels of 85%, 13% and 71%, respectively, for biologic oxygen demand, chemical oxygen demand and suspended solids would require $242.6 million, while 98%, 30% and 89%, respectively, would up the ante to $603 million.

Cleaner Air: Establishment of air quality standards is not nearly as far advanced as are water standards. The National Air Pollution Control Administration (NAPCA) is still designating regional air control regions. At last count, 16 regions had been formally designated and another 41 had been proposed. NAPCA has issued air quality criteria and control technology data for sulfur oxides and particulate matter, will follow with similar studies for other pollutants.

Once criteria and control data have been issued for a pollutant and control regions have been designated, a complicated process involving standards, hearings and implementation and enforcement plans will be initiated that can take over a year to produce standards.

So far, no firm sulfur oxide or particulate standards have emerged. But NAPCA's criteria for setting the standards suggest they'll be tough. The oxide criteria report, for example, emphasizes that there are deleterious effects to man at concentrations as low as 0.04 ppm.

NAPCA's control data reports present detailed appraisals of various methods and equipment, along with estimated costs. As in the case of water, the costs will be high, although some pollutants—mainly sulfur dioxide—will have recovery values. NAPCA is sponsoring a number of research projects to improve technology. Pollution control is being spurred by financial assistance programs (mandated by state law) now operative in the following 28 states:

Arizona, Arkansas, California, Connecticut, Florida, Georgia, Idaho, Illinois, Indiana, Maine, Massachusetts, Michigan, Missouri, New Hampshire, New Jersey, New York, North Carolina, Ohio, Oklahoma, Oregon, Rhode Island, South Carolina, Tennessee, Vermont, Virginia, Washington, Wisconsin and West Virginia.

In addition, Pennsylvania offers financial aid sanctioned by administrative regulation. Several states, including Utah and Maryland have legislative studies under way.

The incentives take a variety of forms. Most common are exemption from personal property taxes (e.g., Arkansas), fast depreciation (Arizona), exemption from ad valorem equipment and structures taxes (Connecticut), exemption from local taxes for stated period of time (New Hampshire), operating loss deductions (New York); credit against state income tax (Oregon).

Quantity: The large chemical complexes now in vogue make water—and lots of it—a major site criterion. The cooler the water is, the better, for it can reduce the investment in heat-exchange equipment. Occasionally, plants can manage on ground water, but usually surface water is required. That means location on or near the big, drought-resistant rivers. There are less than 200 rivers in the U. S. with minimum flows over 50 cu. ft. per second *(CW Oct. 5, '68, pp. 94-95)*. For companies whose plant needs at least 100 cu. ft/second, the list numbers only 150 (excluding Alaska). Sea water is generally avoided because of high equipment corrosion costs.

Piping water in is expensive. Duval, now opening a 1.5 million tons/year sulfur mine in the arid Northwest area, was forced to install a 36-in., 38-mile-long water line and a 40-million-gal. reservoir. Cost of the water supply system hasn't been disclosed, but it is estimated that the tab was at least several million dollars.

The adequacy of domestic water resources in the year 2000 has recently been evaluated by the Geological Survey. Nationally, projected demand will be 173% of potentially assured supply. Only in three regions, New England, Ohio, and the South Atlantic Eastern Gulf, will future water requirements be easily met. Economic growth may be handicapped in nine regions: Eastern Great Lakes, Lower Mississippi, Upper Missouri-Hudson Bay, Lower Missouri, Western Gulf—Rio Grande, Pecos, Colorado, Great Basin, and Central and South Pacific.

MCL000194

For the first time, a summary of water quality standards set by all 50 states.

	pH Allowable		Temperature (°F) allowable		Dissolved oxygen	Other Requirements
	Range	Deviation	Maximum	Increase above ambient	(minimum, mg/l. or %)	
Alabama	6.0–8.5	1.0	90° (24 hrs.) 93° (any 8 hrs.) 93° (cooling water)	10% — 10°	2.0 at 5 ft. or middepth if less than 10 ft.	Radioactivity, Color, Taste and Odor, Toxic Substances: Only in amounts that would not render waters unsuitable for industrial cooling and processwater supply purposes. Solids: Free from waste material that cause unsightly or putrescent conditions or interfere directly or indirectly with industrial use.
Alaska	7.0–8.0	0.5	70°	—	5.0	Radioactivity: Not to exceed limits of PHS Drinking Water Standards. Turbidity: No imposed values that would interfere with established levels of treatment. Color: True color less than 50 color units. Taste and Odor: Shall not unreasonably impair esthetic considerations. Solids: No dissolved solids above natural conditions causing corrosion or scaling problems. No visible evidence of other floating solids or sludge deposits. No imposed sediment loads that would interfere with established treatment levels.* Toxic Substances: Chemical constituents should be below concentrations found to be of public health significance.*
Arizona	6.5–8.6	0.5	93°	—	—	Radioactivity: Not to exceed 1/30 of the MPCw value given for continuous occupational exposure in NBS Handbook 69. Turbidity: 50 JCU (streams); 25 JCU (lakes). Color: Free from waste materials in amounts sufficient to change existing color enough to interfere with industrial use or to create a nuisance. Taste and Odor: Free from wastes in amounts sufficient to produce enough taste and odor to create a nuisance or interfere with industrial use. Solids: Free from wastes that would be unsightly, putrescent, odorous or in amounts that would interfere with industrial use. Toxic Substances: Free from wastes toxic to human, animal, plant or aquatic life or in amounts that would interfere with industrial use.
Arkansas	6.0–9.0	1.0 (24 hrs.)	95°	5°	4.0 (average for any cross section)	Radioactivity: "Rules and Regulations for the Control of Ionizing Radiation," Arkansas Board of Health, apply. Turbidity: No distinctly visible increases due to wastes. Color: Shall not be increased to the extent that it interferes with industrial use, present or future. Taste and Odor: Must not cause offensive odors or otherwise interfere with industrial use. Solids: No distinctly visible persistent solids, bottom deposits or sludge banks due to wastes. Toxic Substances: Must not be present in amounts toxic to human, animal, plant or aquatic life.
California	6.5–8.6 7.0–8.6 (Coastal waters)	—	71.6°* (fresh water)	None that would cause ecological change or harm aquatic life (coastal waters)*	6.0 Coastal water: 5.0 (unless naturally lower)	Radioactivity: Shall not exceed 1/10 of the MPCw values given for continuous occupational exposure in NBS Handbook 69. Turbidity: Free from wastes that could alter water's existing turbidity. Color: Free from substances attributable to wastes that produce detrimental color. Taste and Odor: No substances that impart foreign taste or odor. Solids: Dissolved solids in fresh water must not exceed 500 mg./l. at any time; annual mean: 175 mg./l. Settleable solids must not be able to change nature of stream bottom or harm aquatic environment. Toxic Substances: At all times free from concentrations harmful to humans, aquatic life or wild or domestic animals.
Colorado	5.0–9.0	—	93°	—	3.0	Radioactivity: Not to exceed 1/30 of the 168 hr./week values in NBS Handbook 69. Turbidity: Must not interfere with established levels of treatment. Color: Wastes present must not cause appreciable change in color or interfere with industrial use. Taste and Odor: Free from wastes that cause odor or appreciable change in taste. Solids: Free from wastes that are unsightly, putrescent or odorous or would interfere with use. Toxic Substances: Free from wastes in concentrations or combinations sufficient to harm human or animal life.
Connecticut	6.0–9.0	—	—	None unless it does not exceed recommended limits for industrial use	2.0	Radioactivity: Limits to be approved by appropriate state agency. Turbidity, Color, Taste and Odor: None in such quantities that would impair industrial use. Solids: Limited to small amounts that may result from discharge of appropriately treated wastes. Toxic Substances: Free from chemical constituents in concentrations or combinations harmful to human, animal or aquatic life.
Delaware	6.5–8.5	—	—	5°	60%* or 4.0	Radioactivity: Alpha emitters limited to 3 pc/l.; beta emitters to 1,000 pc/l. Color, Taste and Odor: None in concentrations that cause color, taste or odor. Solids: Free from unsightly and malodorous nuisances due to floating solids or sludge deposits. Toxic Substances: None in concentrations harmful (synergistically or otherwise) to humans, fish, shellfish, wildlife or aquatic life.
Florida	6.0–8.5	1.0	—	—	4.0	Radiation: Gross beta—1,000 pc/l. (in absence of Sr-90 and alpha emitters). Turbidity: 50 JCU. Color: Must not render water unfit for industrial-cooling or process-water supply purposes. Taste: Must not render water unfit for industrial use; phenols 0.001 maximum. Solids: Dissolved solids must not exceed 1,000 mg./l.; monthly average: 500 mg./l. Must be free from floating wastes that are unsightly or deleterious or other wastes that settle to form putrescent or objectionable sludge deposits. Toxic Substances: Free from wastes harmful to human, animal or aquatic life. Cu, 0.5 mg./l.; Zn, 1.0; Cr, 0.05; Pb, 0.05; Fe, 0.3; As, 0.05; F, 10.0; Cn, none detectable.

MCL000195

	pH Allowable Range	Deviation	Temperature (°F) allowable Maximum	Increase above ambient	Dissolved oxygen (minimum mg./l. or %)	Other Requirements
Georgia	6.0-8.0	—	93.2°	10° (above intake)	2.5 3.0 (daily average)	Radioactivity: Must conform to state statutes. Turbidity, Color, Taste and Odor: Free from wastes that cause objectionable conditions or interfere with industrial use. Solids: Free from wastes that are unsightly, putrescent or otherwise objectionable or would interfere with industrial use. Toxic Substances: No wastes in concentrations that would prevent fish survival or interfere with industrial use.
Hawaii	6.5-8.5	—	—	—	4.6	Radioactivity: Not to exceed 1/30 of the values given by NBS Handbook 69. Turbidity: Free from soil particles from erosion caused by land development or agricultural use. Taste and Odor: Wastes, after dilution and mixture, must not interfere with industrial use. Toxic Substances: Free from substances in concentrations harmful to human, animal, or marine life or that make waters unsuitable for industrial use.
Idaho	6.5-9.0	0.5	—	2° Only if water 68° or less	75% (at seasonal low)	Radioactivity: Not to exceed limits of '62 PHS Drinking Water Standards. Turbidity: No objectionable turbidity that can be traced to a point source. Solids: No floating or submerged matter; no sludge deposits that could adversely affect industrial use. Toxic Substances: No wastes of other than natural origin in concentrations of public health significance or that could adversely affect industrial use.
Illinois	6.0-9.0	—	95°	—	2.0 3.0 (for 16 hrs. in any 24-hr. period)	Color, Taste and Odor: Free from wastes that produce color, odor or taste in such a degree as to create a nuisance. Solids: Free from floating wastes that settle and form unsightly, deleterious or putrescent deposits. Toxic Substances: Free from wastes in concentrations or combinations harmful to human, animal, plant or aquatic life.
Indiana	6.0-9.0	—	95°	—	1.0 2.0 (daily average)	Color, Taste and Odor: Free from wastes that produce color, taste or odor in such a degree as to create a nuisance. Solids: Dissolved solids must not exceed 1,000 mg./l.; monthly average, 750 mg./l. Must be free from unsightly, putrescent, deleterious or otherwise objectionable wastes. Toxic Substances: Free from wastes in concentrations or combinations harmful to human, animal, plant or aquatic life.
Iowa	—	—	—	—	—	Color, Taste and Odor: Free from wastes that produce color, taste or odor in such a degree as to be detrimental to industrial use. Solids: Free from floating wastes in amounts that would be unsightly or cesspicuous or other wastes that settle to form putrescent or objectionable sludge deposits. Toxic Substances: No wastes in concentrations or combinations detrimental to human, animal or aquatic life or to industrial use.
Kansas	6.5-9.0	—	90°*	—	4.0*	Turbidity: No increase that causes substantial visible contrast with natural appearance or that is detrimental to industrial use. Color: Discharges of color-producing substances limited to concentrations not detrimental to industrial use. Taste and Odor: Concentrations limited to those that would not result in objectionable offensive odors or otherwise interfere with industrial use. Solids: Free from floating debris or material in amounts that would be unsightly or detrimental to industrial use. Toxic Substances: Poisonous substances must be maintained below concentrations detrimental for industrial use.
Kentucky	6.0-9.0	—	95° 75° (Dec.-Feb.)	2°/hr 10°/day	—	Color, Taste and Odor: Wastes must not create a nuisance. Solids: Dissolved solids must not exceed 1,000 mg./l.; monthly average: 750 mg./l. No floating wastes in unsightly or deleterious amounts; no other wastes that settle to form putrescent or objectionable sludges. Toxic Substances: No wastes in concentrations or combinations harmful to human, animal, plant or aquatic life.
Louisiana	6.0-9.0	—	96.8°	5.4°	50%	Radioactivity: Specific limits set for all radioactive isotopes released as wastes. Solids: None that would produce floating masses, sludge beds or bars on stream, either organic or inorganic. Toxic Substances: No wastes in concentrations or combinations harmful to animal or plant life.
Maine	6.0-9.0*	0.5*	90°*	—	2.0*	Radioactivity: Not to exceed '62 PHS Drinking Water Standards. Turbidity, Color, Taste and Odor: Free from wastes that impart turbidity, color, taste or odor or have industrial use. Solids: Free from sludge deposits, solid wastes and floating solids. Toxic Substances: No chemical contaminants from waste sources harmful to humans or that adversely affect industrial use.
Maryland	6.0-9.0 (unless natural)	—	100°	—	4.0 (unless naturally lower)	Color, Taste and Odor: Free from waste materials that change existing color or produce taste and odor to such a degree as to create a nuisance or interfere with industrial use. Solids: Free from wastes that float, settle to form deposits, create a nuisance or interfere with industrial use and are unsightly, putrescent or odorous. Toxic Substances: Free from toxic wastes that interfere with industrial use or that are harmful to human, plant, animal or aquatic life.
Massachusetts	6.0-9.0	—	90°	—	2.0	Radioactivity: None in concentrations harmful to human, animal or aquatic life. Turbidity, Color, Taste and Odor: None in concentrations that would impair industrial use. Solids: None allowed except that which may result from the discharge from waste-treatment facilities providing appropriate treatment. Toxic Substances: None in concentrations or combinations harmful to human, animal or aquatic life.

MCL000196

Water quality standards

	pH Allowable Range	pH Allowable Deviation	Temperature (°F) allowable Maximum	Temperature (°F) allowable Increase above ambient	Dissolved oxygen (minimum mg/l. or %)	Other Requirements
Michigan	6.5–8.8	0.5	—	10°	Enough to prevent nuisance	Radioactivity: Standards to be established when information is available on deleterious effects. Turbidity, Color: No objectionable unnatural turbidity or color in quantities sufficient to interfere with industrial use. Taste and Odor: Below levels that are or may become injurious to industrial use. Solids: Dissolved solids must not exceed 750 mg./l.; monthly average: 500 mg./l. No floating solids or objectionable deposits in quantities that would interfere with industrial use. Toxic Substances: Limited to concentrations less than those that are or may become injurious to this use.
Minnesota	6.0–9.0	—	86°	—	—	Color, Taste and Odor, Solids: Free from wastes that cause nuisance conditions, such as material discoloration, obnoxious odors, significant floating solids, excessive suspended solids or sludge deposits.
Mississippi	6.0–8.5	1.0	93°	10°	3.0	Color, Taste and Odor: Free from wastes that produce color or odor in such degree as to create a nuisance. Solids: Dissolved solids must not exceed 1,500 mg./l.; monthly average 750 mg./l. Must be free from floating wastes that settle to form unsightly, deleterious, objectionable or putrescent deposits. Toxic Substances: No wastes in concentrations or combinations harmful to human, animal or aquatic life.
Missouri	6.8–9.0	—	90°	5° (average of cross section)	4.0*	Radioactivity: Gross beta: 1,000 pc/l. (in absence of Sr-90 and alpha emitters). Sr-90: 10 pc/l. Dissolved Ra-226: 3 pc/l. Color: Wastes must not cause substantial visible contrast with natural appearance of stream or interfere with industrial use. Taste and Odor: Limited to concentrations that would not result in noticeable offensive odors or otherwise interfere with industrial use. Solids: No noticeable organic or inorganic deposits or floating materials in unsightly or deleterious amounts. Toxic Substances: Concentrations not detrimental to industrial use or toxic to humans, fish, wildlife, etc.
Montana	6.6–9.5	0.5	—	No adverse change	—	Radioactivity: Not to exceed '62 PHS Drinking Water Standards. Turbidity: Must not interfere with established levels of treatment. Color, Taste and Odor: Water shall be maintained in condition not offensive to sense of sight or smell. Solids: No floating solids and sludge deposits in amounts deleterious to industrial use; no settleable solids that affect aquatic life. Toxic Substances: Amounts present must not adversely affect industrial use.
Nebraska	6.5–9.0	1.0	90°	5° (May-Oct.) 10° (Nov.-Apr.) Rate: 2°/hr.	5.0	Radioactivity: Must conform with Radiological Health Regulations (1st ed.), State of Nebraska, '66. Turbidity: No more than 10% increase above normal level. Color: No evidence of matter that creates nuisance conditions. Taste and Odor: Less than amounts that would degrade water quality for industrial use; phenols 0.001 mg./l. Solids: Dissolved solids must not exceed 1,500 mg./l. No more than 25% increase (limit 150 mg./l.) from any point source. No waste solids that prevent oxygen solution or are deleterious to industrial use. Toxic Substances: None in concentrations or combinations that would render water unsuitable for industrial use.
Nevada	6.5–8.5 Annual median 7.4–8.3	—	77.0° (summer) 57.2° (winter)	—	5.0 6.0 (average, June-Sept.)	Radioactivity: Limited to 1/10 of the 168-hr-week values in NBS Handbook 69. Turbidity, Color, Taste and Odor: Free from wastes in amounts sufficient to change existing turbidity or color enough to create a nuisance or interfere with industrial use, or to produce taste or odor in the water sufficient also from floating or other wastes that settle to form sludge banks or deposits in amounts that would be unsightly or odorous or interfere with industrial use. Toxic Substances: Free from wastes in concentrations or combinations toxic to human, animal, plant or aquatic life or that interfere with industrial use.
New Hampshire	6.5–8.5 (unless natural)	—	90°*	No increase that would interfere with this use*	5.0	Turbidity, Color, Taste and Odor: None in objectionable amounts. Solids: No floating scum or sludge deposits in objectionable amounts. Toxic Substances: None in toxic concentrations or combinations.
New Jersey	6.5–8.5 (unless natural)	—	87° (unless natural)	4° (up to 87°)	4.0*	Turbidity, Solids: None noticeable in water or deposited along shore. Color, Taste and Odor: None that are offensive to humans or detrimental to aquatic biota. Toxic Substances: None that would affect humans or be detrimental to aquatic biota.
New Mexico	6.6–8.6	—	—	Must not pollute or make water unfit for this use	No oxygen demand that would cause pollution	Radioactivity: Not greater than 1/10 of the 48-hr. value in NBS Handbook 69. Turbidity: Shall not cause substantial visible contrast with natural appearance. Color: Should not create an esthetically undesirable condition. Taste and Odor: No odors other than of natural origin, that are esthetically objectionable or obnoxious. Solids: No objectionable heat of solids or oxygen and sediment that significantly alter properties of bottom area. Toxic Substances: No amounts toxic to humans, plants, fish, poisonous
New York	6.0–7.5	—	85°	5° (average 7 days) Rate: 2°/hr. 6°/24 hrs.	3.0	Color: No colored wastes that alone or in combination make water unsuitable for industrial use. Solids: No floating or settleable solids or sludge deposits that are readily visible and objectionable to water. Toxic Substances: None alone or in combinations that would impair industrial use.

MCL000197

Water quality standards

	pH Allowable Range	pH Allowable Deviation	Temperature (°F) allowable Maximum	Temperature (°F) allowable increase above ambient	Dissolved oxygen (minimum) mg./l. or %	Other Requirements
North Carolina	Normal for area, usually 6.0–8.5; as low as 4.3 in swamps	—	95°*	7°	3.0	Colors: Must not render water unfit for industrial cooling. Turbidity: Must not, after dilution and mixture, make water unfit for industrial cooling. Toxic Substances: Must not make water unfit for industrial cooling.
North Dakota	6.0–9.0	0.5	93°	10°	3.0 5.0 (for 16 hrs./day)	Radioactivity: No discharge allowed unless materials are readily soluble or dispersible and of quantities acceptable to state health department. Color, Taste and Odor: No wastes that color water or result in objectionable odors to a degree that impairs industrial use. Solids: No unsightly floating wastes that would adversely affect industrial use or wastes that settle to form putrescent or objectionable deposits. Toxic Substances: No concentrations or combinations harmful to human, animal or aquatic life.
Ohio	6.0–9.0	—	95°	—	1.0 2.0 (daily average)	Color, Taste and Odor: Free from wastes that produce color or odor to a degree that creates a nuisance. Solids: Dissolved solids must not exceed 1,000 mg./l. monthly average; 2,0 mg./l. Must be free from floating or other wastes that settle to form putrescent or objectionable deposits or that are unsightly or deleterious. Toxic Substances: No wastes in concentrations or combinations harmful to human, animal or aquatic life.
Oklahoma	6.5–8.5	—	93°	5°	4.0	Radioactivity: Average concentration at points of controlled release shall not exceed State Board of Health Radiation Protection Regulations. Turbidity: None that causes visible contrast with natural conditions. Color: None that is persistent in concentrations detrimental to industrial use. Taste and Odor: In concentrations that would cause offensive odors in finished water or otherwise interfere with industrial use. Solids: Free from floating debris, bottom deposits or other materials. Toxic Substances: None in quantities that make water toxic to human, animal, plant or aquatic life.
Oregon	6.5–9.0	—	—	2° (only if water 70° or less)	5.0	Radiation: Shall not pose external hazard. Turbidity: 5 JCU above natural. Color, Taste and Odor: No objectionable color, odor or conditions esthetically offensive to human senses of taste or smell. Solids: No floating solids, organic or inorganic deposits injurious to industry. Toxic Substances: No concentrations injurious to public health.
Pennsylvania	6.0–9.0	—	93°	2°/hr.	4.0 5.0 (daily average)	Color, Taste and Odor: No wastes that produce color, taste or odors in amounts harmful to industrial use. Solids: Dissolved solids must not exceed 750 mg./l. monthly average 500 mg./l. No floating wastes or substances that settle to form sludge in amounts harmful to industrial use. Toxic Substances: No... in amounts harmful to industrial use.
Rhode Island	6.0–8.5	—	—	4°	3.0* 5.0* (16 hrs./day)	Radioactivity, Toxic Substances: No concentrations or conditions harmful to human, animal or aquatic life. Turbidity, Color and Odor: None in concentrations that would impair industrial use. Solids: No solid matter, floating solids or sludge deposits.
South Carolina	6.0–8.5 5.0–8.5 (swamps)	—	93.2°*	10°*	3.0* 2.5* (swamps)	Turbidity, Color, Taste and Odor: Free from wastes that increase the existing turbidity or color or that produce taste or odor to such a degree as to cause a nuisance or interfere with industrial use. Solids: None from waste sources in amounts that are unsightly, putrescent, odorous or that cause a nuisance or interfere with industrial use. Toxic Substances: Free from wastes harmful to human, animal, plant or aquatic life or that interfere directly or indirectly with industrial use.
South Dakota	6.0–9.5	1.0	—	—	—	Radioactivity: None permitted in water unless readily soluble or dispersible and in quantities allowed by federal or state agencies. Color, Taste and Odor: No wastes that produce material discoloration or undesirable odors. Solids: Dissolved solids must not exceed 2,000 mg./l. No wastes producing floating solids, sludge deposits or other objectionable effects. Toxic Substances: None in concentrations toxic to human, animal or aquatic life.
Tennessee	6.0–9.0	1.0 (24 hrs.)	93°	10° Rate: 2°/hr.	Enough to prevent offensive conditions	Radioactivity: None that could adversely affect industrial use. Turbidity, Color: None in amounts or concentrations that could not be reduced to acceptable levels by conventional treatment. Taste and Odor: None that would result in taste or odor that would prevent use for industrial processing. Solids: Dissolved solids must not exceed 500 mg./l. No materials that form bottom deposits or sludge banks that could be detrimental to industrial use. Toxic Substances: No toxic substances in conditions that would adversely affect water for industrial use.
Texas	6.0–9.0 6.0–9.0 (receiving water)	—	—	—	4.0	Radioactivity: Regulated by Texas Radiation Control Act and Texas Regulations for Control of Radiation. Turbidity: No substantial increase due to wastes. Color: No substantial visible contrast with natural appearance of receiving waters. Industrial wastes receive best practical treatment. Taste and Odor: No concentrations that produce objective odors. Solids: Dissolved solids must not exceed 1,000 mg./l., unless use is satisfactory for cooling. Must be reasonably free from floating or settleable suspended solids that would adversely affect industrial use. Toxic Substances: Shall not show acute or chronic toxicity to human, animal or aquatic life in amounts found to interfere with industrial use.

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Water quality standards

	pH Allowable Range	Deviation	Temperature (°F) allowable Maximum	Increase above ambient	Dissolved oxygen (minimum mg/l. or %)	Other Requirements
Utah	6.5-9.0	—	—	—	—	Radioactivity: Shall not exceed 1/30 of RMC values for c... Viscus effect; algicidal controls in 1962 Handbook 69. Turbidity, Color: No wastes in amounts that would change existing turbidity or color concern to create public nuisance or interfere with industrial use. Taste and Odor: No wastes in amounts that would produce taste or odor. Solids: No floating wastes that are unsightly or that interfere with industrial use; no wastes that are settle to form unsightly or odorous sludge or bottom deposits. Toxic Substances: No wastes in concentrations or combinations toxic to human, animal, plant or aquatic life or that would interfere with industrial use.
Vermont	6.0-8.5	—	—	4°	3.0* 5.0* (16 hrs./day)	Radioactivity: To be approved by appropriate state agency. Turbidity, Color, Taste and Odor: None in concentrations that would impair industrial use. Solids: No floating solids, sludge deposits or scum values. Toxic Substances: No chemical constituents in concentrations or combinations harmful to human, animal or aquatic life.
Virginia	5.0-9.0 (Average not lower than 4.5)	—	95°* (unless naturally higher)	No sudden changes that could harm aquatic life	1.0* 2.0* (daily average)	Color, Taste and Odor: No wastes that change existing color or produce odor to such a degree as to create a nuisance or interfere with industrial use. Solids: No floating wastes of an unsightly or create a nuisance or other wastes that would form unsightly, putrescent or odorous deposits. Toxic Substances: No wastes in concentrations or combinations that would interfere directly or indirectly with industrial use.
Washington	6.5-8.5	0.5	70°	t = 110/(T+10)†	6.5 or 70%	Radioactivity, Toxic Substances: Below concentrations that would adversely affect industrial use. Turbidity: Less than 10 JCU over natural conditions. Color, Taste and Odor, Solids: Dissolved, suspended, floating or submerged matter shall not impair esthetic values so as to affect industrial use.
West Virginia	Process water 5.5-9.0 Cooling water 5.0-9.0	—	Cooling water: 93° (May-Nov.) 75° (Dec.-Apr.) Process water must permit fish passage	5° Total, 2° Sr. (Dec.-Apr.)	1.0 2.0 (daily average)	Color: None that is objectionable. Taste and Odor: No objectionable odors in vicinity of the water. Solids: No distinctly visible floating, settleable or suspended solids of unsightly kind or quantity. No objectionable bottom deposits or aquatic growths. Toxic Substances: No concentrations of materials poisonous to human, animal or fish life.
Wisconsin	6.0-9.0	0.5	80°	—	1.0 2.0 (daily average)	Color, Taste and Odor: No materials producing color, taste or odor in amounts that would create a nuisance. Solids: Dissolved solids must not exceed 1.0 mg/l. daily average 500 mg/l. No floating or submerged oil, grease or waste solids that would cause objectionable deposits in amounts that create a nuisance. Toxic Substances: None in concentrations or combinations toxic to humans or of public health significance.
Wyoming	6.5-8.5	—	—	4° 2° (for streams where temp. not over 70°)	6.0	Radioactivity: Not to exceed 1/30 of NBS Handbook 69 values. Turbidity: No more than 25 JCU above natural (when turbidity is 150 JCU or less); no more than 10% above natural (when turbidity is over 150 JCU). Color: Essentially free of wastes that would alter natural color of water or impart color to vessels or structures. Taste and Odor: Essentially free from substances that would produce objectionable odor at site of use. Solids: Essentially free from floating or settleable solids that are unsightly or settle to form sludge, bank or bottom deposits. Toxic Substances: Free from toxic substances in concentrations or combinations toxic to human, animal or aquatic life.

*Standard requirement from Federal Water Pollution Control Administration approval.
† = the temperature that will not be exceeded from industrial waste sources, at any point throughout the given stream reach. T = highest ambient temperature for a given area, for a specific stream reach.
Abbreviations used: Public Health Service (PHS)—National Standard of Standards; JCU—Jackson Candle Units; pc/l.—picocuries per liter. Sources: ... Environmental Sciences of the United States, Territories, and the District of Columbia, American Public Health Assn., Southeastern Water Pollution Control Association, Environmental Protection Agency, ...
... Solids: Floating materials, oil, grease, scum, bottom deposits, pesticides, specific substances, color, turbidity, radioactivity, etc. Not known. See the state water standards for each stream reach or river basin in ...

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MCL000199

Monsanto

FROM (NAME & LOCATION): P. W. Gann - B2SF

DATE: May 9, 1973 CC:

SUBJECT: PCB Warning Letters, Dielectric

REFERENCE:

TO : Memo to File

On May 8, 1973, I reviewed the dielectric warning letters and the corresponding address list with Paul Benignus. The purpose was to verify the address list for these letters.

Tab No. 2, Feb. 18, 1970, Olson letter:

This letter went to all of our transformer Askarel customers. Apparently the letter went to both transformer and capacitor customers. The list included in the file appears complete, per Paul Benignus.

Tab No. 7, May 11, 1970, Olson Letter:

Benignus agrees with the list for this letter.

Tab No. 8, May 12, 1970, Olson Letter:

Benignus agrees with this list for this letter.

Tab 19, Sept. 28 - Oct. 12, 1970, Graham Letter:

Benignus believes Randy's list looks fairly complete for Randy's area of responsibility. Benignus however, does not know if other salesmen sent out similiar letters. Benignus suggests I check this question with Don Olson.

Tab No. 22, Dec. 15, 1970, Graham Letter:

Benignus believes that this letter was the result of Don Pogue's attempt to gain information on estimated amount of Askarel for incineration. Benignus suggests I check with Pogue on that possible mailing list.

Tab 34, Dec. 20, 1971, Bergen #1 Letter:

This letter was sent to the transformer and capacitor customers. A letter was written to companies were we had a personal name to contact.

Tab No. 35, Dec. 20, 1971, Bergen #2 Letter:

This letter was sent to transformer and capacitor customers were we did not have a name to write to. Many of these letters went to the Office of the President. The combined list of 34 and 35 appears to be complete for these customers according to Benignus

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Tab No. 24, Feb. 18, 1971, Benignus Letter:

This went to all capacitor people only. Benignus is confident that this letter went to the people on his "1970 list of customers" which list he pulled out of his file cabinet on May 8, 1973. This list should be the same list as used for letter Tab No. 14, dated Aug. 6, 1970.

Tab No. 39, Feb. 4, 1972, Bergen Letter:

Benignus agrees the mailing list is correct.

Tab No. 40, Feb. 7, 1972, Gossage Letter:

Benignus agrees with the mailing list.

Tab No. 41, Feb. 28, 1972, Gossage Letter:

Benignus agrees with this list. These are people who bought transformer fluid of any quantity over a period of the few years preceeding 1972.

Note: Benignus commented that many of these letters were months in their making. He stated that it seemed to take forever to get a letter written and approved for mailing since each letter and each word was reviewed very carefully.

F. W. Gann

/mc