MONTHLY OPERATION REPORT FOR PWSs TREATING RAW GROUND WATER OR PURCHASED FINISHED WATER

See page 4 for instructions.

A. Public Water System (PWS) Information

PWS Name:			PWS Identification Number:
PWS Type: ☐ Community ☐ Non-Transient Non-Community ☐ Transient Non-Community ☐ Consecutive			
Number of Service Connections at End of Month:		Total Population Served at End of Month:	
PWS Owner:			
Contact Person:		Contact Person's Title:	
Contact Person's Mailing Address:	City:	State:	Zip Code:
Contact Person's Telephone Number:		Contact Person's Fax Number:	
Contact Person's E-Mail Address:			

B. Water Treatment Plant Information

Plant Name:			Plant Telephone Number:
Plant Address:	City:	State:	Zip Code:
Type of Water Treated by Plant: ☐ Raw Ground Water ☐ Purchased Finished Water			
Permitted Maximum Day Operating Capacity of Plant, gallons per day:			
Plant Category (per subsection 62-699.310(4), F.A.C.):	Plant Class (per subsection 62-699.310(4), F.A.C.):		

Licensed Operators	Name	License Class	License Number	Day(s)/Shift(s) Worked
Lead/Chief Operator:				
Other Operators:				

II. Certification by Lead/Chief Operator

I, the undersigned water treatment plant operator licensed in Florida, am the lead/chief operator of the water treatment plant identified in Part I of this report. I certify that the information provided in this report is true and accurate to the best of my knowledge and belief. I certify that all drinking water treatment chemicals used at this plant conform to NSF International Standard 60 or other applicable standards referenced in subsection 62-555.320(3), F.A.C. I also certify that the following additional operations records for this plant were prepared each day that a licensed operator staffed or visited this plant during the month indicated above: (1) records of amounts of chemicals used and chemical feed rates; and (2) if applicable, appropriate treatment process performance records. Furthermore, I agree to retain these additional operations records at the plant site for at least ten years and to make them available for review upon request.

Signature and Date | Printed or Typed Name | License Number

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PWS Identification Number:	Plant Name:

III. Daily Data for the Month/Year of:

Means of Achieving Four-Log Virus Inactivation/Removal: * ☐ Free Chlorine ☐ Chlorine Dioxide ☐ Ozone ☐ Combined Chlorine (Chloramines) ☐ Ultraviolet Radiation ☐ Other (Describe):

Type of Disinfectant Residual Maintained in Distribution System: ☐ Free Chlorine ☐ Combined Chlorine (Chloramines) ☐ Chlorine Dioxide

Day of the Month	Hours Plant in Operation	Net Quantity of Finished Water Produced, gal	CT Calculations, or UV Dose, to Demonstrate Four-Log Virus Inactivation, if Applicable*									Lowest Residual Disinfectant Concentration at Remote Point in Distribution System, mg/L	Emergency or Abnormal Operating Conditions; Repair or Maintenance Work that Involves Taking Water System Components Out of Operation
			CT Calculations							UV Dose			
			Peak Flow Rate, gpd	Lowest Residual Disinfectant Concentration (C) Before or at First Customer During Peak Flow, mg/L	Disinfectant Contact Time (T) at C Measurement Point During Peak Flow, minutes	Lowest CT Provided Before or at First Customer During Peak Flow, mg-min/L	Temp. of Water, °C	pH of Water, if Applicable	Minimum CT Required, mg-min/L	Lowest Operating UV Dose, mW-sec/cm^2	Minimum UV Dose Required, mW-sec/cm^2		
1													
2													
3													
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22													
23													
24													
25													
26													
27													
28													
29													
30													
31													
Total		0											
Average													
Maximum		0											

** Refer to the instructions for this report to determine which plants must provide this information.*

DEP Form 62-555.900(3)
Effective August 28, 2003

MONTHLY OPERATION REPORT FOR PWSs TREATING RAW GROUND WATER OR PURCHASED FINISHED WATER

PWS Identification Number:	Plant Name:

IV. Summary of Use of Polymer Containing Acrylamide, Polymer Containing Epichlorohydrin, and Iron or Manganese Sequestrant for the Year: *

A. Is any polymer containing the monomer acrylamide used at the water treatment plant? ☐ No ☐ Yes, and the polymer dose and the acrylamide level in the polymer are as follows:

Polymer Dose, ppm =	Acrylamide Level, %† =

B. Is any polymer containing the monomer epichlorohydrin used at the water treatment plant? ☐ No ☐ Yes, and the polymer dose and the epichlorohydrin level in the polymer are as follows:

Polymer Dose, ppm =	Epichlorohydrin Level, %† =

C. Is any iron or manganese sequestrant used at the water treatment plant? ☐ No ☐ Yes, and the type of sequestrant, sequestrant dose, etc., are as follows:

Type of Sequestrant (polyphosphate or sodium silicate):
Sequestrant Dose, mg/L of phosphate as PO_4 or mg/L of silicate as SiO_2 =
If sodium silicate is used, the amount of added plus naturally occurring silicate, in mg/L as SiO_2 =

* *Complete and submit Part IV of this report only with the monthly operation report for December of each year and only for water treatment plants using polymer containing acrylamide, polymer containing epichlorohydrin, and/or an iron and manganese sequestrant.*

† *Acrylamide and epichlorohydrin levels may be based on the polymer manufacturer's certification or on third-party certification.*

MONTHLY OPERATION REPORT FOR PWSs TREATING RAW GROUND WATER OR PURCHASED FINISHED WATER

INSTRUCTIONS: This report shall be completed and submitted by all public water systems, except transient non-community water systems using only ground water and serving only businesses other than public food service establishments, that treat raw ground water or purchased finished water. WITHIN TEN DAYS AFTER THE END OF EACH MONTH, complete this report and submit it to the appropriate Department of Environmental Protection District Office or Approved County Health Department. All information provided in this report shall be typed or printed in ink. Complete and submit Parts I through III of this report every month; complete and submit Part IV of this report only with the monthly operation report for December of each year and only if using polymer containing acrylamide, polymer containing epichlorohydrin, and/or an iron and manganese sequestrant. NOTE THAT A SEPARATE MONTHLY OPERATION REPORT IS REQUIRED FOR EACH PLANT TREATING RAW GROUND WATER OR PURCHASED FINISHED WATER.

The following specific instructions are for Part II of this report.

Process performance records shall be kept for the following treatment processes: coagulation/flocculation, sedimentation, filtration, lime-soda ash softening, ion exchange softening, nanofiltration and reverse osmosis, and electrodialysis. Coagulation/flocculation records should include source water temperature, pH, turbidity, color, and alkalinity and process effluent pH and alkalinity in addition to chemical feed rates. Sedimentation records should include process effluent turbidity and sludge volume produced. Filtration records should include process effluent turbidity and color, number of filters in service, filtration rates, unit filter run volumes, head losses, length of filter runs, frequency of backwash, amount of backwash water used, duration of backwash, and backwash rates. Lime-soda ash softening records should include source water and process effluent hardness in addition to records for coagulation/flocculation, sedimentation, and filtration. Ion exchange softening records should include feed and bypass flows, blend rate, and salt and brine used. Nanofiltration and reverse osmosis records should include feed, product, and brine flows; feed pressure, temperature, pH, conductivity, and turbidity; product pH and conductivity; and brine pH and conductivity. Electrodialysis records should include polarity, feed temperature and total dissolved solids, product conductivity and total dissolved solids, dilute flow rate, brine make-up, pressures, and volts/amps.

The following specific instructions are for the table in Part III of this report.

HOURS PLANT IN OPERATION. For each day the plant is in operation, enter the number of hours that the plant is in operation.

NET QUANTITY OF FINISHED WATER PRODUCED. Enter the net quantity of finished water, excluding any filter backwash water, produced by the plant for each day the plant is in operation; compute and enter the total net quantity of finished water produced for the month; compute and enter the average daily net quantity of finished water produced for the month; and enter the maximum day net quantity of finished water produced for the month. If the plant is staffed during every hour it is in operation or if the plant has flow recording equipment, enter the net quantity of finished water produced between 12:00 midnight and 12:00 midnight for each day the plant is in operation. If the plant is <u>not</u> staffed during some hours it is in operation and if the plant does <u>not</u> have flow recording equipment, read the totalizing flow meter(s) (or the elapsed time clock[s]) at approximately the same time each day the plant is staffed or visited by a licensed operator and enter the net quantity of finished water produced during the one or more calendar days since the meter(s) (or the elapsed time clock[s]) was(were) last read. For each entry that represents the net quantity of finished water produced during two or more calendar days, place a "}" next to the calendar days covered by the entry and assume the entry is divided evenly between those calendar days for the purpose of determining the maximum day net quantity of finished water produced for the month.

CT CALCULATIONS, OR UV DOSE, TO DEMONSTRATE FOUR-LOG VIRUS INACTIVATION, IF APPLICABLE. Provide this information if the plant is treating raw ground water from wells considered microbially contaminated or susceptible to microbial contamination per paragraph 62-555.315(6)(b) or (f), F.A.C, and beginning no later than January 1, 2006, provide this information if the plant is treating water in a manner that exposes the water during treatment to the open atmosphere and possible microbial contamination. (Aerators and other facilities that are protected from contamination by birds, insects, wind-borne debris, rainfall, and water drainage are <u>not</u> considered to be exposing water to the open atmosphere and possible microbial contamination.)

For each day water is served to the public from a plant that includes chemical disinfection for virus inactivation, enter the lowest residual disinfectant concentration (C) measured before or at the first customer during peak flow, the corresponding disinfectant contact time (T) at the C measurement point during peak flow, and the resulting lowest CT provided before or at the first customer during peak flow. (Disinfectant contact time in pipelines flowing full shall be calculated by dividing the internal volume of the pipeline by the flow rate through the pipeline, and disinfectant contact time in tanks, etc., shall be the time it takes for ten percent of the water to pass through the tank, etc., and shall be determined by tracer studies or by multiplying the theoretical detention time by an appropriate T_{10}/T factor based upon baffling conditions in the tank, etc. Table 1 at the end of these instructions lists appropriate T_{10}/T factors for various baffling conditions.) In addition, for each day water is served to the public from the plant, enter the temperature of the water at the point where C is measured; enter the pH of the water at the point where C is measured if free chlorine is being used for virus inactivation; and with this temperature

and pH information, determine and enter the minimum CT required. (Required minimum CT values are listed in Appendix E of the *Guidance Manual for Compliance with the Filtration and Disinfection Requirements for Public Water Systems Using Surface Water Sources*. Tables 2 through 6 at the end of these instructions present the values from Appendix E.)

For each day water is served to the public from a plant that includes ultraviolet (UV) disinfection for virus inactivation, enter the lowest operational UV dose measured and the minimum UV dose required.

LOWEST RESIDUAL DISINFECTANT CONCENTRATION AT REMOTE POINT IN DISTRIBUTION SYSTEM. For each day a water system serving 3,300 or more persons serves water to the public or five days per week, whichever is less, enter the residual disinfectant concentration measured at a point in the distribution system reflecting maximum residence time after disinfectant addition. For each day a water system serving less than 3,300 persons serves water to the public or two days per week, whichever is less, enter the residual disinfectant concentration measured at a point in the distribution system reflecting maximum residence time after disinfectant addition.

EMERGENCY OR ABNORMAL OPERATING CONDITIONS; REPAIR OR MAINTENANCE WORK THAT INVOLVES TAKING WATER SYSTEM COMPONENTS OUT OF OPERATION. For each day there are emergency or abnormal operating conditions at the plant or in the distribution system served by the plant, describe the emergency or abnormal operating conditions (attach additional sheets as necessary). In addition, for each day plant or distribution components other than water service lines are taken out of operation for repair or maintenance, describe the repair or maintenance (attach additional sheets as necessary).

Table 1: T_{10}/T Factors for Various Baffling Conditions

Baffling Condition	T_{10}/T	Baffling Description
Unbaffled (mixed flow)	0.1	No baffling, agitated basin, very low length-to-width ratio, high inlet and outlet velocities
Poor	0.3	Single or multiple unbaffled inlets and outlets, no intrabasin baffles
Average	0.5	Baffled inlet or outlet with some intrabasin baffles
Superior	0.7	Perforated inlet baffle, serpentine or perforated intrabasin baffles, outlet weir or perforated launders
Perfect (plug flow)	1.0	Very high length-to-width ratio (pipeline flow); perforated inlet, outlet, and intrabasin baffles

Table 2: CT Values for Inactivation of Viruses by Free Chlorine, pH 6-9

	Water Temperature (°C)															
Inactivation (Log)	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
2	3.0	2.8	2.6	2.4	2.2	2.0	1.8	1.6	1.4	1.2	1.0	1.0	1.0	1.0	1.0	1.0
3	4.0	3.8	3.6	3.4	3.2	3.0	2.8	2.6	2.4	2.2	2.0	1.8	1.6	1.4	1.2	1.0
4	6.0	5.6	5.2	4.8	4.4	4.0	3.8	3.6	3.4	3.2	3.0	2.8	2.6	2.4	2.2	2.0

Table 3: CT Values for Inactivation of Viruses by Free Chlorine, pH 10

	Water Temperature (°C)															
Inactivation (Log)	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
2	22.0	20.6	19.2	17.8	16.4	15.0	14.2	13.4	12.6	11.8	11.0	10.2	9.4	8.6	7.8	7.0
3	33.0	30.8	28.6	26.4	24.2	22.0	20.8	19.6	18.4	17.2	16.0	15.0	14.0	13.0	12.0	11.0
4	45.0	42.0	39.0	36.0	33.0	30.0	28.4	26.8	25.2	23.6	22.0	20.6	19.2	17.8	16.4	15.0

Table 4: CT Values for Inactivation of Viruses by Chlorine Dioxide

	Water Temperature (°C)															
Inactivation (Log)	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
2	4.2	3.9	3.6	3.4	3.1	2.8	2.7	2.5	2.4	2.2	2.1	2.0	1.8	1.7	1.5	1.4
3	12.8	12.0	11.1	10.3	9.4	8.6	8.2	7.7	7.3	6.8	6.4	6.0	5.6	5.1	4.7	4.3
4	25.1	23.4	21.7	20.1	18.4	16.7	15.9	15.0	14.2	13.3	12.5	11.7	10.9	10.0	9.2	8.4

Table 5: CT Values for Inactivation of Viruses by Chloramines if Chlorine Is Added Prior to Ammonia

	Water Temperature (°C)															
Inactivation (Log)	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
2	643	600	557	514	471	428	407	385	364	342	321	300	278	257	235	214
3	1,067	996	925	854	783	712	676	641	605	570	534	498	463	427	392	356
4	1,491	1,392	1,292	1,193	1,093	994	944	895	845	796	746	696	646	597	547	497

Table 6: CT Values for Inactivation of Viruses by Ozone

	Water Temperature (°C)															
Inactivation (Log)	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
2	0.50	0.46	0.42	0.38	0.34	0.30	0.29	0.28	0.27	0.26	0.25	0.23	0.21	0.19	0.17	0.15
3	0.80	0.74	0.68	0.62	0.56	0.50	0.48	0.46	0.44	0.42	0.40	0.37	0.34	0.31	0.28	0.25
4	1.00	0.92	0.84	0.76	0.68	0.60	0.58	0.56	0.54	0.52	0.50	0.46	0.42	0.38	0.34	0.30