Monsanto

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

February 19, 1970

Mr. W. C. McCall, President
Great Western Chemical Company
3720 N. W. Yeon Avenue
Portland, Oregon 97210

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 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 contain chlorinated biphenyls.

Monsanto has decided to notify all its customers of Aroclor ® products of the publicity surrounding PCBs. A copy of the letter which will be sent to our customers is attached. This letter is intended to alert our customers to a potential problem of environmental contamination through the application, processing and effluent disposal of Aroclor ® 1254 and 1260.

We feel it is very desirable that you, as a reseller of Monsanto's Aroclor ® plasticizers, alert your customers to this potential problem. This should be done promptly and, ideally, all customers should be notified at the same time. A record should be kept of all customers notified, along with the dates on which the letters were transmitted.

MONS 089789

EXHIBIT
WBP M-43

LEXOLDMON000177
WATER_PCB-00035644

bcc: A. W. Kempelmann - Seattle
R. V. Johnson
J. D. Wright
W. F. Waychoff/W. E. Schalk
W. B. Papageorge
P. C. Park
R. E. Lamkin - Los Angeles
J. G. Hicks - Santa Clara

You will note that attached to the notification letter is a copy of a reprint of an article that appeared in Chemical Week, October 29, 1969, regarding water pollution standards set by each state in the Union. This article helps to put our letter in proper context. As mentioned in the article, good manufacturing practice in the future may require that no products used by any company be lost or discharged in such a manner as to ultimately be found in waterways.

For your guidance, we intend to mail the attached letter to all our Aroclor® customers around February 27. The letter will be addressed to the Office of the President at the Accounts Receivable address which we hold in our files. We will send you sufficient copies of the letter for your needs in notifying your customers.

To help you further, we have drafted a cover letter which you may wish to use in notifying your customers. A copy is attached, but the decision whether to use it or draft your own cover letter is, of course, yours.

We regret the work that this request may cause you. As a responsible supplier, however, we feel we have a duty to keep our customers fully informed on matters concerning the safe handling of our products. We are sure of your support in this matter and are confident of your assistance along the lines indicated.

Very truly yours,

W. E. Schalk
Director of Sales
Plasticizers

/dbw

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LEXOLDMON000179
WATER_PCB-00035646

You will note that attached to the notification letter is a copy of a reprint of an article that appeared in Chemical Week, October 29, 1969, regarding water pollution standards set by each state in the Union. This article helps to put our letter in proper context. As mentioned in the article, good manufacturing practice in the future may require that no products used by any company be lost or discharged in such a manner as to ultimately be found in waterways.

For your guidance, we intend to mail the attached letter to all our Aroclor® customers around February 27. The letter will be addressed to the Office of the President at the Accounts Receivable address which we hold in our files. We will send you sufficient copies of the letter for your needs in notifying your customers.

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We regret the work that this request may cause you. As a responsible supplier, however, we feel we have a duty to keep our customers fully informed on matters concerning the safe handling of our products. We are sure of your support in this matter and are confident of your assistance along the lines indicated.

Very truly yours,

W. E. Schalk
Director of Sales
Plasticizers

/dbw

LEXOLDMON000180
WATER_PCB-00035647

Suggested Letter from Distributor to Aroclor ® Customers

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 category.

It is claimed that the PCBs found strongly resemble chlorinated biphenyls containing 54% and 60% chlorine by weight. We are distributors for products with the trade-names of Aroclor ® 1254 and 1260 and these contain chlorinated biphenyls.

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

Aroclor ® 1254 and 1260 are manufactured and sold to us by Monsanto Company. For your further clarification and guidance, we would refer you to the attached letter sent by Monsanto to its customers concerning PCBs. We have also attached a reprint of a recent article from Chemical Week, October 29, 1969, regarding water pollution standards set by each state in the Union.

With the present public and government concern with environmental contamination, good manufacturing practice in the future may require care in the application, processing and effluent disposal of all products used by your company.

Very truly yours,

LEXOLDMON000181
WATER_PCB-00035648

Monsanto

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

Dear Customer:

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 tradenames of Aroclor® 1254 and 1260 contain chlorinated biphenyls.

As your supplier of Aroclor® 1254 and 1260, 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. Certain Monsanto products which are sold under the Aroclor® trademark, namely Aroclor® 5060, 5442 and 5460, are not polychlorinated biphenyls.

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.



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We feel that all possible care should be taken in the application, processing and effluent disposal of these products to prevent them 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 the view that good manufacturing practice in the future may require that no products used by any company be lost or discharged in such a manner as to ultimately be found in waterways.

Very truly yours,

W. E. Schalk
Director of Sales
Plasticizers

ek

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WATER_PCB-00035650

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. Gartrell, 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 83%, 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 $608 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.

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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 process-water supply purposes. Solids: Free from waste materials 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°	5°	—	Radioactivity: Not to exceed 1/30 of the MPC$_w$ 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 MPC$_w$ 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 300 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°	50%* 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.

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	pH Allowable		Temperature (°F) allowable		Dissolved oxygen	Other Requirements
	Range	Deviation	Maximum	Increase above ambient	(minimum mg./l. or %)	
Georgia	6.0–8.5	—	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	—	—	—	4.5	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	5.0–9.0	—	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	5.0–9.0	—	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 deleterious 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 noticeable 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: Pollutional substances must be maintained below concentrations detrimental for industrial use.
Kentucky	5.0–9.0	—	95° 73° (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 waste. Solids: None that would produce floating masses, sludge banks or beds on bottom, 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 impair industrial use. Solids: Free from sludge deposits, solid refuse and floating solids. Toxic Substances: No chemical constituents from waste sources harmful to humans or that adversely affect industrial use.
Maryland	5.0–9.0 (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 oderous. 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.

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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	6.5–9.0	—	90°	9° (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. F:1.2.
Montana	6.5–9.5	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 sediments or settleable solids that affect treatment levels. **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: phenol: 0.001 mg./l. **Solids:** Dissolved solids must not exceed 1,500 mg./l. No more than 20% increase (limit 100 mg./l.) from any point source. No waste solids that permit deposition 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. **Solids:** Free 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	6.0–8.5 (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 solids 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)	5° (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 floating solids or debris and sediment that significantly alter properties of bottom. **Toxic Substances:** No amounts toxic to humans, plants, fish, animals.
New York	6.0–9.5	—	86°	5° (average 7 days) Rate: 2°/hr. 9°/24 hrs.	3.0	**Color:** No colored wastes that alone or in combinations make water unsuitable for industrial use. **Solids:** No floating or settleable solids or sludge deposits that are readily visible and attributable to wastes. **Toxic Substances:** None alone or in combinations that would impair industrial use.

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WATER_PCB-00035654

	pH Allowable		Temperature (°F) allowable		Dissolved oxygen (minimum)	Other Requirements
	Range	Deviation	Maximum	Increase above ambient	mg./l. or %	
North Carolina	Normal for area, usually 6.0-8.5; as low as 4.3 in swamps	—	95°*	7°	3.0	Color: Must not render water unfit for industrial cooling. Solids: 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	6.5-9.0	—	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: 750 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: No concentrations that would cause offensive odors in vicinity of 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 discoloration 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 conditions 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 colors, tastes 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: None 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 combinations harmful to human, animal or aquatic life. Turbidity, Taste and Odor: None in concentrations that would impair industrial use. Solids: No solid refuse, 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 change 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 offensive 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: 3°/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 distinctly visible solids, bottom deposits or sludge banks that could be detrimental to industrial use. Toxic Substances: None that produces toxic conditions that would adversely affect water for industrial use.
Texas	5.0-8.5 5.0-9.0 (cooling 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 after wastes receive best practical treatment. Taste and Odor: No concentrations that produce offensive odors. Solids: Dissolved solids must not exceed 1,000 mg./l., unless water used only for cooling. Must be essentially free from floating or settleable suspended solids that would adversely affect industrial use. Toxic Substances: Shall not show acute or chronic toxicity to humans, animals or aquatic life to such an extent as to interfere with industrial use.

LEXOLDMON000188
WATER_PCB-00035655

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 MPC$_w$ values for continuous occupational exposure in NBS Handbook 69. Turbidity, Color: No wastes in amounts that would change existing turbidity or color enough 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 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 solid refuse. Toxic Substances: No chemical constituents in concentrations or combinations harmful to human, animal or aquatic life.
Virginia	6.0-9.0 (swamps as low as 4.3)	—	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 that are unsightly or create a nuisance or other wastes that settle to 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°	$t = 110/(T+15)$†	6.5 or 70%	Radioactivity, Toxic Substances: Below concentrations that could 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 reduce 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.) 73° (Dec.-Apr.) Process water must permit fish passage	5° Rate: 2°/hr. (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 unreasonable kind or quantity. No objectionable bottom deposits or sludge banks. Toxic Substances: No concentrations of materials poisonous to human, animal or fish life.
Wisconsin	6.0-9.0	0.5	89°	—	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 1,000 mg./l.; daily average: 750 mg./l. No floating or submerged debris or waste substances that would cause objectionable deposits in amounts to 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 15 JCU above natural (when turbidity is 150 JCU or less); otherwise, no more than 10% above natural. Color: Essentially free of wastes that visibly alter natural color of water or impart color to vessels or structures. Taste and Odor: Essentially free from substances that would produce detectable 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 reserved from Federal Water Pollution Control Administration approval.
† t = total cumulative heat addition allowed from unnatural waste sources, at any point throughout the given stream reach. T = highest occurring temperature for a given period, in a specific stream reach.
Abbreviations: PHS—Public Health Service; NBS—National Bureau of Standards; JCU—Jackson Candle Units; pc/l.—picocuries per liter.
Source: Water Quality Standards of the United States, Territories, and the District of Columbia, American Public Health Assn., Subcommittee on Water Quality Control, and Engineering and Sanitation Section.
Note: Specific limits for coliforms, biologic oxygen demand, plant nutrients, oil, grease, scum, bottom deposits, pesticides, specific conductance, carbon chloroform extract, synthetic detergents not included. Some states set standards for each stream reach or river basin; in such cases, table shows least stringent requirement.

This reprint is an excerpt from the "Plant Sites, '69" report that appeared in the October 29, 1969 issue of CHEMICAL WEEK

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LEXOLDMON000189
WATER_PCB-00035656

Monsanto

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

May 9, 1973 CC

SUBJECT PCB Warning Letters, February 19, 1970
By Schalk

REFERENCE

TO : Memo to File

Per May 1, 1973 discussions with Wally Schalk, all plasticizer letters sent in 1972 were sent to the same four distributors, namely:

American Mineral Spirits Co.,
New York, New York

Central Solvents & Chemicals Co.,
Chicago, Illinois

Great Western Chemical Co.,
Portland, Oregon

Tab Chemical Co.,
Chicago, Illinois

P. W. Gann

/mc

EXHIBIT
WBP M-43A.2

MCL000190

LEXOLDMON000190
WATER_PCB-00035657

Monsanto

FROM (NAME & LOCATION): Cumming Paton - General Offices

DATE: March 31, 1970 CC: W. F. Waychoff/J. K. Lilly

SUBJECT: PCB PUBLICITY

REFERENCE: PF

TO : Product Group

CONFIDENTIAL

Attached are the following:

A) Letter on PCBs sent by Monsanto to all direct Aroclor customers on February 27.

B) Letter on PCBs sent to Plasticizer distributors. It is the responsibility of our distributors to notify their customers.

C) Reprint of an article on standards set by the states on water pollution.

D) Memo on proposed handling of PCB publicity in export markets.

Letters will go to Canadian/U.K. customers shortly. At this time, no letters of notification planned for other countries.

E) Presentation to regional managers/field sales on how to handle PCB situation if customers bring the subject up.

F) A set of approved answers to questions that customers may bring up. We don't want to volunteer answers to questions that are not asked. As far as possible, we want to prevent writing answers to customers. If customers ask questions that are not answered in this section, we ask that the salesman get the question in writing and send it to St. Louis for attention. We rely on Bill Papageorge to clear answers to such questions.

So far, we've had little response to our PCB letter. I've seen about four letters and field sales also appear to be getting little response.



Cumming Paton

/dbw

MON-MT-008730

LEXOLDMON000191
WATER_PCB-00035658

Monsanto

MAR 3 1970

FROM (NAME & LOCATION): Cumming Paton - General Offices

DATE : March 2, 1970

SUBJECT : CUSTOMER NOTIFICATION LETTER ON PCBs

REFERENCE :

cc: M. W. Farrar
D. A. Olson
W. E. Schalk
J. E. Springgate
W. F. Waychoff

TO : → P. C. Park
W. B. Papageorge

CONFIDENTIAL

The Plasticizer Group mailed a PCB notification letter to our direct Aroclor customers. 660 were mailed on February 27, 1970 and one (Nelson Oil) was mailed on March 2, 1970.

The Presidents of our distributors, namely:

Central Solvents and Chemicals
Great Western Chemical
Tab Chemicals
American Mineral Spirits Company

were notified on February 24, 1970.

Cumming Paton

/dbw

This letter was used through
the June 1, 1970 mailing - per W. Stark.
May 2, 1973

EXHIBIT
WBP M-43A 4

MON-30 REV 11-69

LEXOLDMON000192
WATER_PCB-00035659

Monsanto

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

Feb 1970
(Feb 27, '70 mailing)

Dear Customer:

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 tradenames of Aroclor® 1254 and 1260 contain chlorinated biphenyls.

As your supplier of Aroclor® 1254 and 1260, 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. Certain Monsanto products which are sold under the Aroclor® trademark, namely Aroclor® 5060, 5442 and 5460, are not polychlorinated biphenyls.

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.

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EXHIBIT
WBP M-43A.5

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WATER_PCB-00035660

We feel that all possible care should be taken in the application, processing and effluent disposal of these products to prevent them 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 the view that good manufacturing practice in the future may require that no products used by any company be lost or discharged in such a manner as to ultimately be found in waterways.

Very truly yours,

W. E. Schalk

W. E. Schalk
Director of Sales
Plasticizers

ek

LEXOLDMON000194
WATER_PCB-00035661

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. Gartrell, 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 83%, 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 $608 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 cumbersome 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.

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WATER_PCB-00035662

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 6 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 process-water supply purposes. Solids: Free from waste materials 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°	5°	—	Radioactivity: Not to exceed 1/30 of the MPC_w 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 MPC_w 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°	50%* 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.

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WATER_PCB-00035663

	pH Allowable		Temperature (°F) allowable		Dissolved oxygen	Other Requirements
	Range	Deviation	Maximum	Increase above ambient	(minimum mg./l. or %)	
Georgia	6.0-8.5	—	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	—	—	—	4.5	**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	5.0-9.0	—	98°	—	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 deleterious 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 noticeable 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:** Pollutional substances must be maintained below concentrations detrimental for industrial use.
Kentucky	5.0-9.0	—	95° 73° (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 waste. **Solids:** None that would produce floating masses, sludge banks or beds on bottom, 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 impair industrial use. **Solids:** Free from sludge deposits, solid refuse and floating solids. **Toxic Substances:** No chemical constituents from waste sources harmful to humans or that adversely affect industrial use.
Maryland	5.0-9.0 (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.

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Water quality standards

	pH Allowable		Temperature (°F) allowable		Dissolved oxygen	Other Requirements
	Range	Deviation	Maximum	increase above ambient	(minimum mg./l. or %)	
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	6.5–9.0	—	90°	9° (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. F:1.2.
Montana	6.5–9.5	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 sediments or settleable solids that affect treatment levels. **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; phenol: 0.001 mg./l. **Solids:** Dissolved solids must not exceed 1,500 mg./l. No more than 25% increase (limit 100 mg./l.) from any point source. No waste solids that permit deposition 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. **Solids:** Free 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	6.0–8.5 (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 solids 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)	5° (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 floating solids or debris and sediment that significantly alter properties of bottom. **Toxic Substances:** No amounts toxic to humans, plants, fish, animals.
New York	6.0–9.5	—	86°	5° (average 7 days) Rate: 2°/hr. 9°/24 hrs.	3.0	**Color:** No colored wastes that alone or in combinations make water unsuitable for industrial use. **Solids:** No floating or settleable solids or sludge deposits that are readily visible and attributable to wastes. **Toxic Substances:** None alone or in combinations that would impair industrial use.

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Water quality standards

	pH Allowable		Temperature (°F) allowable		Dissolved oxygen	Other Requirements
	Range	Deviation	Maximum	increase above ambient	(minimum) mg./l. or %)	
North Carolina	Normal for area, usually 6.0–6.5; as low as 4.3 in swamps	—	95°*	7°	3.0	**Color:** Must not render water unfit for industrial cooling. **Solids:** 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: 750 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:** No concentrations that would cause offensive odors in vicinity of 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 discoloration 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 conditions 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 colors, tastes 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:** None 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 combinations harmful to human, animal or aquatic life. **Turbidity, Taste and Odor:** None in concentrations that would impair industrial use. **Solids:** No solid refuse, 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 change 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 offensive 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: 3°/hr.	Enough to prevent offensive conditions	**Radioactivity:** None that could adversely effect 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 distinctly visible solids, bottom deposits or sludge banks that could be detrimental to industrial use. **Toxic Substances:** None that produces toxic conditions that would adversely affect water for industrial use.
Texas	5.0–8.5 5.0–9.0 (cooling 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 after wastes receive best practical treatment. **Taste and Odor:** No concentrations that produce offensive odors. **Solids:** Dissolved solids must not exceed 1,000 mg./l., unless water used only for cooling. Must be essentially free from floating or settleable suspended solids that would adversely affect industrial use. **Toxic Substances:** Shall not show acute or chronic toxicity to humans, animals or aquatic life to such an extent as to interfere with industrial use.

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Water quality standards

	pH Allowable		Temperature (°F) allowable		Dissolved oxygen	Other Requirements
	Range	Deviation	Maximum	increase above ambient	(minimum mg./l. or %)	
Utah	6.5-9.0	—	—	—	—	**Radioactivity:** Shall not exceed 1/30 of MPC$_w$ values for continuous occupational exposure in NBS Handbook 69. **Turbidity, Color:** No wastes in amounts that would change existing turbidity or color enough 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 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 solid refuse. **Toxic Substances:** No chemical constituents in concentrations or combinations harmful to human, animal or aquatic life.
Virginia	5.0-9.0 (swamps as low as 4.3)	—	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 that are unsightly or create a nuisance or other wastes that settle to 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°	1 = 110/(T-15)†	6.5 or 70%	**Radioactivity, Toxic Substances:** Below concentrations that could 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 reduce 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.) 73° (Dec.-Apr.) Process water must permit fish passage	5° — Rate: 2°/hr. (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 unreasonable kind or quantity. No objectionable bottom deposits or sludge banks. **Toxic Substances:** No concentrations of materials poisonous to human, animal or fish life.
Wisconsin	6.0-9.0	0.5	89°	—	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 1,000 mg./l.; daily average: 750 mg./l. No floating or submerged debris or waste substances that would cause objectionable deposits in amounts to 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 15 JCU above natural (when turbidity is 150 JCU or less); otherwise, no more than 10% above natural. **Color:** Essentially free of wastes that visibly alter natural color of water or impart color to vessels or structures. **Taste and Odor:** Essentially free from substances that would produce detectable 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 reserved from Federal Water Pollution Control Administration approval.
† t = total cumulative heat addition allowed from unnatural waste sources, at any point throughout the given stream reach. T = highest occurring temperature for a given period, in a specific stream reach.
Abbreviations: PHS—Public Health Service; NBS—National Bureau of Standards; JCU—Jackson Candle Units; pc/l.—picocuries per liter.
Source: Water Quality Standards of the United States, Territories, and the District of Columbia, American Public Health Assn., Subcommittee on Water Quality Control, and Engineering and Sanitation Section.
Note: Specific limits for coliforms, biologic oxygen demand, plant nutrients, oil, grease, scum, bottom deposits, pesticides, specific conductance, carbon chloroform extract, synthetic detergents not included. Some states set standards for each stream reach or river basin; in such cases, table shows least stringent requirement.

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MONSANTO

MAR 3 1970

FROM (NAME & LOCATION) Cumming Paton - General Offices

DATE : March 2, 1970

SUBJECT : CUSTOMER NOTIFICATION LETTER ON PCBs

REFERENCE :

cc: M. W. Farrar
D. A. Olson
W. E. Schalk
J. E. Springgate
W. F. Waychoff

TO : P. C. Park
W. B. Papageorge

CONFIDENTIAL

The Plasticizer Group mailed a PCB notification letter to our direct Aroclor customers. 660 were mailed on February 27, 1970 and one (Nelson Oil) was mailed on March 2, 1970.

The Presidents of our distributors, namely:

Central Solvents and Chemicals
Great Western Chemical
Tab Chemicals
American Mineral Spirits Company

were notified on February 24, 1970.

Cumming Paton

/dbw

This list was used through the June 1, 1970 mailings - per W. Clark. May 2, 1973

EXHIBIT
WBP M-43A.6

IM-10 REV 11-65

MCL000120

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