

V. (Interim) Enhanced Surface Water Treatment Rule (ESWTR)  
Proposed Rule, 59 FR 38832-38858 (July 29, 1994)

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A. FEDERAL REGISTER NOTICES

1. Proposed Rule

1. Federal Register: U.S. Environmental Protection Agency. National Primary Drinking Water Regulations: Enhanced Surface Water Treatment Requirements. Proposed Rule. Vol. 59, No. 145. July 29, 1994. 38832-38858.
2. Federal Register: U.S. Environmental Protection Agency. National Primary Drinking Water Regulations: Enhanced Surface Water Treatment Requirements. Extension of Public Comment Period. Vol. 61, No. 104. May 29, 1996. 26857-26858.

2. Other Federal Register Notices Cited in the Proposal

1. Federal Register: U.S. Environmental Protection Agency. Drinking Water; National Primary Drinking Water Regulations; Filtration, Disinfection; Turbidity; Giardia lamblia; Viruses; Legionella, and Heterotrophic Bacteria; Final Rule. Part II. Vol. 54, No. 124. June 29, 1989. 27486-27541. (See SWTR IX-A1.1).
2. Federal Register: U.S. Environmental Protection Agency. Drinking Water; National Primary Drinking Water Regulations; Total Coliforms; Final Rule. Part III. Vol. 54, No. 124. June 29, 1989. 27544-27568. (See TC VIII-A1.1; also VIII-A 2.3 - Corrections and Technical Amendments).
3. Federal Register: U.S. Environmental Protection Agency. Priority List of Substances Which May Require Regulation Under the SDWA. Vol. 56., No. 9. January 14, 1991. 1470-1474. (See 2-DWPL A.1).
4. Federal Register: Environmental Protection Agency. National Primary Drinking Water Regulations; Total Coliforms; Partial Stay of Certain Provision of Final Rule. Vol. 56, No. 10, Jan. 15, 1991. 1556-1557. (See TC, IX-A1: Stay of Variance)
5. Federal Register: U.S. Environmental Protection Agency. Establishment and Open Meeting of the Negotiated Rulemaking Advisory Committee for Disinfection By-Products. Vol. 57, No. 220. November 13, 1992. p. 53866. (See D/DBP NOI I-A1.2).
6. Federal Register: U.S. Environmental Protection Agency. Executive Order 12866 of September 30, 1993: Regulatory Planning and Review. Vol. 58, No. 190. October 4, 1993. 51735-51744.
7. Federal Register: U.S. Environmental Protection Agency. National Primary Drinking Water Regulations: Monitoring Requirements for Public Drinking Water Supplies: Cryptosporidium, Giardia, Viruses, Disinfection By-Products, Water Treatment Plant Data and Other

Information Requirements. Proposed Rule. Vol. 59, No. 28. February 10, 1994. 6332-6444. (See ICR III-A1.1)

8. Federal Register: U.S. Environmental Protection Agency. Drinking Water; National Primary Drinking Water Regulations: Disinfectants and Disinfection By-Products and Enhanced Surface Water Treatment. Announcement of

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V-A2.8 (cont'd)

Public Meeting Dates and Locations. Vol. 59, No. 196. October 12, 1994. p. 51522.

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B. REFERENCES CITED IN THE FEDERAL REGISTER

1. Addiss, D.G. and Lengerich, E.J. 1994. Hypokalemic myopathy induced by Giardia lamblia. N. Engl. J. Med. 330(1):66. 3 pp.
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3. AWWA. American Water Works Association (1993). Officers & Committee Directory. AWWA, Denver. 2 pp.
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- Technology Conference Proceedings, 1992, II: 1831-1844. American Water Works Association, Denver. 9 pp.
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  12. Craun GF (1993). Conference conclusions. In: (GF Craun, ed.) Safety of Water Disinfection: Balancing Chemical and Microbial Risks. International Life Sciences Inst. Press, Washington. 7 pp.
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  14. Cromwell JE, Zhang X, Letkiewicz FJ, et al. Analysis of potential tradeoffs in regulation of disinfection by-products. Office of Water Resource Center. Washington D.C. EPA-811-R-92-008. November 1992. 127 pp.
  15. Current WL, NC Reese, JV Ernst, WS Bailey, MB Heyman and WM Weinstein (1983). Human cryptosporidiosis in immunocompetent and immunodeficient persons. *New Eng J Med* 308(21): 1252-1257. 6 pp.
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  19. EPA. Environmental Protection Agency (1989). Cross-Connection Control Manual. EPA 570/9-89-007. Washington, D.C. 51 pp. NTIS PB91-145490.
  20. EPA. Environmental Protection Agency (1991a). Guidance Manual for Compliance With the Filtration and Disinfection Requirements for Public Water Systems Using Surface water

LOG OF COMMENTS\*

Enhanced Surface Water Treatment Rule; Proposed Rule.  
(in Docket files, each log number preceded by  
"ESWTR, V-G1.")

Sources. Washington, D.C. 583 pp. (See II-D, IX-J3.4)

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23. EPA. Environmental Protection Agency (1992). Consensus method for determining groundwaters under the direct influence of surface water using microscopic particulate analysis (MPA). EPA 910/9-92-029. 58 pp.
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C. REGULATORY IMPACT ANALYSIS

1. U.S. EPA. Environmental Protection Agency. Regulatory Impact Analysis for the National Primary Drinking Water Regulations: Interim Enhanced Surface Water Treatment Rule. May 25, 1994. 106 pp.
2. U.S. EPA. Environmental Protection Agency. Information Collection Request for the National Primary Drinking Water Regulations: Interim Enhanced Surface Water Treatment Rule. May 18, 1994. 24 pp.
3. U.S. Environmental Protection Agency, Office of Drinking Water. Regulatory Impact Analysis: Benefits and Costs of Final Surface Water Treatment Rule. Feb. 17, 1989. 70 pp. (See SWTR, IX-H1.1)

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D. NATIONAL DRINKING WATER ADVISORY COUNCIL (NDWAC)

1. Minutes

- a. U.S. EPA. Meeting Minutes of the National Drinking Water Advisory Council. May 6-7, 1993. EPA 810/R-93-003. 39 pp. (See ICR III-F1.a)
- b. U.S. EPA. Meeting Minutes of the National Drinking Water Advisory Council. December 2-3, 1993. 40 pp. (See ICR III-F1.b)

2. Transcript

- a. U.S. EPA. 1993. Transcript of Proceedings of the National Drinking Water Advisory Council. May 6-7, 1993. El Paso, TX. Keith and Miller Reporters. 442 pp. (See ICR III-F2.a)
- b. U.S. EPA. 1993. Transcript of Proceedings of the National Drinking Water Advisory Council. December 2-3, 1993. Washington, D.C. Heritage Reporting Corp. 426 pp. (See ICR III-F2.b)

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E. OMB REVIEW

1. Pre-Proposal

1. July 15, 1994. Memorandum from T. Grubbs, Drinking Water Standards Division, to Record. OIRA Input to Proposed D/DBP and Interim ESWTR. Office of Water. 2 pp. + 2 attach. (130 pp.) (See D/DBP-PRO, VI-K1.1)

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F. BACKGROUND DOCUMENTATION\*

1. February 9-10, 1993 Meeting (See ICR III-H-7)
  - A. Advance mailing for the February 9-10 meeting. 4 pp.
  - B. Draft February 9-10 Meeting Summary. 13 pp.
  - C. Final February 9-10 Meeting Summary. 12 pp. + 12 att. (53 pp.).
    - a. Agenda
    - b. Participant list
    - c. Technologies Working Group: preliminary regulatory impact analysis
    - d. Evaluation of capital cost estimate used in technologies and costs for control of DBPs, draft of December 1992
    - e. Outline of options and suboptions for Disinfectants/Disinfection by-products rule
    - f. Projected DBPs - option A
    - g. Proposed enhanced surface water treatment rule
    - h. Draft WICC position: national primary drinking water regulations
    - i. Discussion: option "X"
    - j. Comparison of reproductive effects with MCLGs
    - k. Overview of available information on the toxicity of drinking water disinfectants and their by-products
    - l. Percent of household income for water
  
2. February 24-25, 1993 Meeting (See ICR III-H-8)
  - A. Advance mailing for the February 24-25 meeting. 4 pp.
  - B. Draft February 24-25 Meeting Summary. 11 pp.

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See ICR III-H for additional background documentation from the regulation negotiation process

- C. Final February 24-25 Meeting Summary. 11 pp. + 6 att. (32 pp.).
  - a. Agenda
  - b. Participant list
  - c. Technologies Working Group: preliminary impact analysis
  - d. National costs v predicted DBP levels
  - e. "Strawman" elements of D/DBP regulation

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- f. Hypothetical risk reduction analysis for all large surface water systems

3. March 18-19 1993 Meeting (See ICR III-H-9)

- A. Advance mailing for the March 18-19 meeting. 2 pp.
- B. Draft March 18-19 Meeting Summary. 12 pp.
- C. Final March 18-19 Meeting Summary. 11 pp. + 15 att. (112 pp.)
  - a. Agenda
  - b. Participant list
  - c. DBP Technologies Working Group: regulatory impact analysis (3/18/93)
  - d. Draft summary of draft D/DBP & ESWTR rule elements (3/11/93)
  - e. Draft D/DBP rule language: Section 141.2 - Definitions (3/11/93)
  - f. Draft ESTWR elements - revisions to the surface water treatment rule (3/11/93)
  - g. Option X: Phase II Disinfectant/Disinfectant by-products regulation
  - h. Phase II D/DBP implementation (3/18/83 draft)
  - i. Second Stage Option: 40/30/2 by 1/02 for surface water PWS > 10,000
  - j. Proposed resolution to assure that drinking water remains affordable for low-income households.
  - k. Summary of epidemiologic studies of drinking and cancer and reproductive/developmental outcomes - Alceon, 3/17/93
  - l. American Water Works Association: Evaluation of DBP research needs



- m. National Rural Water Association: Proposal to limit regulation of systems with fewer than 10,000 customers to an MCL of 100 ug/l for total THMS
- n. Sample signature document
- o. Proposed time frame of draft D/DBP and ESTWR requirements

4. May 12-13, 1993 Meeting (See ICR III-H-10)

- A. Advance mailing for the May 12-13 meeting. 2 pp. + 4 att. (8 pp.).
- B. Draft May 12-13 Meeting Summary. 12 pp. + 1 att. (200 pp.)

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- C. Final May 12-13 Meeting Summary. 12 pp. + 8 att. (39 pp.).
  - a. Agenda
  - b. Participant list
  - c. Description of remaining issues
  - d. DBP Technologies Working Group: regulatory impact analysis (5/12/93)
  - e. DBP cost summary (excluding ESTWR costs)
  - f. AWWARF research proposal requesting federal funds for DBP research
  - g. Letter signed by participants requesting \$4 million federal funds for DPB research in FYs 94-98
  - h. List of materials prepared for distribution at 5/12-13 meeting (see 10D)

5. June 22-23, 1993 Meeting (See ICR III-H-11)

- A. Advance mailing for the June 22-23 meeting.
  - 1. May 25, 1993. Memorandum from Gail Bingham, Resolve, to DBP Advisory Committee re: Follow-up to May 12-13 meeting. 2 pp. + 2 att. (4 pp.).

2. Jun. 15, 1993. Memorandum from Gail Bingham, Resolve, to DBP Advisory Committee re: June 22-23 meeting. 2 pp. + 8 att. (262 pp).
  3. May 26, 1993. Draft Enhanced Surface Water Treatment Rule language. 12 pp.
  4. May 26, 1993. Draft D/DBP Rule language. 57 pp.
  5. May 26, 1993. Draft Information Collection Rule language. 82 pp.
- B. Draft June 22-23 Meeting Summary. 9 pp. + 1 att. (1p).
  - C. Final June 22-23 Meeting Summary. 1 p.
6. Ratification (See ICR III-H-12)
- A. Follow-up mailing sent July 8, 1993. 2 pp.+ 5 att. (547 pp.)
    - a. Draft summary of June 22-23 meeting
    - b. Revised agreement document
    - c. Cover memo from Stig Regli and Tom Grubbs
    - d. Revised ESWTR
- ESWTR  
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- e. Revised ICR rule and preamble
  - f. Revised DBP rule and preamble
- B. Follow-up mailing sent September 13, 1993. 3 pp. + 4 att. ( 363 pp.)
    - a. Revised drafts of ICR rule & preamble language
    - b. Revised draft of D/DBP rule and
    - c. Revised draft of Enhanced surface water treatment rule
    - d. Revised draft of D/DBP preamble (9/7/93)
  - C. Follow-up mailing sent December 2, 1993. 2 pp. + 3 att. ( 416 pp.).
    - a. Final draft of ICR rule and preamble
    - b. Memo from Regli describing changes since September draft

c. Signature document

- D. Jan. 28, 1994. Memorandum from Gail Bingham, Resolve, to Reg Neg Committee. Re: ESWTR. [Att.: Draft ESWTR Preamble]. 2 pp. + 1 att. (127 pp). (see VI-I.1)
- E. May 12, 1994. The Last Errata Sheet/ Signature Time. Memorandum from Stig Regli to Reg Neg Committee. 90 pp. (see VI-I.3)

Log of Comments\*  
 Enhanced Surface Water Treatment Rule - Proposed Rule  
 (in Docket files " ESWTR-PRO, V-G1."  
 precedes each of the following log numbers)

<u>Log #</u>	<u>Date Rcvd</u>	<u>Date of Letter</u>	<u>Name Organization Represented</u>	<u>Street Address</u>	<u>City / State</u>	<u>Zip</u>	<u>Total #Pgs</u>	<u>#Att.</u>	
01	08/12/94	08/08/94	Robert Smerko	The Chlorine Institute	2001 L St., NW	Washington, D.C.	20036	1	0
02	08/29/94	08/08/94	Rob Shirley	Certified Operator	9417 Petit Ct.	Ventura, CA	93004	3	0
03	10/06/94	09/13/94	Carl McMorran	Bangor Water District	P.O. Box 804	Bangor, ME	04402	5	0
04	10/31/94	10/24/94	Louis Ferrara	Oneida County Dept. of Health	800 Park Ave.	Utica, NY	13501	1	0
05	12/27/94	12/23/94	George Fulton	First District Water Dept.	12 New Canaan Ave. P.O. Box 27	Norwalk, CT	06852	4	0
06	01/17/95	01/05/95	Raymond Pelletier	U.S. Dept. of Energy	EH-23	Washington, DC	20585	8	0
07	02/22/95	02/13/95	Bruce Kuebler	City of Los Angeles Dept. of Water & Power	Box 111	Los Angeles, CA	90051	2	0
08	03/15/95	02/08/95	Joanna Musisca	Student	875 G Harrison Ave.	Columbus, OH	43215	1	0
09	04/17/95	04/10/95	David Lambillotte	LMD Laboratories, Inc.	2792 Loker Ave.,W. Suite 103	Carlsbad, CA	92008	1	0
10	07/17/95	07/10/95	Jean Barrett	Coalition to Preserve Open Reservoirs	3355 Floyd Terrace	Los Angeles, CA	90068	4	0
11	10/03/95	09/28/95	John Sullivan	AWWA - Government Affairs	1401 New York Ave., NW Suite 640	Washington, DC	20005	11	11
12	02/28/96	02/01/96	Lorraine Welsch	Citizen	39 Cambria Rd.	Syosset, NY	11791	1	0
13	04/16/96	04/05/96	Charles Spencer	Illinois Farm Bureau	P.O. Box 2901	Bloomington, IL	61702	2	0
14	05/17/96	05/09/96	Kenneth Lynn	Union Electric	P.O. Box 149	St. Louis, MO	63166	3	0
15	05/24/96	05/03/96	James Wood	Citizen	3 Avenue L	Matamoras, PA	18336	3	21
16	06/03/96	05/29/96	Michael Logston	American Backflow Prevention Association	301 Tarrow Rd.	College Station, TX	77843	2	1
17	06/03/96	05/28/96	James K. Cleland	MI Dept. of Envir. Quality	P.O. Box 30473	Lansing, MI	48909	4	0

\* Hand-delivered or postmarked by August 30, 1996.

Log of Comments\*  
 Enhanced Surface Water Treatment Rule - Proposed Rule  
 (in Docket files " ESWTR-PRO, V-G1."  
 precedes each of the following log numbers)

<u>Log #</u>	<u>Date Rcvd</u>	<u>Date of Letter</u>	<u>Name Organization Represented</u>	<u>Street Address</u>	<u>City / State</u>	<u>Zip</u>	<u>Total</u>		
							<u>#Pgs</u>	<u>#Att.</u>	
18	06/05/96	05/29/96	Julius Ciaccia, Jr.	Cleveland Dept. of Public Util.	1201 Lakeside Ave.	Cleveland, OH	44114	6	0
19	07/10/96	07/16/96	David P. Spath	CA Dept. of Health Services	P.O. Box 942732	Sacramento, CA	94234	7	3
20	08/26/96	08/19/96	Ralph Gelvin PE	KS Dpt. of Health & Environment	Forbes Field, Bldg 283	Topeka, KS	66620	3	0
21	08/30/96	08/30/96	John H. Sullivan	American Water Works Assoc. AWWA	1401 NY Ave,NW,Ste.640	Washington, DC	20005	43	53
22	08/30/96	08/30/96	Diane VanDe Hei	Assoc. of Met. Water Agencies (AMWA)	1717 K St. NW Ste.801	Washington, DC	20036	1	4
23	08/30/96	08/27/96	David L. Crandell	Akron Water Supply	1570 Ravenna Rd.	Kent, OH	44240	1	1
24	08/30/96	08/29/96	Thomas E. Werner	Suffolk Dpt. of Public Utilities G. Robert House,Jr. Water Treatment	PO Box 2368	Suffolk, VA	23432	2	0
25	08/30/96	08/30/96	Sarah Clark, P.E.	City of Austin	8th @ CO, PO Box 1088	Austin, TX	78767	4	7
26	08/30/96	08/30/96	Dr. Robert G. Smerko	Chlorine Institute	2001 L. St, N.W.	Washington, DC	20036	13	7
27	08/30/96	08/30/96	Ron Freeman	City of Amarillo	PO Box 1971	Amarillo, TX	79186	2	0
28	08/30/96	08/29/96	Robert Hollander, P.E.	City of Phoenix	200 W.Washington,9thFL	Phoenix, AZ	85003	8	0
29	08/30/96	08/29/96	Kumar Kishinchand,P.E.	City of Philadelphia	ARA Tower@Rdg.Ctre., 1101 Market Street	Philadelphia, PA	19107	12	0
30	08/30/96	08/28/96	David Y. Terry	MA Dept. of Environ. Protection	1 Winter St.	Boston, MA	02108	3	3
31	08/30/96	08/30/96	Joel A. Miele	NYC Dept. of Environ. Protection	59-17 Junction Blvd.	Corona, NY	11368	7	0
32	08/30/96	08/29/96	Rob Sabados for the Cryptosporidium Community	ACT UP GOLDEN GATE	519 Castro St. #93	San Francisco, CA	94114	8	18
33	08/30/96	08/29/96	Stephen K. Hall	Assoc. of CA Water Agencies (ACWA)	910 K St. , Ste. 250	Sacramento, CA	95814	5	0
34	08/30/96	08/28/96	Thomas Schrempp, P.E.	Water District No. 1, Johnson Co.	7601 Holliday Dr.	Kansas City, KS	66106	1	0
35	08/30/96	08/29/96	Jack DeMarco	City of Cincinnati - Water Works	5651 Kellogg Ave.	Cincinnati, OH	45228	5	3

\* Hand-delivered or postmarked by August 30, 1996.

Log of Comments\*  
 Enhanced Surface Water Treatment Rule - Proposed Rule  
 (in Docket files " ESWTR-PRO, V-G1."  
 precedes each of the following log numbers)

<u>Log #</u>	<u>Date Rcvd</u>	<u>Date of Letter</u>	<u>Name</u>	<u>Organization Represented</u>	<u>Street Address</u>	<u>City / State</u>	<u>Zip</u>	<u>Total #Pgs</u>	<u>#Att.</u>	
36	08/30/96	08/29/96	Thomas Atherholt, Ph.D.		NJ Dept. of Environ. Protection	CN 409-401 E State St.	Trenton, NJ	08625	9	3
37	12/27/94	12/20/94	Joseph T. Domazet, Jr.		Fairfax Co. Water Authority	8560 Arlington Blvd	Merrifield, VA	22116	13	2

\* Hand-delivered or postmarked by August 30, 1996.

Log of Late Comments\*  
 Enhanced Surface Treatment Rule - Proposed Rule  
 (in Docket files " ESWTR-PRO, V-G2."  
 precedes each of the following log numbers)

<u>Log #</u>	<u>Date Rcvd</u>	<u>Date of Letter</u>	<u>Name Organization Represented</u>	<u>Street Address</u>	<u>City / State</u>	<u>Zip</u>	<u>#Pgs</u>	<u>#Att.</u>	
1	09/06/96	09/05/96	Paul Johnson	IN Dept. of Environ. Management	100 N Senate Ave. PO Box 6015	Indianapolis, IN	46206	3	0

\* Hand-delivered or postmarked after August 30, 1996.

IX. Interim Enhanced Surface Water Treatment Rule (IESWTR)  
Notice of Data Availability Nov. 3, 1997 62 FR 59486

A. FEDERAL REGISTER NOTICES

1. The Notice of Data Availability
2. Other Federal Register Notices

B. REFERENCES CITED IN THE PREAMBLE LIST

C. ADVISORY COMMITTEE MEETING NOTES/TWG MATERIAL

D. OTHER SUPPORTING DOCUMENTATION

E. LETTERS TO/FROM EPA AND EPA MEMORANDUM

F. PUBLIC COMMENTS

1. Comments Received on or before Feb. 3, 1998
2. Comment Received after Feb. 3, 1997



IESWTR  
NOA  
IX-A1

A. FEDERAL REGISTER NOTICES

1. Federal Register: U.S. Environmental Protection Agency. National Primary Drinking Water Regulations: Interim Enhanced Surface Water Treatment Rule Notice of Data Availability. Notice of Data Availability; request for comments; reopening of comment period. Volume 62, No. 212. Monday, November 3, 1997.

2. Other Federal Register Notices

1. *Federal Register: U.S. Environmental Protection Agency. National Primary Drinking Water Regulations: Monitoring Requirements for Public Drinking Water Supplies: Cryptosporidium, Giardia, Viruses, Disinfection By-Products, Water Treatment Plant Data and Other Information Requirements. Final Rule. (ICR) Vol. 61, No. 94. May 14, 1996. 24354-24388. (See ICR, VII-A1.1)*
2. Federal Register: U.S. Environmental Protection Agency. Drinking Water; National Primary Drinking Water Regulations: Disinfectants and Disinfection Byproducts. Proposed Rule. Vol. 59, No. 145. July 29, 1994. 38668-38829. (See D/DBP, VI-A1.1)
3. Federal Register: U.S. Environmental Protection Agency. National Primary Drinking Water Regulations: Enhanced Surface Water Treatment Requirements. Proposed Rule. Vol. 59, No. 145. July 29, 1994. 38832-38858. (See ESWTR, V-A1.1)
4. Federal Register: U.S. Environmental Protection Agency. National Primary Drinking Water Regulations: Monitoring Requirements for Public Drinking Water Supplies: Cryptosporidium, Giardia, Viruses, Disinfection By-Products, Water Treatment Plant Data and Other Information Requirements. Proposed Rule. Vol. 59, No. 28. February 10, 1994. 6332-6444. (See ICR, III-A1.1)
5. Federal Register: U.S. Environmental Protection Agency. Drinking Water; National Primary Drinking Water Regulations; Filtration, Disinfection; Turbidity; Giardia lamblia; Viruses; Legionella, and Heterotrophic Bacteria; Final Rule. Part II. Vol. 54, No. 124. June 29, 1989. 27486-27541. (See SWTR IX-A1.1).
6. Federal Register: U.S. Environmental Protection Agency. Drinking Water; National Primary Drinking Water Regulations; Total Coliforms; Final Rule. Part III. Vol. 54, No. 124. June 29, 1989. 27544-27568. (See TC VIII-A1.1; also VIII-A 2.3 - Corrections and Technical Amendments).
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116. Timms S, JS Slade, and CR Fricker (1995). Removal of *Cryptosporidium* by slow sand filtration. *Wat Sci Tech*, 31(5-6): 81-84.
117. USEPA (1979). National Interim Primary Drinking Water Regulations; Control of Trihalomethanes in Drinking Water. 44 FR 68624, November 29, 1979. (See TC VIII-A1.1; also VIII-A 2.3 - Corrections and Technical Amendments).
118. USEPA (1988). Technologies and Costs for the Treatment of Microbial Contaminants in Potable Water Supplies (Oct 1988). (See SWTR, IX-B.48)
119. USEPA (1989a). Cross-Connection Control Manual. EPA 570/9-89-007. Environmental Protection Agency. Washington, DC. 50 pp.
120. USEPA (1989b). Drinking Water; National Primary Drinking Water Regulations: Disinfection; Turbidity, *Giardia lamblia*, Viruses, Legionella, and Heterotrophic Bacteria; Final Rule. 54 FR 27544, June 29, 1989.
121. USEPA/SAB (1990). Reducing Risk: Setting Priorities and Strategies for Environmental Protection (September 1990). 33 pp.
122. USEPA (1991a). Guidance manual for compliance with the filtration and disinfection requirements for public water systems using surface water sources. Environmental Protection Agency, Washington, DC. [Also Published by AWWA in 1991] approximately 574 pp.
123. USEPA (1991b). Optimizing Water Treatment Plant Performance Using the Composite Correction Program. EPA/625/6-91/027. 209 pp.
124. USEPA (1992). Consensus Method for Determining Groundwater Under the Direct Influence of Surface Water Using Microscopic Particulate Analysis (MPA). EPA 910/9-92-029. 58 pp. (See ESWTR, V-B23)
125. USEPA (1993). Nephelometric Method 180.1. 600/R-93-100. 169 pp. PB 94-121811. (See AM-IX, B.23)
126. USEPA (1994a). National Primary Drinking Water Regulations; Disinfectants and Disinfection Byproducts; Proposed Rule. 59 FR 38668, July 29, 1994. EPA/811-Z-94-004. (See D/DBP, VI-A1.1)
127. USEPA (1994b). National Primary Drinking Water Regulations: Enhanced Surface Water Treatment Requirements; Proposed Rule. 59 FR 38832: July 29, 1994. (See

ESWTR, V-A1.1)

128. USEPA (1994c). Monitoring Requirements for Public Drinking Water Supplies; Proposed Rule. 59 FR 6332-6444, February 10, 1994.
129. USEPA (1994d). The Regulatory Impact Analysis for the Interim Enhanced Surface Water Treatment Rule. Office of Ground Water and Drinking Water, May 1994. 106 pp. (See also EWSTR, V-C1)
130. USEPA (1994e). Training on GWUDI Determinations Workshop Manual. Office of Groundwater and Drinking Water, USEPA. Washington DC (April 1994). 299 pp.
131. USEPA (1994f). January 10, 1994 letter from Jim Elder, Director, Office of Ground Water and Drinking Water to John H. Sullivan, Deputy Executive Director, AWWA. 5 pp. (See IX-E.1)
132. USEPA (1995a). Survey Report on the Cross-Connections Control Program. E1HWG4-01-0091-5400070. 15 pp.
133. USEPA (1995b). Research Plan for Microbial Pathogens and Disinfection Byproduct in Drinking Water. SAB Review Draft (Oct 1995). Office of Research and Development & Office of Water, EPA. 2 pp. Letter + 150 pp. Attachment (See IX-E.2)
134. USEPA (1996a). "An Evaluation of the Statistical Performance of a Method for Monitoring Protozoan Cysts in US Source Waters," (June 26, 1996), 58 pages. Appendix to the report, about 50 pages. 3 pp. Letter + 2 attachments, 122 pp.
135. USEPA (1996b). National primary Drinking Water Regulations: Monitoring Requirements for Public Drinking Water Supplies; Final Rule. May 14, 1996. 61 FR 24354- 24388.
136. USEPA (1997a). Environmental Protection Agency. Economic Analysis of M/DBP Advisory Committee Recommendations for the Interim Enhanced Surface Water Treatment Rule. October 14, 1997. 100 pp. + 1 attachment (Appendices A-G), 130 pp.
137. USEPA (1997b). Environmental Protection Agency. 1997b. Technologies and Costs for the Microbial Recommendations of the M/DBP Advisory Committee. Final Draft. Office of Ground Water and Drinking Water. October 10, 1997. 98 pp.
138. USEPA (1997c). Environmental Protection Agency. 1997c. Occurrence for the Interim Enhanced Surface Water Treatment Rule. Final Draft. Office of Ground Water and Drinking Water. October 10, 1997. 127 pp.
139. USEPA (1997d). Memo from Herb Brass to Stig Regli dated March 11, 1997. "Summary of PE Study Data." 3 pp. (See IX-E.4)

140. USEPA, American Water Works Association (AWWA), AWWA Research Foundation (AWWARF), Association of Metropolitan Water Agencies (AMWA), Association of States Drinking Water Administrators (ASDWA), and National Association of Water Companies (NAWC) (1995). Partnership for Safe Water Voluntary Water Treatment Plant Performance Improvement Program Self-Assessment Procedures. October, 1995. 157 pp.
141. USEPA/State Joint Guidance on Sanitary Surveys. December 1995. 9 pp.
142. Vaughn JM, YS Chein, JF Novotny, and D Strout (1990). Effects of Ozone Treatment on the Infectivity of Hepatitis A Virus. 1990. Canadian Journal of Microbiology, 36(8): 557-560.
143. West T, P Daniel, P Meyerhofer, A DeGraca, S Leonard, and C Gerba (1994). Evaluation of *Cryptosporidium* Removal through High- Rate Filtration. Proceedings AWWA Annual Conf., June 1994, pp 493-504.
144. Wilson MP, WD Gollnitz, SN Boutros, and WT Boria. (1996) Determining Groundwater Under the Direct Influence of Surface Water. AW WA Research Foundation, Denver CO. 184 pp.

C. Advisory Committee Meeting Notes/TWG Material (all of the following materials are located in the DBP NOA record in under VIII-E)

1. March 12, 1997 - TWG Handouts
  - a. Summary of the Cryptosporidium Removal Efficiencies Estimated for Various Physical and Chemical Processes. 1 p.
  - b. ESWTR Technology and Cost Document - List of Potential Treatment Technology. 1 p.
  - c. Turbidity Performance Information. 38 pp.
  - d. Plants that Exceeded Turbidity Standards for n Months out of 12. 5 pp.
  - e. State Turbidity Data. 1 p.
  - f. Median and Mean Values for Turbidity Measurements (Hopewell/Haymine). 1 p.
  - g. Turbidity Measurements Above Monthly Median Baseline. 3 pp.
  - h. Safe Drinking Water Information System/National Characterization. 3 pp.
  - i. Elements of M/DBP Expedited Rule - Framework for Discussion. 7 pp.
2. March 13-14, 1997 - FACA Handouts
  - a. Alternatives for Interim ESWTR. 1 p.
  - b. Facility Information by State/Notes. 4 pp.
  - c. Facility Information by State. 3 pp.
  - d. Intra- and Inter-Species Percentage Similarity for Cryptosporidium. 3 pp.
  - e. What do we know about Small Drinking Water Systems? Presented by Peter Shanaghan, Small Systems Coordinator. 10 pp.
  - f. Draft Conceptual M/DBP NOA Outline. 2 pp.
  - g. Schedule for Expedited M/DBP Rulemakings. 1 p.
  - h. Technical Work Group Presentation. 48 pp.
  - i. J. AWWA. An Analysis of Low-Level Turbidity Measurements. Vincent S. Hart, et al. 6 pp.
  - j. March 11, 1997. EPA correspondence regarding performance evaluation. 2 pp.
  - k. J. AWWA. Evaluation of Optical Detection Methods for Waterborne Suspensions. 15 pp.
  - l. Number and Percent of Plants that Exceed Monthly 95th Percentile Turbidity Standards. 6 pp.
  - m. J. AWWA. Waste Stream Recycling: Its Effect on Water Quality. David A. Cornwell and Ramon G. Lee. 7 pp.
3. March 24-25, 1997 - TWG Handouts
  - a. M/DBP Technical Meeting Objectives and Schedule. 3 pp.
  - b. Water Treatment Plant Data - Giardia. 17 pp.



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- c. Technical Work Group Mailing List. 2 pp.
- d. Extracts from Chapter 4. California Safe Drinking Water Act which relate to Turbidity or Filter Performance. 8 pp.
- e. List of Utilities. 2 pp.
- f. J. AWWA. Waste Stream Recycling: Its Effect on Water Quality. David A. Cornwell and R.G. Lee. 14 pp.
- g. Monitor to Establish Baseline Flow Charts. 4 pp.
- h. Proposed note from TWG Microbial Subgroup to TWG for March 24 - 25 meeting. 8 pp.
- I. Number and Percent of Plants that Exceed Monthly 95th Percentile Turbidity Standards in n Months out of 12. 6 pp.
- j. Compliance Cost Components. 2 pp.
- k. ESWTR Unit Cost Development Considerations. 11 pp.
- l. Background Information - Water Treatment. 5 pp.
- m. Log Removal: Particles vs. Giardia; Particles vs. Cryptosporidium. 2 pp.
- n. Summary of the Cryptosporidium Removal Efficiencies Estimated for Various Physical and Chemical Properties. 1 p.
- o. J. AWWA. An Analysis of Low-Level Turbidity Measurements. Vincent S. Hart et al. 6 pp.
- p. J. AWWA. Evaluation of Optical Detection Methods for Waterborne Suspensions. 15 pp.
- q. Plant Summary Data, 1994 through 1996. 1 p.
- r. J. AWWA. Examining Relationships Between Particle Counts and Giardia, Cryptosporidium, and Turbidity. Mark W. LeChevallier and W.D. Norton. 7 pp.
- s. Turbidity/Treatment Options. 5 pp.

4. April 15, 1997 TWG Handouts

- a. April 15, 1997. M/DBP Technical Work Group Meeting. Objectives and schedule. 2 pp.
- b. March 31, 1997. Memorandum from Abby Arnold, RESOLVE, Washington,

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- D.C. To Technical Working Group. Regarding Technical Working Group current schedule. 1 pp. + 1 att. (8 pp.)
- c. March 13, 1997. USEPA - M/DBP Advisory Committee. Organizational Protocols. 4 pp.
- d. March 13 - 14, 1997. M/DBP Rule Advisory Committee organizational meeting at RESOLVE, Washington, D.C. Draft meeting summary. 10 pp.
- e. March 7, 1997. Elements of M/DBP "Expedited Rule" 7 pp + an extra copy.
- f. April 16 -17, 1997. M/DBP Expedited Rule Advisory Committee. Objectives and agenda. 3 pp.
- g. April 15, 1997. Technical Workgroup Meeting M/DBP Expedited Rule by A. Amirtharajah, School of Civil and Environmental Engineering, Georgia Institute of Technology. 3 pp.
- h. Categorization of 1996 WIDB DBP Data. 2 pp.
- I. Microbial Benchmark Framework - flow chart. 1 pp. + extra copy.
- j. Plant Turbidity Data. 8 pp + an extra copy.
- k. European Survey of Bromate Ion Occurrence in Operational Drinking Water Plants. From Prof. B. Legube, Univ. Poitiers, France, Ozone: Science & Engineering 18(4):325-348 (1996). 9 pp. + 2 att. (2 pp.) with extra copy.
- l. IOA Survey of Operating Ozone Systems in Drinking Water Treatment. 5 pp. with extra copy.
- m. Outline - Issue Paper on Waste Stream Recycle and Filter to Waste in Water Treatment Plants by Michael J. McGuire. 1 pp. with extra copy.
- n. April 16, 1997. Technical Work Group Presentation on Particle Counting: Should the IESWTR include a performance standard for particle removal? 35 pp.
- o. Projected Annualized Total Costs of Plants Required to Modify Treatment to Meet 0.2 NTU and 0.3 NTU 95% of Time and a Maximum of 1.0 NTU. 6 pp.
- p. Assumptions for Plants having to comply with a 0.30 NTU 95% of monthly samples standard and a maximum turbidity value never exceeding 1 NTU or a 0.20 NTU 95% of monthly samples standard and a maximum turbidity value never exceeding 1 NTU. 4 pp + an extra copy.

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- q. Plant Response Plans - various. 20 pp.
  - r. March 4, 1997. Stage I DBP Rule RIA Outline. 4 pp.
  - s. Various charts for Average Distribution System TTHM and HAA Data for Plants. 5 pp.
  - t. Below baseline plant data. 8 pp.
  - u. Microbial Backstop - Framework Discussed at 3/25 M/DBP TWG Meeting. 1 pp.
5. April 16-17, 1997 FACA Handouts
- a. April 16 -17, 1997. M/DBP Expedited Rule Advisory Committee. Objectives and agenda. 3 pp.
  - b. M/DBP Rule Advisory Committee - Committee Members. 2 pp.
  - c. March 7, 1997. Elements of M/DBP "Expedited Rule" 7 pp + an extra copy.
  - d. Tasks for Technical Work Group. 4 pp.
  - e. Technical Work Group Presentation presented at M-DBP FACA meeting, Washington, D.C. April 16-17, 1997. 38 pp.
6. May 13-14, 1997 TWG Handouts
- a. Chart - Costs per Cumulative Percentage of Households. 1 pp.
  - b. May 19-20, 1997. M/DBP Stakeholder Meeting: Research and Regulatory Needs for the Stage 2 DBP Rule and ESWTR. Objectives and agenda. 4 pp.
  - c. Waste Stream Recycle and Filter - to - Waste in WTPs by Michael J. McGuire. Presented at M-DBP TWG Meeting, May 13-14, 1997, Washington, D.C. 4 pp.
  - d. May 13, 1997. Issue Paper and Options: Sanitary Surveys M/DBP FACA. 15 pp.
  - e. Charts - Cumulative Probability Distribution of Aggregate Pilot Plant Data. 1 pp.
7. May 15-16, 1997 FACA Handouts
- a. May 15-16, 1997. M/DBP Expedited Rule Advisory Committee at RESOLVE,

Washington, D.C. Objectives and agenda.

- b. May 18, 1997. Memorandum to Janet Stone. From Michael McGuire, McGuire Environmental Consultants, Inc., Santa Monica, CA. Regarding the two presentations in reduced form. 11 pp.
  - c. May 16, 1997. Elements for Consideration at June 3-4 Meeting. 1 pp.
  - d. Summary of EPA Thinking. 1 pp.
  - e. May 15, 1997. Combination Proposal of Issues: Turbidity, Predisinfection and Microbial Backstop. 1 pp.
  - f. Proposal for Predisinfection Credit Review. 1 pp.
  - g. Chart - Projected Annualized Total and Household Costs of Systems Required to Modify Treatment to Meet 0.1, 0.2 and 0.3 NTU 95% of Time. 1 pp.
  - h. Chart - Costs per Cumulative Percentage of Households
  - I. April 1993. GAO Report - Drinking Water: Key Quality Assurance Program is Flawed and Underfunded.
  - j. May 13, 1997. Issue Paper and Options: Sanitary Surveys M/DBP FACA. 16 pp.
  - k. Meeting Summary for May 15-16 FACA Meeting, 8 pp.
  - l. Technical Workgroup presentation at May 15-16 FACA Meeting, 18 pp.
8. May 19-20, 1997 Health Effects Research meeting Handouts
- a. May 19, 1997. Stakeholders Meeting: ESWTR - Linkage between Research and Regulatory Needs. Washington, D.C. 36 pp.
  - b. May 20, 1997. Stakeholder Meeting; DBP Stage 2 Rule-Linkage Between Research and Regulatory Needs. Washington, D.C. 53 pp.
  - c. Disinfection by-product Research. By Dr. Gary Boorman, NIEHS/NTP, Dr. Vicki Dellarco, OW/OST, Dr. Fred Hauchman, ORD/NHEERL, & Dr. Hank Gardner, DOD. 11 pp.
  - d. May 19, 1997. Microbial Health Research - M/DBP Stakeholders Meeting. By Fred S. Hauchman, Ph.D., USEPA, National Health and Environmental Effects Research Laboratory. Research Triangle Park, NC. 3 pp.

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- e. Assessment of the Incidence of Waterborne Disease: the Five Cities Study. 20 pp.
- f. Method 1622: Cryptosporidium in Water by Filtration/IMS/FA and Viability by DAPI/PI. USEPA/OW Document - EPA 821-D-97-001.
- g. Controlling Bromate Ion. By Gilbert Gordon, Miami University, Oxford, Ohio and Bernard Bubnis, Novatek, A Division of EBB Inc., Oxford, Ohio. 33 pp.
- h. Methods for Measuring BrO<sub>3</sub><sup>-</sup>. By Gilbert Gordon, Miami University, Oxford, Ohio and Bernard Bubnis, Novatek, A Division of EBB Inc., Oxford, Ohio. 33 pp.
- I. Analytical Methods Development for Bromate. By Jack Creed, NERL - Cincinnati & Daniel Hautman, TSC - Cincinnati. 9 pp.
- j. Cryptosporidium - Detection and Quantification Methods. 3 pp.
- Dick k. May 20, 1997. Stakeholder Meeting: Control of DBPs - DBP Speciation. Miltner, EPA ORD Cincinnati. 7 pp.
- l. May 19, 1997. Stakeholder Meeting. Cryptosporidium (Inactivation/Physical). Dick Miltner, EPA ORD Cincinnati. 6 pp.
- m. May 20, 1997. Removal of DBP Precursors and DBP Speciation: ICR Treatment Studies and TSC Studies. By Steve Allgeier, USEPA, OGWDW TSC. 8 pp.
- n. Epidemiologic Studies of Cancer and Exposure to DBPs: Current Status and Future Directions. By Kenneth P. Cantor, Ph.D., Division of Cancer Epidemiology and Genetics, National Cancer Institute, Bethesda, MD. 13 pp.
- o. Disinfection By-Products: Reproductive and Developmental Toxicity. By G.L. Kimmel, Ph.D., E.D. Clegg, Ph.D., B.R. Sonawane, Ph.D., National Center for Environmental Assessment, USEPA, Washington, D.C. 9 pp.
- p. Sensitive Population Projects. Disinfection Byproducts Team, Drinking Water Health Assessment Team, & Benefits Team. 8 pp.
- q. Chart: Issues and Questions related to Ozone and Biologically Active Filtration (BAF). 2 pp.
- r. May 19, 1997. Norwalk Virus Dose-Response Study. M/DBP Stakeholders Meeting. By Christine L. Moe, Ph.D., Dept. Of Epidemiology, University of North Carolina, Chapel Hill, NC. 3 pp.
- s. Microbial Pathogens - Health Effects Research. 2 pp.

- t. Cryptosporidium Volunteer Studies: What We Have Learned and Where Are We Going? Chappell, CL, Okhuysen, PC, Sterling, CR, Jakubowski, W and DuPont, HL, University of Texas Health Science Center-Houston, TX.
9. June 2, 1997 TWG Handouts
- a. Projected Annualized Capital, Operating & Maintenance, and Total Costs of Systems Required to Modify Treatment to Meet 0.1, 0.2, & 0.3 95% of Time - various charts. 15 pp.
- b. Estimating the incidence of waterborne infectious disease related to drinking water in the United States. By Robert D. Morris, Medical College of Wisconsin, Milwaukee, WI. & Ronnie Levin, USEPA, Washington, D.C. Assessing and Managing Health Risks from Drinking Water Contamination: Approaches and Applications (Proceedings of the Rome Symposium, Sept. 1994). LAHS Publ. No. 233, 1995. 14 pp.
- c. Effect of Various Disinfection Methods on the Inactivation of Cryptosporidium. Prepared by G.R. Finch, L.L. Gyurek, L.R.J. Liyanage, and Miodrag Belosevic, Dept. Of Civil and Environmental Engineering and Dept. Of Biological Sciences, University of Alberta, Edmonton, Alberta, Canada T6G 2G7. 77 pp.
- d. Combined Costs of 1.0, 2.0, & .3 NTU - various charts. 10 pp.
- e. Turbidity Monitoring Costs Estimates - various charts. 6 pp.
- f. Analytical Method for Turbidity Measurement GLI Method 2. Schott Great Lakes Instruments, Milwaukee, WI. 14 pp.
- g. What Turbidity Measurements Can Tell Us. By Raymond D. Letterman. Opflow, Vol. 20, No. 8, August 1994, American Water Works Association. 6 pp.
- h. The ABCs of BAC. By George P. Fulton. Public Works, 128(7): 64-69 (1997). 9 pp.
- I. Impact of Support Media on the Biological Treatment of Ozonated Drinking Water. By B.W. Dusser and W.G. Tramosch, Calgon Carbon Corp., Pittsburgh, PA. Ozone: Science & Engineering 19(2): 97-108 (1997). 12 pp.
- j. June 1, 1997. From Jeff Throckmorton, HF Scientific, Inc. Ft. Myers, FL. To Chuck Reading, Jr., Safe Water Solutions. Fax message regarding M/DBP TAG. 2 pp.
- FACA
- k. Disinfection of Cryptosporidium. By Charles N. Haas, School of Environmental Science, Engineering and Policy, Drexel University. 20 pp.

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- l. Turbidimeter Technology Turns on the High Beams: Is EPA Method 180.1 an appropriate calibration standard for applications involving low NTU (Nephelometric Turbidity Units) waters? A look at pulsed light, four-beam turbidimeter technology reveals advantages not available in years past. By Donald Lex. Intech Engineer's Notebook. 3 pp.
  - m. Four-Beam Turbidimeter for Low NTU Waters. By K. King, Great Lakes Instruments, Inc., Milwaukee, WI. 4 pp.
  - n. IOA Recommendations on the Issues (BAF/Ozone). 20 pp.
  - o. May 30, 1997. Issue Paper - Ozone + Biologically Active Filtration -- BAF. 6 pp.
  - p. Costs Per Cumulative Percentage of Households - chart. 1 pp.
  - q. Projected Percent of Systems Required to Modify Treatment to Meet 0.3 NTU 95% of Time, with Max at 1.0 and 2.0 NTU/Projected Annualized Total Costs of Systems Required to Modify Treatment to Meet 0.3 NTU 95% of Time @ 1.0 & 2.0 NTU - charts. 2 pp.
  - r. May 30, 1997. USA - Biologically Active Filtration Plants - Without GAC Medium - in Operation. 4 pp.
  - s. May 30, 1997. OSA ZONE Drinking Water Plants: Ozone Post-Filtration or Ozone + No Filtration. 3 pp.
  - t. May 30, 1997. USA Ozone - Biologically Active Filtration Plants - With GAC Medium - in Operation. 5 pp.
10. June 3-4, 1997 - FACA Handouts
- a. Technical Work Group Presentation. 21 pp.
  - b. Waterborne Disease Outbreaks: by pathogen, population, etc. 18 pp.
  - c. Various Cost Information. 5 pp.
  - d. Projected Percent of Systems Required to Modify Treatment to Meet 0.3 NTU 95% of Time, with Max at 1.0 and 2.0 NTU. 1 p.
  - e. Microbial Removal Efficiencies/Treatment Processes. 2 pp.
  - f. Benefits of Controlling Crypto - Assorted Information. 4 pp.
  - g. Final ESWTR - Multiple Barrier Concept. 1 p.
  - h. Treatment Technologies - Pros and Cons. 20 pp.
  - i. 5/30/97. Ozone + Biologically Active Filtration -- BAF, Issue Paper. 6 pp.
  - j. 5/30/97. EPA Draft for Discussion Purposes. Microbial/Disinfection By-Products (M/DBP) Federal Advisory Committee. Agreement In Principle. 7 pp.
  - k. M/DBP Rule Advisory Committee, Second Mtg, April 16-17 with att(s). 22 pp.
  - l. Handout on the combined costs of the IESWTR and D/DBP Rule, 1pp.
  - m. Draft agenda for June 2 TWG and June 3-4 FACA Meetings, 6 pp.

- n. Meeting Summary for June 3-4 FACA Meeting, 11 pp.
11. July 15, 1997 - FACA Handouts
- a. July 15, 1997. M/DBP Expedited Rule Advisory Committee, RESOLVE, Meeting Agenda.
  - b. M/DBP - IESWTR & DBP I Next Steps. 8 pp.
  - c. Status of RIA Documents. 1 p.
  - d. M/DBP Guidance Manual Descriptions. 3 pp.
  - e. Draft Information Sources for Public Water Systems/Small Water Systems. 5 pp.
  - f. Schedule for M/DBP, GWDR, ICR - Rules/Research. 1 p.
  - g. Draft - Information Sources for Public Water Systems. 1 p.
  - h. Number of Small Systems (Service Populations of 10,000 or Less). 1 p.
  - i. Data Collection and Analysis Small Water Systems. 8 pp.
  - j. EPA. Microbial/Disinfection By-Products (M/DBP) Federal Advisory Committee. Agreement in Principle. 9 pp.
  - k. Proposed Resolution on Waterborne Disease & Health Effects Data Development. 1 p.
  - l. June 12, 1997. DBP Preliminary Working Draft NOA. 160 pp.
  - m. June 12, 1997. IESWTR Preliminary Working Draft NOA. 165 pp.
  - n. Meeting Summary for July 15, 1997 FACA Meeting, 11pp.
  - o. June 12, 1997. From Jim Dunlap, President, National Rural Water Association to Fred J. Hansen, EPA Deputy Administrator. Re: Withdrawing from M/DBP Federal Advisory Committee. 2 pp.
12. M/DBP Exchange: Technical working Group - June 12, 1996, Stake holder Meeting - June 13 - 14, 1996
- a. Proposed agenda for Stakeholder Meeting June 13 - 14, 1996 , outline, note on use of ICR data from Stig Regli to Stakeholders (June 3, 1996). 30 pages.
  - b. Data quality objectives for the Information Collection Rule, Research Triangle Institute. 24 pages.
  - c. Memo to Docket from Stig Regli, Drinking Water Standards Division with attachment summarizing his discussion. 17 pages.
  - d. Summary of Results of Performance Evaluation Studies. 10 pages.
  - e. Executive summary and update of Simulation studies. 55 pages.
  - f. External reviews of Simulation studies. 32 pages.
  - g. Memo from John Fox, Engineering Analysis Division, to Stig Regli, Drinking Water Standards Division on Recovery Rates for Raw water and ICR Protozoan Method Performance. 8 pages
  - h. Memo from John Cromwell to Stig Regli, Drinking Water Standards Division on



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Estimation of ESWTR National Costs Using Simulated ICR Monitoring Data.  
27 pages.

- I. Memo from John Cromwell to Stig Regli, Drinking Water Standards Division on Revised Analysis ESWTR National Costs Using Revised Simulations. 3 pages.
- j. Overheads from Speech delivered by Nelson Moyer, University of Hygienic Laboratory entitled Microbial Risks from Sources other than Water. 32 pages.
- k. DBP/Microbial Research Plan: Total Resource Needs - by Research Priority. 14 pages.
- l. Tables identifying research to support long-term ESWTR, Stage 1 DBP Rule, Stage 2 DBP Rule, Ground Water Disinfection Rule and Interim ESWTR. 10 pages.
- m. U.S. EPA - FY95 and FY96 Research Projects. 46 pages.
- n. Statutory Regulation in the USA. Paper presented at Waterborne Pathogens Conference, Bonn, Germany by Stig Regli, Drinking Water Standards Division. 12 pages.
- o. Note on Use of ICR Data from Stig Regli to Stakeholders (June 3, 1996). 8 pages

13. M/DBP INFORMATION EXCHANGE - Stakeholder Meeting, September 26-27, 1996
  - a. Drinking Water Program Redirection. Overhead slides. (3 page handout, double sided.)
  - b. Recent Advances in Treatment Improvement. Overhead slides. (7 page handout.)
  - c. Option Analysis Factors. Overhead slides. (1 page handout.)
  - d. Microbial Options. Overhead slides. (8 page handout.)
  - e. Drinking Water Health Research in the U.S. Overhead slides. (1 page handout.)
  - f. Overview of Health Effects Research on Disinfection Byproducts. Overhead slides. (14 pp).
  - g. EPA Drinking Water Health Effects Research on Microbes and Disinfection By-Products. Overhead slides. (13 page handout.)
  - h. NHEERL Drinking Water Research. Overhead slides. (3 page handout.)
  - I. ORD Strategic Directions & Drinking Water Research. Overhead slides. (5 page handout, double sided.)
  - j. Disinfection By-Products: Cancer Research. Overhead slides. (5 page handout, double sided.)
  - k. Cancer Epidemiologic Studies. Overhead slides. (2 page handout, double sided.)
  - l. Disinfection By-products: Reproductive Effects Research. Overhead slides. (7 page handout, double sided.)
  - m. Research Plan Issues. Overhead slides. (5 page handout, double sided.)
  - n. Chemical Mixtures Research. Overhead slides. (5 page handout, double sided.)
  - o. Summary-Milwaukee Cryptosporidium Outbreak, April 1993. From the New England Journal of Medicine, July 21, 1994. (4 page handout.)
  - p. An Introduction to Epidemiology, Craun et al., *JAWWA*, Sept. 1996. Waterborne Disease Surveillance, Frost et al., *JAWWA*, Sept. 1996. (13 page handout, double sided.)

14. M/DBP Exchange: Stake holder Meeting - November 21 - 22, 1996.
  - a. Proposed agenda for Stakeholder Meeting - November 21-22, 1996. 3 pages. Overheads on support for expedited rule, maintaining or enhancing microbial protection, reducing DBPs without increasing microbial risk and differing views on how to meet these goals. 10 pages.
  - b. Summary of M-DBP Cluster Meeting November 21, 1996. 5 pages.
  - c. Association of Metropolitan Water Agencies paper on Stage 1 D/DBP and IESWTR Options, November 8, 1996. 4 pages.
  - d. AWWA Guidelines for the Interim ESWTR and Stage 1 D/DBPR. 7 pages.
  - e. Large Unfiltered Water Systems Guidelines on Interim ESWTR, November 8, 1996. 1 page.
  - f. Memo from Chris Wiant, Tri-County Health Department/National Environmental Health Association, to Gail Bingham, Resolve, Re: Stage I Rule and ESWTR. November 11, 1996. 2 pages.
  - g. Chlorine Chemistry Council's Suggestions on Interim Rules for Disinfectants and Disinfection Byproducts and Microbes. 3 pages.
  - h. Proposed Outline of "Boundary Conditions" to Control for and Reduce Microbial Risk in Implementing Stage 1 DBP rule, and Interim Enhanced Surface Water Treatment rule - 1 page.
  - I. Flip Chart Notes from M-DBP Cluster Meeting November 21-22, 1996. 4 pages.
  - j. Handouts from Speech given by Brian Ramaly. 8 pages.
  - k. List of M/DBP Meeting Participants. 16 pages.
  
15. M/DBP Information Exchange, December 12-13, 1996

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- a. Meeting Agenda 2 pp.
  - b. Draft Meeting Summary, Attachment C, DBP RIA Modeling Re-Cap, 15 pp.
  - c. Draft Meeting Summary, Attachment D, Regulatory Impact Analysis for the National Primary Drinking Water Regulations: Disinfectants/Disinfection By-Products Rule, (Summary of compliance decision tree results) 7 pp.
  - d. Draft Meeting Summary, Attachment E, Regulatory Impact Analysis for the National Primary Drinking Water Regulations: Disinfectants/Disinfection By-Products Rule, Appendix Volume 2: REG-NEG Technologies Working Group Working Papers/Analysis of Regulatory Alternatives, Analyses Supporting March 18 & 19, 1993 REG-NEG Meetings, 6pp.
  - e. Draft Meeting Summary, Attachment F, Memo from Doug Owen of Malcolm Pirnie to Technologies Working Group, 5pp.
  - f. Draft Meeting Summary, Attachment G, Flow Schematic for Predisinfection Status at present time and with Enhanced Coagulation, 1pp.
  - g. Draft Meeting Summary, Attachment H, Issues for December 12/13 1996 M/DBP Technical Working Group Meeting (List), 1pp.
  - h. Draft Meeting Summary, Attachment I, email from Eric Bissonette (TSC Cincinnati EPA) to James Westrick (TSC Cincinnati EPA) regarding treatment plant schematics, 1pp.
  - I. Draft Meeting Summary, Attachment J, Article from February 1995 Journal of AWWA titled "Complying with the SWTR: Ohio's Experience", 9 pp.
  - j. Draft Meeting Summary, Attachment K, Tasks from M-DBP TWG Meeting 12/12/96, 1pp.
  - k. Draft Meeting Summary, Attachment L. Contains two items: 1) Article "Facing Our Fears" from Consumer Reports, December, 1996, 4 pp. ;2) Draft Meeting Summary for December 13, 1996 Meeting, 11 pp.
  - l. Draft Meeting Summary, Attachment M, Technical Workgroup Task Schedule, 1 pp.
  - m. Draft Meeting Summary, Attachment N, Predisinfection Study, 8 pp.
16. M/DBP Information Exchange Technical Working Group Meeting, January 9 & 10, 1997
- a. Agenda, M/DBP Information Exchange Technical Working Group Meeting January 9 & 10, 1997. 2 pages

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- b. Summary, M/DBP Information Exchange Technical Working Group Meeting January 9 & 10, 1997. 5 pages
- c. All Data, M/DBP Information Exchange Technical Working Group Meeting January 9 & 10, 1997. 9 pages
- d. Utility THM Data. 1 page
- e. Preliminary Analysis of Fax Survey Results, McGuire Environmental Consultants, Inc. prepared for AWWA January 9, 1997. 15 pages
- f. Utility Giardia and Crypto Data. 1 page
- g. Utility Microbial Monitoring Data. 3 pages
- h. DBP Jar Tests- Variable Chlorine Points of Application, December 1996. 10 pages
- I. 1979 Flow Diagram. 2 pages
- j. Disinfection Application. 2 pages
- k. Mark LaChavalier Slides, Enhanced/ Optimized Coagulation. 21 pages
- l. Preliminary Analysis of Fax Survey Results, McGuire Environmental Consultants, Inc. prepared for AWWA January 9, 1997. 15 pages
- m. Enhanced Coagulation and Enhanced Softening for the Removal of Disinfection By-Product Precursors: An Evaluation; Singer, P. C.; Harrington, G. W.; Thompson, J.; White, M.; December 1996. 25 pages
- n. TOC/ DBP Precursor Control. 23 pages
- o. Summary, Enhanced Coagulation/ Enhanced Softening Project, WITAF; Malcolm Pirnie. 21 pages
- p. Tom Wood Slides, Enhanced Coagulation: A Reporter's View. 14 pages
- q. OC/ DBP Precursor Control. 23 pages
- r. Considerations in Optimizing Enhanced Coagulation, Tseng, T.; Edwards, M. 15 pages
- s. 1979 Flow Diagram. 2 pages
- t. Proposal for Finalizing TOC Removal Criteria for Softening. 1 page

17. M/DBP Information Exchange: Technical Meeting, January 27, 1997 Index
  - a. Ltr. Jacangelo to Roberson, Jan. 24, 1997, 2 p.
  - b. Pre-disinfection and Lime-softening spreadsheets, 3 p.
  - c. Presentation graphs and tables, National frequency of HAAs in SW Distributions Systems
  - d. TOC graphs, 2 p.
  - e. Presentation graphs and tables, WITAF Project on enhanced coagulation
  - f. Kansas City Water DBP data, 1 p.
  - g. Report, Analysis of Fax Survey Results, January 26, 1997 by McGuire
  - h. Spread Sheet, Utility data on raw water and treatment, 1 p.
  - I. Ltr. Westrick to ICR Contacts, January 24, 1997, 8 p.
  - j. Presentation on RIA Approach, 1 p.
  - k. Report, Summary of Disinfection Application Practices, Evaluated Through the Analysis of ICR Plant Schematics and Small Systems CPE Data, Bissonette and Algeier, 12 p.
  - l. Tables, THM formation, 4 p.
  - m. Presentation Tables and Graphs, Treatment Plants and Regulatory Impacts, Malcolm Pirnie, 10 p.
  - n. Presentation Tables and Graphs, General Description of 1996 WIDB Surface Water Treatment Plants, Frey, 22 p.
  - o. Tables and Graphs, Allgeier, January 24, 1997, 2 p.
  - p. Text, Tables and Graphs, Krasner, January 24, 1997, Full Scale TTHM Results, 6 p.
  - q. Memo, Krasner to Allgeier, January 24, 1997, 1993 DRPRAM Assumptions, 1 p.
  - r. Text, Tables and Graphs, Krasner, January 23, 1997, Predisinfection Jar Tests
  - s. Presentation Tables and Graphs, Predisinfection Credit & Microbial Backstop

Issues

- t. Text, Tables and Graphs, Krasner, January 24, 1997, Seasonal Variability in TOC levels
18. M/DBP Information Exchange: Stakeholder Meeting - January 28 - 29, 1997.
    - a. Proposed agenda for Stakeholder Meeting - January 28 - 29, 1997. 3 pages.
    - b. Overheads on Predisinfection Credit and microbial Backstop Issues. 14 pages.
    - c. Overheads on Analysis of Fax Survey Results, delivered by Michael McGuire on January 28, 1997 at M-DBP Stakeholder Meeting. 20 pages.
  19. ICR Initial Schematics - - - 4 diskettes.
  20. U.S. EPA. July 18, 1997. Microbial/Disinfection By-Products (M/DBP) Federal Advisory Committee. Agreement in Principle. Seventeen signed agreements, each 9 pages.
  21. May 1, 1997. Memorandum from Steve Via, AWWA Regulatory Engineer. To John Cromwell, Apogee. Regarding Estimate of Disinfection Benchmarking/Profiling Cost. With three attached memos to Steve Via from Mike Hotaling (Newport News, Va); Sarah Clark (Austin, TX); and Mike Pickel (Philadelphia, PA), 7 pp.

D. Other Background Documentation

1. U.S. EPA. Office of Science and Technology, Human and Ecological Health Effects Div. Addendum to Draft Drinking Water Criteria Document for *Cryptosporidium*. Draft Report. Oct. 10, 1997. 40 pp.

References Cited in the Draft Addendum

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4. California Morbidity. 1995. Cryptosporidiosis - A Growing Health Concern. California Morbidity 17/18. 2 pp.
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58. Nelson, Dennis. Oregon Health Division. Determination of Groundwater under the Direct Influence of Surface Water - Observations Regarding Hydraulic Connection, MPAs and Particle Counting. No date. 31 pp. \*
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60. U.S. EPA, OGWDW. State Procedures for Determination of Ground Water under the Direct Influence of Surface Water. Nov. 13, 1997. 73 pp. \*
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\* These documents were added to the Docket on 1/08/97 at the direction of Elizabeth Corr with the concurrence of OGC.

\*\* This document was added to the Docket on 3/26/98 by Phil Berger, OGWDW.

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E. Letters to/from EPA and EPA Memorandum

1. Jan. 10, 1994. From James R. Elder, Dir., OGWDW, USEPA. To John H. Sullivan, AWWA, Washington, D.C. Addressing Some of AWWA's Concerns about the Implementation of the SWTR. 5 pp. (Preamble ref. 131)
2. Oct. 19, 1995. From Joseph K. Alexander, Deputy Asst Ad., for Science, USEPA. To Dr. Verne A. Ray, Office of the Science Advisory Board, USEPA. Letter Transmitting and Dis- cussing a Review Draft Plan for Microbial Pathogens and Disinfection By- Products in Drinking Water. 2 pp. + 1 attach. (150 pp.) (Preamble ref. 133)
3. June 26, 1996. From John Fox, Statistician, OW, USEPA. To Dr. Donald G. Barnes, Science Advisory Board, USEPA. Letter Transmitting 2 documents: (1) a draft report an Evaluation of the Statistical Performance of a Method for Monitoring Protozoan Cycts in U.S. Source Waters; and (2) "Recovery Rates for Raw Water and ICR Protozoan Method Performance." 3 pp. + 122 pp. (Preamble ref. 1334)
4. Mar. 11, 1997. From Herb Brass, Technical Support Center, OGWDW, Cincinnati, OH. Note to Stig Regli with PE Study Data. (plus 1 p. transmittal letter from Brass to Heather Shank-Givens, OGWDW, EPA) (Preamble ref. 139)
5. Oct. 31, 1997. From Ephraim King, Chief, Standards and Risk Reduction Branch to the Record. Subject: Office of Management and Budget Comments on Stage 1 DBPR and IESWTR Notices of Data Availability. 1p.

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1	12/10/97	12/10/97	Craig C. Ziesemer	Dept. of Utilities/City of Norfolk	6040 Waterworks Road	Norfolk, VA	23502	3	0
*See also DBP-NOA, VIII-J1.56									
2	12/23/97	12/23/97	Randall C. Jones	City of Baker City	P.O. Box 650	Baker City, OR	97814	2	0
3	01/10/98	-----	John Loughrey	-----	1866 N. Marble Ridge Pl.	Tucson, AZ	85715	1	0
4	01/14/98	01/13/98	Joseph a. Dinkel & George Kraynick	Municipal Authority of the Borough of West View Water Department	210 Perry HWY, West View	Pittsburgh, PA	15229	15	0
5	01/19/98	01/19/98	C.E. Treadway (EMAIL)	-----	11306 Sunshine Park	Cypress, TX	77429	2	0
6	01/16/98	01/16/98	Robert L Foster Jr.	TN Dept of Environment and Conserv. Division of Water Supply	401 Church St 6th Floor	Nashville, TN	37243	6	4
7	01/20/98	01/20/98	Adrian Montemayor (EMAIL)	City of Laredo, Water Pollution Control Divison	-----	-----	-----	2	0
8	01/21/98	01/21/98	Daniel M. Hawkins (EMAIL)	-----	-----	-----	-----	2	0
9	01/21/98	01/21/98	Grady Gentry (EMAIL)	-----	-----	-----	-----	2	0
10	01/15/98	01/15/98	Unsigned	Weber Basin Water Conservancy Dist.	2837 East HWY 193	Layton, UT	84040	1	0
11	01/13/98	01/6/98	David L. Crandell	City of Akron, Dept. Of Public Svc. Public Utilities Bureau	1570 Ravenna Road	Kent, OH	44240	7	0
*See also DBP-NOA, VIII-J1.2									
12	01/15/98	01/13/98	Pat Ryan	Modesto Irrigation District	1231 Eleventh St., PO Box 4060	Modesto, CA95352	2	0	
*See also DBP-NOA VIII-J1.6									
13	01/16/98	01/15/98	Edward W. Cummings	Contra Costa Water District	1331 Concord Ave., PO Box H2O	Concord, CA	94524	4	0
14	01/21/98	01/21/98	Keith H. Wasem (EMAIL)	Easy Lawn, Inc.	-----	-----	-----	2	0
15	01/22/98	01/22/98	Robert Kamenzind (EMAIL)	-----	11448 Bristle Oak Trl.	Austin, TX	78750	2	0
16	01/22/98	01/22/98	David Boss (EMAIL)	-----	-----	-----	-----	3	0
17	01/22/98	12/10/97	Lloyd R. Coughlin (EMAIL)	Classic Backflow	-----	-----	-----	3	0
18	01/22/98	01/20/98	John Brewer	CMB Industries, Inc Fluid Control	PO Box 8070	Fresno, CA	93747	161	0

Comments Delivered or Postmarked by February 3, 1998

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19	01/20/98	01/20/98	Robert E. Coomer, Jr.	Backflow Test & Repair	5068 S. Lick Ch. Road	Morgantown, IN	46160	1	0
20	01/23/98	01/23/98	John H. Schwartz (EMAIL)	Liberty Stanton Construction Co., Inc. Stanton Energy Industry Consultants, Inc.				2	0
21	01/24/98	01/24/98	Jeffrey F. Liske (EMAIL)	-----	-----	-----	-----	2	0
22	01/23/98	01/23/98	Roxann Criswel (EMAIL)	O-B-O Newton Co. Water & Sewage Auth. & Tim Thompson - City of Covington	-----	-----	-----	2	0
23	01/23/98	01/23/98	Barbara Coffman (EMAIL)	-----	-----	-----	-----	3	0
24	01/25/98	01/25/98	Mark Evans (EMAIL)	Mark Evans Plumbing United Auto Workers Local 600				2	0
25	01/25/98	01/25/98	Jerold W. Dusek (EMAIL)	Dusek Plumbing & Heating	8260 Geddes Road	Saginaw, MI	48609	2	0
26	01/26/98	01/26/98	Stan Cowan (EMAIL)	Health State Department	-----	Missouri		2	0
27	01/26/98	01/21/98	Jorge S. Rodriguez, P.E.	Miami Dade Water & Sewer Dept	4200 Salzedo Street	Coral Gables, FL	33146	6	1
28	01/27/98	01/27/98	Jack Poole, P.E (EMAIL)	Poole Fire Protection Engineer		IN		3	0
29	01/22/98	01/15/98	John McEncroe	-----	2315 Table Heights Drive	Golden, CO	80403	1	0
30	01/28/98	01/19/98	Michael L. Young	Lawn & Shrub, Inc.	3721 N. 500 E.	Lafayette, IN	47905	1	2
31	01/21/98	01/21/98	Jim Leggieri	Bartonville Water Supply Corp.	1911 E. Jeter Road	Bartonville, TX	76226	1	0
32	01/20/98	01/14/98	Jim Purzycki	BAVCO	20435 South Susana Road	Long Beach, CA	90810	2	0
33	01/20/98	01/19/98	Alvin B. Hermsen	A-L-H Trainers	3231 NW Rochester Road	Topeka, KS	66617	2	0
34	01/20/98	01/16/98	Randy J. Goss	City of Austin, Water & Wastewater Utility, Regulatory Services	P.O. Box 1088	Austin, TX	78767	8	0
35	01/21/98	01/21/98	Unsigned	Jefferson Parish Water Dept.	3600 Jefferson HWY-Bldg E	Jefferson, LA	70121	2	1
*See also DBP-NOA VIII-J1.5									
36	01/21/98	01/20/98	Sam Johnson	City of Riverside, Public Utilities Dept.	2911 Adams Street	Riverside, CA	92504	1	0
37	01/21/98	01/21/98	Greg Long	Cherokee Co. Water & Sewage Auth.					



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38	01/21/98	01/21/98	John B. Moore	Cross Connection Control Dept.	P.O. Box 1006	Canton, GA	30114	1	0
39	01/21/98	01/21/98	Michael C. Wilkinson	Sprinkler King of Texas, Inc.	23182 Blanco Road	San Antonio, TX	78258	4	0
40	01/22/98	01/21/98	Michael Roderick	Sprinkler King of Texas, Inc.	23182 Blanco Road	San Antonio, TX	78258	4	0
41	01/22/98	01/22/98	Les O'Brien	Town of Dartmouth, Dept. of Public Works, Water & Sewage Division	751 Allen Street	North Dartmouth, MA	02747	1	0
42	01/22/98	01/22/98	David A. Nelson	University of Florida, Center for Training Research, & Education for Environ Occupations (TREEO)	3900 SW 63rd Blvd	Gainesville, FL	32608	2	0
43	01/23/98	01/23/98	Paul J. Calta	Nelson Carlson Mechanical Contractors	P.O. Box 4183	Rockford, IL	61108	2	0
44	01/23/98	01/20/98	William A. Brutsch	Lakewood Water District	P.O. Box 99729	Lakewood, WA	98499	2	0
* See also DBP-NOA, VIII-J1.10				Massachusetts Water Resources Auth.	Charleston Navy Yard				
45	01/23/98	01/22/98	Harold W. Perry, Jr.	Brewer Ozone WTP	100 First Avenue	Boston, MA	02129	5	0
46	01/23/98	01/21/98	Julius Ciaccia, Jr.	City of Cleveland, Dept. of Public Utilities, Division of Water	RR#1 Box 3090	Eddington, ME	04428	1	1
47	01/28/98	01/28/98	John Hedgecock (EMAIL)	Backflow Prevention Assoc. Of AR	1201 Lakeside Avenue	Cleveland, OH	44114	9	0
48	01/28/98	01/28/98	William A. Laird, III (EMAIL)	Carlsbad Municipal Water District	-----	-----	-----	2	0
49	01/21/98	01/20/98	Fred L. Baird	San Antonio Water System	-----	-----	-----	2	0
50	01/26/98	01/21/98	Craig H. Adams	Tucson Water	1002 S Camino De Las Palmas	Tucson, AZ	85748	1	0
51	01/26/98	01/26/98	Dale Strong	Commissioners of Public Works	P O Box B, 103 Phillip Street	Charleston, SC	29402	1	0
52	01/26/98	01/23/98	Bruce E. Clark,	-----	8 Wilson Street	Topsham, ME	04086	1	0
53	01/26/98	01/26/98	Ellis L. Hauser	Iowa Dept of Public Health	15201 Hickman Rd..	Des Moines, IA	50325	1	0
54	01/22/98	01/22/98	Larry Johnston	-----	941 McCullough	Camden, AR	71701	1	0
55	01/26/98	01/21/98	Judith M. Bell	Sandy City, UT, Dept. of Public Utilities	10000 Centennial PKWY	Sandy, UT	84070	3	0
56	01/27/98	01/27/98	Jack Poole	Poole Fire Protection Engineering, Inc./	505 N. Mur-Len, Ste. B	Olathe, KS	66062	2	0

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57	01/27/98	01/27/98	Jack N. Walter	American Backflow Prevention Assoc. Consumers PA Water Co. & O-B-O	Shenango Valley Division				
58	01/27/98	01/26/98	Terry E. Marler	American Backflow Prevention Assoc.	665 South Dock Street	Sharon, PA	16146	1	0
59	01/27/98	01/22/98	D. Thomas Arnold	West Knox Utility District	P.O. Box 51370	Knoxville, TN	37950	1	0
60	01/27/98	01/26/98	George Fish	Safe Flow	3701 Weymeyer Dr.	Columbia, MO	65202	1	0
61	01/28/98	01/27/98	Harold Miller	Plumbers & Pipefitters #112 Funds Office/Souther Tier Cross Connection & Backflow Prevention School	P.O. Box 670	Binghamton, NY	13902	1	0
62	02/2/98	02/2/98	David Y. Terry (EMAIL)	Miller Sales, Inc. & O-B-O American Backflow Prevention Assoc.	2835 N. Kedzie Ave.	Chicago, IL	60618	3	0
			*See also DBP-NOA VIII-J1.11	MA Dept. of Environ. Protection	-----	-----	-----	4	0
63	01/31/98	01/31/98	Dorothy A. Weaver (EMAIL)	Denver Borough Authority, Lancaster County	-----	-----	-----	2	0
64	02/2/98	02/2/98	Joe Tangeman (EMAIL)	Tangeman Plumbing & O-B-O American Backflow Prevention Assoc.	P.O. Box 57	Bloomfield, NE	68718	2	0
65	02/03/98	01/30/98	Dale M. Pershing	Indianapolis Water Company	1220 Waterway Blvd	Indianapolis, IN	46206	4	0
66	02/03/98	02/03/98	Kenneth Ashlock (EMAIL)	Senior Cross Conn Control Inspector		Tempe, AZ		3	0
67	02/03/98	02/03/98	Carl McMorran (EMAIL)	Maine Water Utilities Association		Maine		9	0
68	02/03/98	02/02/98	Richard E. Roy for Kumar Kishinchand	City of Philadelphia, Water Dept.	1101 Market Street	Philadelphia, PA	19107	10	0
			*See also DBP-NOA VIII-J1.14						
69	02/03/98	02/02/98	David Gustafson	HACH Company	PO Box 389	Loveland, CO	80539	2	0
			*See also DBP-NOA VIII-J1.15						
70	02/03/98	01/30/98	Mark D. Buehler	Metro Water District of South Calif.	Box 54153	Los Angeles, CA	90054	2	0
71	01/26/98	-----	Paul J. Christensen	City of Monterey Park	320 West Newmark Ave.	Monterey Park, CA	91754	7	0
72	01/26/98	01/14/98	Paul J. Christensen	City of Monterey Park & O-B-O					

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73	01/26/98	12/08/97	Fred L. Baird	American Backflow Prevention Assoc.	320 West Newmark Ave.	Monterey Park, CA	91754	5	0
74	01/27/98	01/27/98	Mary L. Howell	San Antonio Water System	P.O. Box 2449	San Antonio, TX	78298	6	0
75	01/27/98	01/26/98	Byron R. Hardin	Backflow Management Inc. (BMI)	10735 SE Stark St., Ste 203	Portland, OR	97216	1	0
76	01/28/98	01/27/98	John Cook	Carrollton Water Production	2150 Old Denton Road	Carrollton, TX	75006	2	8
77	01/28/98	01/28/98	L.R. Anderson	Arizona State Univ., Facilities Mngmt. & O-B-O Amer. Backflow Prevention Assoc.	P.O. Box 872605	Tempe, AZ	85287	1	0
78	01/28/98	01/28/98	Howard Hendrickson	West Des Moines Water Works & O-B-O Amer. Backflow Prevention Assoc.	P.O. Box 65610	West Des Moines, IA	50265	2	0
79	01/28/98	01/27/98	Brian H. Tarbuck	H.D. Hendrickson, PE	1 Runawit Road	Exeter, NH	03833	2	0
80	01/28/98	01/27/98	Brad McLean	State of ME, Dept. of Human Svcs. Division of Health Engineering	10 State House Station	Augusta, ME	04333	5	0
81	01/29/98	01/28/98	Roy Cross	City of Northglenn - Water & Wastewater Utility	2350 West 112th Ave.	Northglenn, CO	80234	2	0
82	01/29/98	01/26/98	Michael Logston	City of Kennewick, WA	P.O. Box 6108	Kennewick, WA	99336	2	0
83	01/29/98	-----	Gary Motte	American Backflow Prevention Assoc. Wellington Municipal Corp. & O-B-O Amer. Backflow Prev. Assoc.	P.O. Box 3051	Bryan, TX	77085	2	0
84	01/29/98	01/26/98	Frank Z. Hockett	-----	P.O. Box 559	Wellington, UT	84542	3	0
85	01/30/98	01/29/98	Tom Higham	-----	P.O. Box 1690	Tempe, AZ	85280	2	0
86	01/30/98	01/28/98	Thomas V. Cravens	City of Portsmouth, Public Works Dept.	20261 Vejar Road	Walnut, CA	91789	2	0
87	01/30/98	01/27/98	Julie A. Hutchins	City of Portsmouth, Public Works Dept.	700 Islington Street	Portsmouth, NH	03801	2	0
88	01/31/98	01/30/98	Sueo Murakami	City of Seattle, Seattle Public Utilities	1509 S. Spokane St.	Seattle, WA	98144	7	0
89	02/03/98	01/28/98	Connie K. Schreppel	Arizona Cross Connection	4116 West Northern Ave.	Phoenix, AZ	85051	2	0
*See also DBP-NOA VIII-J1.20				NY State Regulatory Review Committee					
90	01/23/97	01/27/98	Paul S. Fisher	c/o Stearns & Wheler, LLC	One Remington Park Drive	Cazenovia, NY	13503	5	0
91	02/03/98	02/02/98	Stuart .F. Asay & Kristi M. James	The City of Canon City	Box 1460	Canon City, CO	81215	1	0
				Drinking Water & Backflow Prevention	P.O. Box 33209	Northglenn, CO	80233	4	0

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92	02/03/98	02/03/98	Mike Brune (EMAIL)	The Dillon Company	3930 Cook Street	Denver, CO	80205	3	0
93	02/03/98	02/03/98	David Farrow (EMAIL)	St. Joe Backflow & Testing & O-B-O American Backflow Prevention Assoc.	2518 Francis	St. Joseph, MO	64501	2	0
94	02/03/98	02/03/98	Philip J. Lamourreux (EMAIL)	-----	97 Totten Road	Gray, ME	04039	2	0
95	02/03/98	02/03/98	Eric Okazaki (EMAIL)	-----	-----	-----	-----	2	0
96	02/03/98	02/03/98	John Bird (EMAIL)	-----	1301 Lefthand Dr.	Longmont, CO	80501	4	0
97	02/03/98	02/03/98	Barbara J. Gastian	City of Albuquerque Water Utility Division	-----	Albuquerque, NM	-----	4	0
*See also DBP-NOA VIII-J1.23			(EMAIL)	-----	-----	-----	-----	4	0
98	02/03/98	02/03/98	Alan A. Luce (EMAIL)	-----	-----	-----	-----	4	0
99	02/03/98	02/03/98	John H. Sullivan	American Water Works Assoc.	1401 New York Ave., Ste 640	Washington, DC	20005	61	2
*See also DBP-NOA VIII-J1.57									
100	02/03/98	02/02/98	Stu Asay, et al.	Colorado Backflow Prevention Assoc.	P.O. Box 2121	Wheat Ridge, CO	80034	2	0
101	02/03/98	02/03/98	Roger W. Hulbert	City of Houston	P.O. Box 1562	Houston, TX	77251	3	0
102	01/27/98	01/23/98	Kim Hills	Salt Lake City Corporation, Dept. of Public Utilities	1365 West 2300 North	Salt Lake City, UT	84115	1	0
103	01/28/98	-----	Ed Ericson	Wellington Municipal Corp. & O-B-O American Backflow Prevention Assoc.	P.O. Box 559	Wellington, UT	84542	3	0
104	01/29/98	01/28/98	Lee C. Bradley, Jr.	City of Fort Worth Water Dept.	1000 Throckmorton St.	Fort Worth, TX	76102	2	0
105	01/30/98	02/01/98	Rosemary Menard, et al.	City of Portland, Oregon Bureau of Water Works	1120 S.W. 5th Ave.	Portland, OR	97204	8	1
*See also DBP-NOA VIII J1.34									
106	01/30/98	01/30/98	George N. Schaaf	Plumbing & Backflow Prevention Consultant	574 Licklog Road	Hayesville, NC	28904	1	0
107	02/02/98	02/02/98	Pete Keers	Riverton City & O-B-O American Backflow Prevention Association	P.O. Box 429	Riverton, UT84065	1 0		
108	02/02/98	02/02/98	Richard A. Koenig	American Backflow Prevention Assoc.	304 North 5th St., Ste. C	Norfolk, NE	68701	2	0

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109	02/02/98	01/30/98	James R. Cummings	City of Grand Prairie, Environ. Services Department	P.O. Box 534045	Grand Prairie, TX	75053	1	0
110	02/02/98	01/28/98	Robert G. Heitz, Jr.	Water Safety Services, Inc.	27 Salem Street	Woburn, MA01801	3 0		
111	02/03/98	02/02/98	Darrell B. Smith	Regional Water Authority	90 Sargent Drive	New Haven, CT	06511	2	0
112	02/03/98	01/30/98	Larry S. Patterson	AEM, Inc.	P.O. Box 9346	Peoria, IL	61612	2	0
113	02/03/98	02/02/98	David Kittredge	David Kittredge, P.E. Consulting Eng.	35 Lewis Street	Manchester, NH	03102	1	0
114	02/03/98	-----	Unsigned	-----	-----	Indiana	-----	1	0
115	02/03/98	02/03/98	Thomas P. Bonacquisti	Fairfax Co. Water Authority	P.O. Box 1500	Merrifield, VA	22116	2	1
*See also DBP-NOA VIII-J1.33									
116	02/03/98	02/03/98	C.T. "Kip" Howlett, Jr.	Chlorine Chemistry Council/Chemical Manufacturers Association	1300 Wilson Blvd	Arlington, VA	22209	2	0
117	02/03/98	02/02/98	Charles R. Reading, Jr.	Water & Wastewater Equipment Manufacturers Assoc., Inc.	P.O. Box 17402	Washington, DC	20041	7	5
118	02/03/98	02/03/98	Diane VanDe Hei	Assoc. Of Metropolitan Water Agencies	1717 K St, NW, Ste 801	Washington, DC	20036	6	2
119	02/03/98	02/03/98	Daniel J. O'Lone	Florida Dept. of Environ. Protection	Twin Towers Office Bldg. 2600 Blair Stone Road	Tallahassee, FL	32399	2	2
120	02/03/98	02/03/98	David E. Leland (EMAIL)	Oregon Health Div. Drinking Water Prog.-----	-----	-----	-----	7	0
*See also DBP-NOA VIII-J1.40									
121	01/30/97	01/30/97	F.E. Lueck	Mid-West Instrument	6500 Dobry Drive	Sterling Heights, MI	48314	2	0
122	01/30/98	01/29/98	Darrell Cannon	Cedar Rapids Water Department	1111 Shaver Road, NE	Cedar Rapids, IA	52402	1	0
123	02/02/98	02/01/98	Richard Carlson	-----	8405 Kappa Street	La Mesa, CA	91942	1	0
124	02/03/98	02/02/98	William B. Zilli	City of Dayton, Dept. of Water	320 W. Monument Ave.	Dayton, OH	45402	3	0
125	02/03/98	02/03/98	Alan Vento & Philip Vento	BMI Mid-Atlantic, Inc.	205 Red Oak Drive	Pittsburgh, PA	15239	1	0
126	02/03/98	02/03/98	Stephen Lohman	Denver Water	1600 West 12 Ave.	Denver, CO	80254	2	0
127	02/03/98	02/03/98	Craig Gilmour	California Water Service Company	1720 North First Street	San Jose, CA95112	1 0		
128	02/03/98	01/31/98	Donald G. Lindsey	Citizen response & O-B-O American Backflow Prevention Association	1105 D 15th Ave., Ste 243	Longview, WA	98632	1	0

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129	02/03/98	02/03/98	Richard Bird	Sweetwater Authority	P.O. Box 163	Pine Valley, CA	91962	1	0
130	02/03/98	02/03/98	John J. Herlihy	BHC Company	835 Main Street	Bridgeport, CT	06604	3	1
131	02/03/98	02/01/98	Jack DeMarco	City of Cincinnati	5651 Kellogg Avenue	Cincinnati, OH	45228	5	3
132	02/03/98	-----	Rasheed Ahmad	Wiedeman & Singleton, Inc.	1789 Peachtree Road, NE	Atlanta, GA	30309	2	3
133	02/03/98	02/03/98	Dan Pearson	TX Natural Resource Conserv. Comm.	P.O. Box 13087	Austin, TX	78711	8	0
*See also DBP-NOA VIII-J1.42									
134	02/03/98	01/30/98	Dan Smith	Assoc. of CA Water Agencies	910 K St., Ste. 100	Sacramento, CA	95814	5	0
135	02/02/98	02/02/98	Ron Freeman	City of Amarillo	P.O. Box 1971	Amarillo, TX	79186	4	0
136	02/03/98	02/02/98	Mark Premo	Anchorage Water & Wastewater Utility	3000 Arctic Blvd.	Anchorage, AK 99503	1 0		
*See also DBP-NOA VIII J1.44 & J1.48									
137	02/03/98	02/03/98	Flint C. Watt	State of MI, Dept. of Environ. Quality Drinking Water & Radiological Protection Division	P.O. Box 30630	Lansing, MI	48909	2	0
138	02/03/98	01/30/98	Robert M. Krill	State of WI/Dept. of Natural Resources	Box 7921	Madison, WI	53707	1	0
139	02/03/98	-----	Terry Schneider	American Backflow Prevention Assoc. Central Valley Chapter, Dist. 6	P.O. Box 11471	Fresno, CA	93773	2	0
140	02/03/98	02/02/98	L.D. McMullen	Des Moines Water Works	2201 Valley Drive	Des Moines, IA	50321	3	0
141	02/03/98	02/03/98	Franklyn W. Pogge	City of Kansas City, MO/Water Services Department	5th Fl., City Hall 414 E. 12th Street	Kansas City, MO	64106	1	0
*See also DBP-NOA VIII J1.39									
142	01/30/98	01/29/98	Daniel K. Nix	Wichita Falls, Texas	P.O. Box 1431	Wichita Falls, TX	76307	2	0
143	02/03/98	02/03/98	Chris Rudkin	City of Boulder Public Works/Utilities	P.O. Box 791	Boulder, CO	80306	5	0
*See also DBP-NOA VIII J1.51									
144	02/03/98	02/03/98	Gale McGaha Miller	City of Fort Collins, CO	P.O. Box 580	Fort Collins, CO	80522	4	0
*See also DBP-NOA VIII J1.50									
145	02/03/98	02/03/98	Vanessa M. Leiby	Assoc. of State Drinking Water Admin.	1120 CT Ave., NW, Ste 1060	Washington, DC	20036	4	0
146	02/03/98	02/3/98	Daniel Schechter	American Water Works Svc. Co., Inc. O-B-O American Water System	P.O. Box 1770	Voorhees, NJ	08043	4	0

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147	02/03/98	02/02/98	Ralph Flournoy	-----	5610 Aberdeen	Fairway, KS	66205	4	1
148	02/03/98	02/02/98	Hank Sims	Cross Connection Control Committee of PNWS-AWWA	1410 20th Street, Bldg 2	Salem, OR	97302	3	1
149	02/02/98	01/29/98	Robert Purzycki	Nat'l Assoc. Of Plumbing-Heating-Cooling Contractors	P.O. Box 6808	Falls Church, VA	22046	2	0
150	02/3/98	02/04/98	Alton C. Boozer	S.C. Dept. of Health & Environ. Control	2600 Bull Street	Columbia, SC	29201	9	0
*See also DBP-NOA VIII-J1.25									
151	02/03/98	-----	Unsigned (EMAIL)	Peterson Engineering	-----	-----	1	0	
152	02/03/98	02/02/98	Laura Cummings	Passaic Valley Water Commission	P.O. Box 230	Clifton, New Jersey	07011	3	0
153	02/03/98	02/03/98	Gregg L. Grunenfelder	State of WA, Dept. Of Health, Division of Drinking Water	Airdustrual Center, Bldg. 3 P.O. Box 47822	Olympia, WA	98504	4	0
154	02/03/98	02/02/98	I. Mac Mathews	Troubleshooters Solutions, Inc. & O-B-O Amer. Backflow Prevention Assoc.	163 West Swan Street	Centerville, TN	37033	1	1
155	02/03/98	02/02/98	R.B. Howell for *See also DBP-NOA VIII-J1.17 David Spath	State of CA, Dept. of Health Services	P.O. Box 942732	Sacramento, CA	94234	2	1
156	02/03/98	11/04/98	Jack Hoffbuhr *See also DBP-NOA VIII-J1.43	Lincoln Water System	2021 N 27th Street	Lincoln, NE	68503	3	0
157	02/03/98	-----	William J. Rycroft	Ambitec/Scientech, Inc.	1720 Louisiana Blvd., N.E., Suite 400	Albuquerque, NM	87110	4	0

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1	02/04/98	02/04/98	Michael T. Kidd (EMAIL)	-----	-----	-----	-----	3	0
2	02/04/98	02/04/98	Gregg L. Grunenfelder	State of WA Dept. of Health Division of Drinking Water	Airustrial Ctr. Bldg. 3 P.O. Box 47822	Olympia, WA	98504	4	0
3	02/06/98	02/03/98	Kevin W. Brown	State of UT Dept. Of Environ. Quality Division of Drinking Water	P.O. Box 144830	Salt Lake City, UT	84114	5	0
4	02/04/98	02/02/98	Douglas G. Chun	Alameda County Water District	P.O. Box 5110	Fremont, CA	94537	3	0
*See also DBP-NOA VIII-J2.2									
5	02/04/98	02/03/98	MacArthur Gauge	MacArthur Gauge	P.O. Box 993	Eules, TX	76039	1	0
6	02/04/98	02/03/98	Edward A. Herrick	The City of Groton, CT	295 Meridian Street	Groton, CT	06340	1	0
7	02/04/98	02/03/98	Anthony L. Arthur	Watts Industries, Inc.	815 Chestnut Street	No. Andover, MA	01845	2	0
8	02/04/98	02/03/98	Bart Simons	American Water Works Assoc. Intermountain Sect. Cross Connection Control Committee	1377 South 350 East	Provo, UT	84606	1	0
9	02/19/98	02/18/98	Bernie R. Bullert	St. Paul Water Utility	8 4th St., E, Ste 200	St. Paul, MN	55101	1	0
10	03/11/98	03/10/98	Tim D. Hoover	PHD Plumbing Service	1841 West Arrow Highway	Upland, CA	91786	1	0
11	03/11/98	03/10/98	John D. Watkins	S.C. Dept. of Health & Environ. Control	2600 Bull Street	Columbia, SC	29201	2	2
12	03/26/98	03/26/98	Jeffrey K. Griffiths	Tufts U. School of Medicine	136 Harrison Ave.	Boston, MA	02111	1	1
13	06/18/98	06/16/98	Diana Corcoran	American Society of Sanitary Engineering	28901 Clemens Road, Ste. 100	Westlake, OH	44145	1	0

\*Comments Delivered or Postmarked after February 3, 1998



XI - Interim Enhanced Surface Water Treatment Rule (IESWTR)  
Final Rule  
Dec. 16, 1998; 63 FR 69477

- A. FEDERAL REGISTER NOTICES
  - 1. The Final Rule
- B. REFERENCES CITED IN THE PREAMBLE REFERENCE LIST
- C. COMMENT/RESPONSE DOCUMENT
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XI-A

A. Federal Register Notice

1. Federal Register: Environmental Protection Agency. National Primary Drinking Water Regulations: Interim Enhanced Surface Water Treatment: Final Rule. Vol. 63, No. 241. Wednesday, Dec. 16, 1998. pp. 69477-69521.  
[NTIS PB 98-111296 (EPA-B-98-013): Plain English Version]

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- 22.b EPA. Regulatory Impact Analysis for the Interim Enhanced Surface Water Treatment Rule - **Appendices to the RIA**. Nov. 12, 1998. 163 pp.
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C. Comment Response Document

1. U.S. EPA. Response to Comment Document - Interim Enhanced Surface Water Treatment Rule. Office of Ground Water and Drinking Water. November 1998. 2 Vols. 1,328 pages (Vol. 1: 714 pages.; Vol. 2: 614 pages)

D. Other Background Documentation

1. U.S. EPA. Jan. 22, 1998. To Jere Glover, Chief Council for Advocacy, U.S. Small Business Administration. From Cynthia Dougherty, Director, Office of Ground Water and Drinking Water. Letter requesting SBA to review and comment on EPA's alternative definition of "small business." Also attached (1) letter, dated July 2, 1998, to J. Glover from C. Dougherty; (2) pages 7620 - 7621 from the Federal Register, Friday, February 13, 1998, Volume 63, Number 30; and (3) pages 15675-15677 from the Mar. 31, 1998 FR, Vol. 53, No. 61. 11 pages total.
2. U.S. EPA. Manchester Environmental Laboratory, Port Orchard, WA. Consensus Method for Determining Groundwaters Under the Direct Influence of Surface Water Using Microscopic Particulate Analysis (MPA). Oct. 1991. EPA 910/9-92-029. 59 pp. NTIS PB 93-180818.
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4. U.S. EPA. Office of Water. *Cryptosporidium* and *Giardia* Occurrence Assessment for the Interim Enhanced Surface Water Treatment Rule. July 1998. EPA 815-B-98-005. 185 pp. NTIS: PB 99-111338.
5. U.S. EPA. OW, OST. Drinking Water Criteria Document for *Cryptosporidium* - Draft. June 1994. 114 pp.
6. U.S. EPA. From Elizabeth Corr, OGWDW. To IESWTR Docket. Memo Regarding the Timeframes for Individual Filter Activities. Nov. 17, 1998. 1 p.

E. OMB Review (All of the materials cited below can be found at XII-F, DBP-Final)

1. Executive Summary for the Stage 1 DBPR Regulatory Impact Analysis. 15 pp.
2. Preamble to the Stage 1 DBPR Economic Analysis Section. 32 pp.
3. MCLG for Chloroform. 9 pp.
4. Executive Summary for the IESWTR Regulatory Impact Analysis. 6 pp.
5. Preamble to the IESWTR Economic Analysis Section. 12 pp.
6. Compliance Schedules for the Stage 1 DBPR. 7 pp.

F. GAO & Congressional Receipt Letters

1. Dec. 11, 1998. To Mr. Robert P. Murphy, General Counsel, General Accounting Office. From U.S. Environmental Protection Agency. National Primary Drinking Water Regulations: Interim Enhanced Surface Water Treatment [FRL #6199-9]. 1 pp.
2. Dec. 11, 1998. To The Honorable Albert Gore, President of the Senate. From U.S. Environmental Protection Agency. National Primary Drinking Water Regulations: Interim Enhanced Surface Water Treatment [FRL #6199-9]. 1 pp.
3. Dec. 11, 1998. To the Honorable Newt Gingrich, Speaker of the House of Representatives. From U.S. Environmental Protection Agency. National Primary Drinking Water Regulations: Interim Enhanced Surface Water Treatment [FRL #6199-9]. 1 pp.