Naval Environmental Protection Support Service

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REGULATIONS & STANDARDS

NAVY ENVIRONMENTAL SUPPORT OFFICE

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APPLICABILITY OF NATIONAL INTERIM PRIMARY DRINKING WATER STANDARDS TO NAVY SHORE FACILITIES

The Safe Drinking Water Act of 1974[1] requires primary and secondary standards to be established for public water systems. The Federal Environmental Protection Agency (EPA) has promulgated National Interim Primary Drinking Water Standards (NIPDWS) at Title 40 Code of Federal Regulations, Part 141 (40 CFR 141)[2]. The standards are effective on 24 June 1977.

PRECEPT

The compliance standards apply to naval shore facilities within the United States that own and/or operate water supply sources and potable water treatment systems. Compliance with monitoring and reporting requirements is weighted equal to compliance with maximum contaminant levels. Federal facilities are required to report measurement and analysis results to EPA Regional Administrators.

ANALYSIS

Affected Shore Activities

The Navy Real Property Inventory (RPI) file reveals 114 naval activities within the United States reporting water supply sources (catchments, wells, and reservoirs). Of these, 18 report no treatment facilities, 96 report having treatment plants. There are also an additional 45 activities reporting treatment plants that do not report water supplies. Some of these may be receiving either treated or untreated water from non-navy supplies. Table 1 displays these findings for naval activities and government-owned contractor operated (GOCO) facilities within the United States. Foreign activities are also included in Table 1 although such activities are not within the scope of the Safe Drinking Water Act.

The new Federal drinking water regulations classify public water systems as either community water systems or non-community water systems. A public water system that regularly serves 25 residents is defined as

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community water system. All other systems are non-community water systems. In the worst case condition, all Navy owned potable water systems will qualify as community water systems.

Table 1. Navy Activities with Potable Water Supplies and Treatment Systems

	Activities With Water Supply Sources Only[1]	Activities Operating Potable Water Treatment Plants Only[2]	Activities With Both Treatment Plants and Supplies[3]	Total Activities With Potable Water Function Other Than Just Distribution
Navy operated, U.S.	18	45	96	159
Navy operated, foreign	3	9	20	32
GOCOs	4	8	3	15
Total qualifying activities	25	62	119	206

[1]Based on RPI categories 84150 (wells), 84151 (catchments), and 84152 (reservoirs) as of May 1975

[2]Based on RPI categories 84109 (potable treatment building), 84110 (potable water treatment facility), 84115 (nuclear water treatment), and 84125 (desalinization plant) as of May 1975

[3]Based on any combination of RPI categories from footnotes [1] and [2]

Treatment plants and operators

The RPI file also reveals that a total of 228 treatment plants are reported at 141 activities in the United States. These plants are manned by 364 plant operators. Table 2 displays the number of plans and operators for Navy and GOCO activities within the U. S. and for foreign based activities. It assumes only one Navy operator at the GOCO and foreign facilities.

New Measurement and Analysis Requirements

The standards establish maximum contaminant levels for four categories of contaminants: inorganic chemicals, organic chemicals (pesticides), turbidity, and microbiological. The specific contaminants and maximum levels are identified in table 3. The initial analysis and periodic sampling required for each contaminant category is displayed in Table 4. Sampling is only required if the initial characterization of the water supply reveals "out-of-limit" contaminant levels. Sampling frequency and duration would apparently be determined by EPA rather than the states for Navy activities.

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Table 2. Potable Water Treatment Plants and Operators

	Number of Treatment Plants	Number of Operators
Navy operated, U.S.	228	364[1]
Navy operated, foreign	48	48
GOCOs	16	16
TOTAL	292	428

[1]Derived from Navy-wide list of training requirements for potable water plant operators

Current Navy Measurement and Analysis Requirements

Navy shore establishments are currently encouraged by Navy Instruction[4] to sample water supplies for more than the NIPDWS parameters, but only 9 of the 17 NIPDWS water supply parameters are routinely included. The current annual analyses routinely include 8 of the 10 substances in the inorganic chemicals category but none of the 6 organic chemicals. A turbidity check is also routinely performed at water supply intakes. Routine sampling is performed in the distribution system for coliform and/or residual chlorine.

CONTACT

Additional information may be obtained from George D. Wandrocke (NESO Code 251B), AUTOVON 360-4984 or Commercial 805-982-4984 or the Environmental Program Offices (Code 114/104) at the NAVFAC Engineering Field Divisions.

REFERENCES

[1]PL 93-523, Safe Drinking Water Act, 16 December 1974

[2]40 CFR 141, National Interim Primary Drinking Water Standards, 24 Dec 1975 (40 Federal Register 59565)

[3]NAVFACINST 5450.19B, The Sanitary/Environmental Engineering Program; Engineering Field Division responsibilities for, 15 October 1974

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Table 3. Maximum Contaminant Levels for Community Water Systems

Contaminant Category	Contaminant	Level
Inorganic Chemicals	Arsenic	0.05 mg/l
	Barium	1. mg/l
	Cadmium	0.010 mg/l
	Chromium	0.05 mg/l
	Lead	0.05 mg/l
	Mercury	0.002 mg/l
	Selenium	0.01 mg/l
	Silver	0.05 mg/l
	Nitrate (as N)	10. mg/l
	Fluoride	2.4 1.4 mg/l[1]
Organic Chemicals (Pesticides)	Endrin	0.0002 mg/l
	Lindane	0.004 mg/l
	Methoxychlor	0.1 mg/l
	Toxaphene	0.005 mg/l
	2,4-D	0.1 mg/l
	2,4,5-TP Silvex	0.01 mg/l
Turbidity	Turbidity[2]	1. T.U. (Monthly Avg) 5. T.U. (2 Day Avg)
Microbiological	Coliform	Membrane filter technique[3] 1/100 ml/month (arith avg) and either 4/100 ml/sample (<20 samples/month) or 4/100 ml/5% of samples (>20 samples/month) Fermentation tube technique[3] A. 10 ml portions[4] none/10% of portions/month and either none in 3 or more portions (<20 samples/month) or none in 3 or more of 5% of the portions (>20 samples/month) B. 100 ml/portions[4] none/60% of portions/month and either none in 5 or more portions (<20 samples/month) or none in 5 or more of 20% of the portions (>20 samples/month) Plate count method[5] MPN = 500/ml

[1]Dependent on temperature

[2]Applies only to water taken from surface water sources

[3]5 tube test (5 portions/sample)

[4]Either membrane filter technique or fermentation tube technique may be used

[5]Applies to all samples

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Table 4. Data Requirements for Community Water Systems

Contaminant Category	Number of Contaminants With Substantive Limits	Source Analysis and Characterization		"Out of Compliance" Monitoring Frequency
		Surface Waters	Ground Waters	
Inorganic Chemicals	10[1]	Initial by 6/78 Repeat Annually	Initial by 6/79 Repeat Tri-annually	3 additional analyses/ out-of-compliance contaminant within 1 month; additional analyses repeated as determined[2]
Organic Chemicals (Pesticides)	6	Initial by 6/78 Repeat Tri-annually	To be determined	3 additional analyses/ out-of-compliance contaminant within 1 month; additional analyses repeated as determined[2]
Turbidity	1	1 sample/day	None required	Additional sample to be taken within 1 hour of out-of-compliance sample
Microbiological (Coliform)	1	Population from 25 to 4100 up to 1/week[3,4] Population from 4101 to 28000 up to 1/day[3]		2 samples/day

[1]Includes fluoride, nitrate, and 8 heavy metals
[2]Continue for as long as limit is exceeded or until compliance action is negotiated
[3]Sample frequency is uniformly proportional to population served; cited frequency value corresponds to upper population value in cited range
[4]If water source is a protected groundwater source with no history of contamination, sample rate may be reduced to 1/quarter for served populations of up to 1000.