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If the state determines during a sanitary survey or an equivalent source water assessment that after a system completed the monitoring conducted under § 141.701(a) or § 141.701(b), significant changes occurred in the system's watershed that could lead to increased contamination of the source water by *Cryptosporidium*, the system must take actions specified by the state to address the contamination. These actions may include additional source water monitoring and/or implementing microbial toolbox options listed in § 141.715.	▪141.711(d)	Adopted by Reference	
▪141.712 UNFILTERED SYSTEM *CRYPTOSPORIDIUM* TREATMENT REQUIREMENTS			
Determination of mean Cryptosporidium level.	▪141.712(a)	Adopted by Reference	
Following completion of the initial source water monitoring required under § 141.701(a), unfiltered systems must calculate the arithmetic mean of all *Cryptosporidium* sample concentrations reported under § 141.701(a). Systems must report this value to the state for approval no later than 6 months after the month the system is required to complete initial source water monitoring based on the schedule in § 141.701(c).	▪141.712(a)(1)	Adopted by Reference	
Following completion of the second round of source water monitoring required under § 141.701(b), unfiltered systems must calculate the arithmetic mean of all *Cryptosporidium* sample concentrations reported under § 141.701(b). Systems must report this value to the state for approval no later than 6 months after the month the system is required to complete the second round of source water monitoring based on the schedule in § 141.701(c).	▪141.712(a)(2)	Adopted by Reference	

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If the monthly *Cryptosporidium* sampling frequency varies, systems must first calculate a monthly average for each month of monitoring. Systems must then use these monthly average concentrations, rather than individual sample concentrations, in the calculation of the mean *Cryptosporidium* level in paragraphs (a)(1) or (2) of this section.	'141.712(a)(3)	Adopted by Reference	
The report to the state of the mean *Cryptosporidium* levels calculated under paragraphs (a)(1) and (2) of this section must include a summary of the source water monitoring data used for the calculation.	'141.712(a)(4)	Adopted by Reference	
Failure to comply with the conditions of paragraph (a) of this section is a violation of the treatment technique requirement.	'141.712(a)(5)	Adopted by Reference	
Cryptosporidium inactivation requirements. Unfiltered systems must provide the level of inactivation for *Cryptosporidium* specified in this paragraph, based on their mean *Cryptosporidium* levels as determined under paragraph (a) of this section and according to the schedule in § 141.713.	'141.712(b)	Adopted by Reference	
Unfiltered systems with a mean *Cryptosporidium* level of 0.01 oocysts/L or less must provide at least 2-log *Cryptosporidium* inactivation.	'141.712(b)(1)	Adopted by Reference	
Unfiltered systems with a mean *Cryptosporidium* level of greater than 0.01 oocysts/L must provide at least 3- log *Cryptosporidium* inactivation.	'141.712(b)(2)	Adopted by Reference	

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Inactivation treatment technology requirements. Unfiltered systems must use chlorine dioxide, ozone, or UV as described in § 141.720 to meet the *Cryptosporidium* inactivation requirements of this section.	▪141.712(c)	Adopted by Reference	
Systems that use chlorine dioxide or ozone and fail to achieve the *Cryptosporidium* inactivation required in paragraph (b) of this section on more than one day in the calendar month are in violation of the treatment technique requirement.	▪141.712(c)(1)	Adopted by Reference	
Systems that use UV light and fail to achieve the *Cryptosporidium* inactivation required in paragraph (b) of this section by meeting the criteria in § 141.720(d)(3)(ii) are in violation of the treatment technique requirement.	▪141.712(c)(2)	Adopted by Reference	
Use of two disinfectants. Unfiltered systems must meet the combined *Cryptosporidium* inactivation requirements of this section and *Giardia lamblia* and virus inactivation requirements of § 141.72(a) using a minimum of two disinfectants, and each of two disinfectants must separately achieve the total inactivation required for either *Cryptosporidium*, *Giardia lamblia*, or viruses.	▪141.712(d)	Adopted by Reference	
▪141.713 SCHEDULE FOR COMPLIANCE WITH *CRYPTOSPORIDIUM* TREATMENT REQUIREMENTS			
Following initial bin classification under § 141.710(c), filtered systems must provide the level of treatment for *Cryptosporidium* required under § 141.711 according to the schedule in paragraph (c) of this section.	▪141.713(a)	Adopted by Reference	

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Following initial determination of the mean *Cryptosporidium* level under § 141.712(a)(1), unfiltered systems must provide the level of treatment for *Cryptosporidium* required under § 141.712 according to the schedule in paragraph (c) of this section.	¹141.713(b)	Adopted by Reference	
Cryptosporidium treatment compliance dates. The table in this section presents treatment compliance dates for four system size categories.	¹141.713(c)	Adopted by Reference	
If the bin classification for a filtered system changes following the second round of source water monitoring, as determined under § 141.710(d), the system must provide the level of treatment for *Cryptosporidium* required under § 141.711 on a schedule the state approves.	¹141.713(d)	Adopted by Reference	
If the mean *Cryptosporidium* level for an unfiltered system changes following the second round of monitoring, as determined under § 141.712(a)(2), and if the system must provide a different level of *Cryptosporidium* treatment under § 141.712 due to this change, the system must meet this treatment requirement on a schedule the state approves.	¹141.713(e)	Adopted by Reference	
¹141.714 REQUIREMENTS FOR UNCOVERED FINISHED WATER STORAGE FACILITIES			
Systems using uncovered finished water storage facilities must comply with the conditions of this section.	¹141.714(a)	Adopted by Reference	
Systems must notify the state of the use of each uncovered finished water storage facility no later than April 1, 2008.	¹141.714(b)	Adopted by Reference	

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Systems must meet the conditions of paragraph (c)(1) or (2) of this section for each uncovered finished water storage facility or be in compliance with a state-approved schedule to meet these conditions no later than April 1, 2009.	▪141.714(c)	Adopted by Reference	
Systems must cover any uncovered finished water storage facility.	▪141.714(c)(1)	Adopted by Reference	
Systems must treat the discharge from the uncovered finished water storage facility to the distribution system to achieve inactivation and/or removal of at least 4-log virus, 3-log *Giardia lamblia*, and 2-log *Cryptosporidium* using a protocol approved by the state.	▪141.714(c)(2)	Adopted by Reference	
Failure to comply with the requirements of this section is a violation of the treatment technique requirement.	▪141.714(d)	Adopted by Reference	
▪141.715 MICROBIAL TOOLBOX OPTIONS FOR MEETING *CRYPTOSPORIDIUM* TREATMENT REQUIREMENTS			
Systems receive the treatment credits listed in the table in Systems receive the treatment credits listed in the table in paragraph (b) of this section by meeting the conditions for microbial toolbox options described in §§ 141.716 through 141.720. Systems apply these treatment credits to meet the treatment requirements in § 141.711 or § 141.712, as applicable.	▪141.715(a)(1)	Adopted by Reference	
Unfiltered systems are eligible for treatment credits for the microbial toolbox options described in § 141.720 only.	▪141.715(a)(2)	Adopted by Reference	
The table in this section presents microbial toolbox options, treatment credits, and criteria.	▪141.715(b)	Adopted by Reference	

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'141.716 MICROBIAL TOOLBOX OPTIONS FOR MEETING *CRYPTOSPORIDIUM* TREATMENT REQUIREMENTS			
Watershed control program. Systems receive 0.5-log *Cryptosporidium* treatment credit for implementing a watershed control program that meets the requirements of this section.	'141.716(a)	Adopted by Reference	
Systems that intend to apply for the watershed control program credit must notify the state of this intent no later than two years prior to the treatment compliance date applicable to the system in § 141.713.	'141.716(a)(1)	Adopted by Reference	
Systems must submit to the state a proposed watershed control plan no later than one year before the applicable treatment compliance date in § 141.713. The state must approve the watershed control plan for the system to receive watershed control program treatment credit. The watershed control plan must include the elements in paragraphs (a)(2)(i) through (iv) of this section.	'141.716(a)(2)	Adopted by Reference	
Identification of an "area of influence" outside of which the likelihood of *Cryptosporidium* or fecal contamination affecting the treatment plant intake is not significant. This is the area to be evaluated in future watershed surveys under paragraph (a)(5)(ii) of this section.	'141.716(a)(2)(i)	Adopted by Reference	
Identification of both potential and actual sources of *Cryptosporidium* contamination and an assessment of the relative impact of these sources on the system's source water quality.	'141.716(a)(2)(ii)	Adopted by Reference	

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An analysis of the effectiveness and feasibility of control measures that could reduce *Cryptosporidium* loading from sources of contamination to the system's source water.	▪141.716(a)(2)(iii)	Adopted by Reference	
A statement of goals and specific actions the system will undertake to reduce source water *Cryptosporidium* levels. The plan must explain how the actions are expected to contribute to specific goals, identify watershed partners and their roles, identify resource requirements and commitments, and include a schedule for plan implementation with deadlines for completing specific actions identified in the plan.	▪141.716(a)(2)(iv)	Adopted by Reference	
Systems with existing watershed control programs (i.e., programs in place on January 5, 2006) are eligible to seek this credit. Their watershed control plans must meet the criteria in paragraph (a)(2) of this section and must specify ongoing and future actions that will reduce source water *Cryptosporidium* levels.	▪141.716(a)(3)	Adopted by Reference	
If the state does not respond to a system regarding approval of a watershed control plan submitted under this section and the system meets the other requirements of this section, the watershed control program will be considered approved and 0.5 log *Cryptosporidium* treatment credit will be awarded unless and until the state subsequently withdraws such approval.	▪141.716(a)(4)	Adopted by Reference	
Systems must complete the actions in paragraphs (a)(5)(i) through (iii) of this section to maintain the 0.5-log credit.	▪141.716(a)(5)	Adopted by Reference	

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Submit an annual watershed control program status report to the state. The annual watershed control program status report must describe the system's implementation of the approved plan and assess the adequacy of the plan to meet its goals. It must explain how the system is addressing any shortcomings in plan implementation, including those previously identified by the state or as the result of the watershed survey conducted under paragraph (a)(5)(ii) of this section. It must also describe any significant changes that have occurred in the watershed since the last watershed sanitary survey. If a system determines during implementation that making a significant change to its approved watershed control program is necessary, the system must notify the state prior to making any such changes. If any change is likely to reduce the level of source water protection, the system must also list in its notification the actions the system will take to mitigate this effect.	▪141.716(a)(5)(i)	Adopted by Reference	
Undergo a watershed sanitary survey every three years for community water systems and every five years for noncommunity water systems and submit the survey report to the state. The survey must be conducted according to state guidelines and by persons the state approves.	▪141.716(a)(5)(ii)	Adopted by Reference	
The watershed sanitary survey must meet the following criteria: encompass the region identified in the state-approved watershed control plan as the area of influence; assess the implementation of actions to reduce source water *Cryptosporidium* levels; and identify any significant new sources of *Cryptosporidium*.	▪141.716(a)(5)(ii)(A)	Adopted by Reference	

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If the state determines that significant changes may have occurred in the watershed since the previous watershed sanitary survey, systems must undergo another watershed sanitary survey by a date the state requires, which may be earlier than the regular date in paragraph (a)(5)(ii) of this section.	▪141.716(a)(5)(ii)(B)	Adopted by Reference	
The system must make the watershed control plan, annual status reports, and watershed sanitary survey reports available to the public upon request. These documents must be in a plain language style and include criteria by which to evaluate the success of the program in achieving plan goals. The state may approve systems to withhold from the public portions of the annual status report, watershed control plan, and watershed sanitary survey based on water supply security considerations.	▪141.716(a)(5)(iii)	Adopted by Reference	
If the state determines that a system is not carrying out the approved watershed control plan, the state may withdraw the watershed control program treatment credit.	▪141.716(a)(6)	Adopted by Reference	
Alternative source. A system may conduct source water monitoring that reflects a different intake location (either in the same source or for an alternate source) or a different procedure for the timing or level of withdrawal from the source (alternative source monitoring). If the state approves, a system may determine its bin classification under § 141.710 based on the alternative source monitoring results.	▪141.716(b)(1)	Adopted by Reference	

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If systems conduct alternative source monitoring under paragraph (b)(1) of this section, systems must also monitor their current plant intake concurrently as described in § 141.701.	▪141.716(b)(2)	Adopted by Reference	
Alternative source monitoring under paragraph (b)(1) of this section must meet the requirements for source monitoring to determine bin classification, as described in §§ 141.701 through 141.706. Systems must report the alternative source monitoring results to the state, along with supporting information documenting the operating conditions under which the samples were collected.	▪141.716(b)(3)	Adopted by Reference	
If a system determines its bin classification under § 141.710 using alternative source monitoring results that reflect a different intake location or a different procedure for managing the timing or level of withdrawal from the source, the system must relocate the intake or permanently adopt the withdrawal procedure, as applicable, no later than the applicable treatment compliance date in § 141.713. § 141.717 Pre-filtration treatment toolbox components.	▪141.716(b)(4)	Adopted by Reference	
▪141.717 PRE-FILTRATION TREATMENT TOOLBOX COMPONENTS			
Presedimentation. Systems receive 0.5-log *Cryptosporidium* treatment credit for a presedimentation basin during any month the process meets the criteria in this paragraph.	▪141.717(a)	Adopted by Reference	
The presedimentation basin must be in continuous operation and must treat the entire plant flow taken from a surface water or GWUDI source.	▪141.717(a)(1)	Adopted by Reference	

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The system must continuously add a coagulant to the presedimentation basin.	'141.717(a)(2)	Adopted by Reference	
The presedimentation basin must achieve the performance criteria in paragraph (3)(i) or (ii) of this section.	'141.717(a)(3)	Adopted by Reference	
Demonstrates at least 0.5-log mean reduction of influent turbidity. This reduction must be determined using daily turbidity measurements in the presedimentation process influent and effluent and must be calculated as follows: $\log_{10}$(monthly mean of daily influent turbidity) - $\log_{10}$(monthly mean of daily effluent turbidity).	'141.717(a)(3)(i)	Adopted by Reference	
Complies with state-approved performance criteria that demonstrate at least 0.5-log mean removal of micron- sized particulate material through the presedimentation process.	'141.717(a)(3)(ii)	Adopted by Reference	
Two-stage lime softening. Systems receive an additional 0.5-log *Cryptosporidium* treatment credit for a two-stage lime softening plant if chemical addition and hardness precipitation occur in two separate and sequential softening stages prior to filtration. Both softening stages must treat the entire plant flow taken from a surface water or GWUDI source.	'141.717(b)	Adopted by Reference	
Bank filtration. Systems receive *Cryptosporidium* treatment credit for bank filtration that serves as pretreatment to a filtration plant by meeting the criteria in this paragraph. Systems using bank filtration when they begin source water monitoring under § 141.701(a) must collect samples as described in § 141.703(d) and are not eligible for this credit.	'141.717(c)	Adopted by Reference	

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Wells with a ground water flow path of at least 25 feet receive 0.5-log treatment credit; wells with a ground water flow path of at least 50 feet receive 1.0-log treatment credit. The ground water flow path must be determined as specified in paragraph (c)(4) of this section.	'141.717(c)(1)	Adopted by Reference	
Only wells in granular aquifers are eligible for treatment credit. Granular aquifers are those comprised of sand, clay, silt, rock fragments, pebbles or larger particles, and minor cement. A system must characterize the aquifer at the well site to determine aquifer properties. Systems must extract a core from the aquifer and demonstrate that in at least 90 percent of the core length, grains less than 1.0 mm in diameter constitute at least 10 percent of the core material.	'141.717(c)(2)	Adopted by Reference	
Only horizontal and vertical wells are eligible for treatment credit.	'141.717(c)(3)	Adopted by Reference	
For vertical wells, the ground water flow path is the measured distance from the edge of the surface water body under high flow conditions (determined by the 100 year floodplain elevation boundary or by the floodway, as defined in Federal Emergency Management Agency flood hazard maps) to the well screen. For horizontal wells, the ground water flow path is the measured distance from the bed of the river under normal flow conditions to the closest horizontal well lateral screen.	'141.717(c)(4)	Adopted by Reference	
Systems must monitor each wellhead for turbidity at least once every four hours while the bank filtration process is in operation. If monthly average turbidity levels, based on daily maximum values in the well, exceed 1 NTU, the	'141.717(c)(5)	Adopted by Reference	

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system must report this result to the state and conduct an assessment within 30 days to determine the cause of the high turbidity levels in the well. If the state determines that microbial removal has been compromised, the state may revoke treatment credit until the system implements corrective actions approved by the state to remediate the problem.			
Springs and infiltration galleries are not eligible for treatment credit under this section, but are eligible for credit under § 141.718(c).	▪141.717(c)(6)	Adopted by Reference	
Bank filtration demonstration of performance. The state may approve *Cryptosporidium* treatment credit for bank filtration based on a demonstration of performance study that meets the criteria in this paragraph. This treatment credit may be greater than 1.0-log and may be awarded to bank filtration that does not meet the criteria in paragraphs (c)(1)-(5) of this section.	▪141.717(c)(7)	Adopted by Reference	
The study must follow a state- approved protocol and must involve the collection of data on the removal of *Cryptosporidium* or a surrogate for *Cryptosporidium* and related hydrogeologic and water quality parameters during the full range of operating conditions.	▪141.717(c)(7)(i)	Adopted by Reference	
The study must include sampling both from the production well(s) and from monitoring wells that are screened and located along the shortest flow path between the surface water source and the production well(s).	▪141.717(c)(7)(ii)	Adopted by Reference	

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'141.718 TREATMENT PERFORMANCE TOOLBOX COMPONENTS			
Combined filter performance. Systems using conventional filtration treatment or direct filtration treatment receive an additional 0.5-log *Cryptosporidium* treatment credit during any month the system meets the criteria in this paragraph. Combined filter effluent (CFE) turbidity must be less than or equal to 0.15 NTU in at least 95 percent of the measurements. Turbidity must be measured as described in § 141.74(a) and (c).	'141.718(a)	Adopted by Reference	
Individual filter performance. Systems using conventional filtration treatment or direct filtration treatment receive 0.5-log *Cryptosporidium* treatment credit, which can be in addition to the 0.5-log credit under paragraph (a) of this section, during any month the system meets the criteria in this paragraph. Compliance with these criteria must be based on individual filter turbidity monitoring as described in § 141.174 or § 141.560, as applicable.	'141.718(b)	Adopted by Reference	
The filtered water turbidity for each individual filter must be less than or equal to 0.15 NTU in at least 95 percent of the measurements recorded each month.	'141.718(b)(1)	Adopted by Reference	
No individual filter may have a measured turbidity greater than 0.3 NTU in two consecutive measurements taken 15 minutes apart.	'141.718(b)(2)	Adopted by Reference	

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Any system that has received treatment credit for individual filter performance and fails to meet the requirements of paragraph (b)(1) or (2) of this section during any month does not receive a treatment technique violation under § 141.711(c) if the state determines the following:	▪141.718(b)(3)	Adopted by Reference	
The failure was due to unusual and short-term circumstances that could not reasonably be prevented through optimizing treatment plant design, operation, and maintenance.	▪141.718(b)(3)(i)	Adopted by Reference	
The system has experienced no more than two such failures in any calendar year.	▪141.718(b)(3)(ii)	Adopted by Reference	
Demonstration of performance. The state may approve *Cryptosporidium* treatment credit for drinking water treatment processes based on a demonstration of performance study that meets the criteria in this paragraph. This treatment credit may be greater than or less than the prescribed treatment credits in § 141.711 or §§ 141.717 through 141.720 and may be awarded to treatment processes that do not meet the criteria for the prescribed credits.	▪141.718(c)	Adopted by Reference	
Systems cannot receive the prescribed treatment credit for any toolbox box option in §§ 141.717 through 141.720 if that toolbox option is included in a demonstration of performance study for which treatment credit is awarded under this paragraph.	▪141.718(c)(1)	Adopted by Reference	

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The demonstration of performance study must follow a state-approved protocol and must demonstrate the level of *Cryptosporidium* reduction the treatment process will achieve under the full range of expected operating conditions for the system.	¶141.718(c)(2)	Adopted by Reference	
Approval by the state must be in writing and may include monitoring and treatment performance criteria that the system must demonstrate and report on an ongoing basis to remain eligible for the treatment credit. The state may designate such criteria where necessary to verify that the conditions under which the demonstration of performance credit was approved are maintained during routine operation.	¶141.718(c)(3)	Adopted by Reference	
¶141.719 ADDITIONAL FILTRATION TOOLBOX COMPONENTS			
Bag and cartridge filters. Systems receive *Cryptosporidium* treatment credit of up to 2.0-log for individual bag or cartridge filters and up to 2.5-log for bag or cartridge filters operated in series by meeting the criteria in paragraphs (a)(1) through (10) of this section. To be eligible for this credit, systems must report the results of challenge testing that meets the requirements of paragraphs (a)(2) through (9) of this section to the state. The filters must treat the entire plant flow taken from a subpart H source.	¶141.719(a)	Adopted by Reference	
The *Cryptosporidium* treatment credit awarded to bag or cartridge filters must be based on the removal efficiency demonstrated during challenge testing that is conducted according to the criteria in paragraphs (a)(2) through (a)(9) of this section. A factor of safety equal to 1-log for	¶141.719(a)(1)	Adopted by Reference	

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individual bag or cartridge filters and 0.5-log for bag or cartridge filters in series must be applied to challenge testing results to determine removal credit. Systems may use results from challenge testing conducted prior to January 5, 2006 if the prior testing was consistent with the criteria specified in paragraphs (a)(2) through (9) of this section.			
Challenge testing must be performed on full-scale bag or cartridge filters, and the associated filter housing or pressure vessel, that are identical in material and construction to the filters and housings the system will use for removal of *Cryptosporidium*. Bag or cartridge filters must be challenge tested in the same configuration that the system will use, either as individual filters or as a series configuration of filters.	▪141.719(a)(2)	Adopted by Reference	
Challenge testing must be conducted using *Cryptosporidium* or a surrogate that is removed no more efficiently than *Cryptosporidium*. The microorganism or surrogate used during challenge testing is referred to as the challenge particulate. The concentration of the challenge particulate must be determined using a method capable of discreetly quantifying the specific microorganism or surrogate used in the test; gross measurements such as turbidity may not be used.	▪141.719(a)(3)	Adopted by Reference	

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The maximum feed water concentration that can be used during a challenge test must be based on the detection limit of the challenge particulate in the filtrate (i.e., filtrate detection limit) and must be calculated using the following equation: Maximum Feed Concentration = $1 \times 10^4 \times$ (Filtrate Detection Limit)	'141.719(a)(4)	Adopted by Reference	
Challenge testing must be conducted at the maximum design flow rate for the filter as specified by the manufacturer.	'141.719(a)(5)	Adopted by Reference	
Each filter evaluated must be tested for a duration sufficient to reach 100 percent of the terminal pressure drop, which establishes the maximum pressure drop under which the filter may be used to comply with the requirements of this subpart.	'141.719(a)(6)	Adopted by Reference	
Removal efficiency of a filter must be determined from the results of the challenge test and expressed in terms of log removal values using the following equation: $LRV = LOG_{10}(C_f) - LOG_{10}(C_p)$ where LRV = log removal value demonstrated during challenge testing; C_f = the feed concentration measured during the challenge test; and C_p = the filtrate concentration measured during the challenge test. In applying this equation, the same units must be used for the feed and filtrate concentrations. If the challenge particulate is not detected in the filtrate, then the term C_p must be set equal to the detection limit.	'141.719(a)(7)	Adopted by Reference	

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Each filter tested must be challenged with the challenge particulate during three periods over the filtration cycle: within two hours of start-up of a new filter; when the pressure drop is between 45 and 55 percent of the terminal pressure drop; and at the end of the cycle after the pressure drop has reached 100 percent of the terminal pressure drop. An LRV must be calculated for each of these challenge periods for each filter tested. The LRV for the filter (LRV_{filter}) must be assigned the value of the minimum LRV observed during the three challenge periods for that filter.	▪141.719(a)(8)	Adopted by Reference	
If fewer than 20 filters are tested, the overall removal efficiency for the filter product line must be set equal to the lowest LRV_{filter} among the filters tested. If 20 or more filters are tested, the overall removal efficiency for the filter product line must be set equal to the 10th percentile of the set of LRV_{filter} values for the various filters tested. The percentile is defined by (i/(n+1)) where i is the rank of n individual data points ordered lowest to highest. If necessary, the 10th percentile may be calculated using linear interpolation.	▪141.719(a)(9)	Adopted by Reference	
If a previously tested filter is modified in a manner that could change the removal efficiency of the filter product line, challenge testing to demonstrate the removal efficiency of the modified filter must be conducted and submitted to the state.	▪141.719(a)(10)	Adopted by Reference	
Membrane filtration.	▪141.719(b)	Adopted by Reference	

SUMMARY OF FEDERAL REQUIREMENT	FEDERAL CITATION	STATE CITATION (DOCUMENT TITLE, PAGE NUMBER, SECTION/PARAGRAPH)	DIFFERENT FROM FED. REQUIREMENT? (EXPLAIN ON SEPARATE SHEET)
Systems receive *Cryptosporidium* treatment credit for membrane filtration that meets the criteria of this paragraph. Membrane cartridge filters that meet the definition of membrane filtration in § 141.2 are eligible for this credit. The level of treatment credit a system receives is equal to the lower of the values determined under paragraph (b)(1)(i) and (ii) of this section.	▪141.719(b)(1)	Adopted by Reference	
The removal efficiency demonstrated during challenge testing conducted under the conditions in paragraph (b)(2) of this section.	▪141.719(b)(1)(i)	Adopted by Reference	
The maximum removal efficiency that can be verified through direct integrity testing used with the membrane filtration process under the conditions in paragraph (b)(3) of this section.	▪141.719(b)(1)(ii)	Adopted by Reference	
Challenge Testing. The membrane used by the system must undergo challenge testing to evaluate removal efficiency, and the system must report the results of challenge testing to the state. Challenge testing must be conducted according to the criteria in paragraphs (b)(2)(i) through (vii) of this section. Systems may use data from challenge testing conducted prior to January 5, 2006 if the prior testing was consistent with the criteria in paragraphs (b)(2)(i) through (vii) of this section.	▪141.719(b)(2)	Adopted by Reference	
Challenge testing must be conducted on either a full-scale membrane module, identical in material and construction to the membrane modules used in the system's treatment facility, or a smaller-scale membrane module, identical in material and similar in construction to the full-scale	▪141.719(b)(2)(i)	Adopted by Reference	

SUMMARY OF FEDERAL REQUIREMENT	FEDERAL CITATION	STATE CITATION (DOCUMENT TITLE, PAGE NUMBER, SECTION/PARAGRAPH)	DIFFERENT FROM FED. REQUIREMENT? (EXPLAIN ON SEPARATE SHEET)
module. A module is defined as the smallest component of a membrane unit in which a specific membrane surface area is housed in a device with a filtrate outlet structure.			
Challenge testing must be conducted using *Cryptosporidium* oocysts or a surrogate that is removed no more efficiently than *Cryptosporidium* oocysts. The organism or surrogate used during challenge testing is referred to as the challenge particulate. The concentration of the challenge particulate, in both the feed and filtrate water, must be determined using a method capable of discretely quantifying the specific challenge particulate used in the test; gross measurements such as turbidity may not be used.	▪141.719(b)(2)(ii)	Adopted by Reference	
The maximum feed water concentration that can be used during a challenge test is based on the detection limit of the challenge particulate in the filtrate and must be determined according to the following equation: Maximum Feed Concentration = 3.16×10^6 x (Filtrate Detection Limit)	▪141.719(b)(2)(iii)	Adopted by Reference	
Challenge testing must be conducted under representative hydraulic conditions at the maximum design flux and maximum design process recovery specified by the manufacturer for the membrane module. Flux is defined as the throughput of a pressure driven membrane process expressed as flow per unit of membrane area. Recovery is defined as the volumetric percent of feed water that is converted to filtrate over the course of an operating cycle uninterrupted by events such as chemical cleaning or a solids removal process (i.e., backwashing).	▪141.719(b)(2)(iv)	Adopted by Reference	

SUMMARY OF FEDERAL REQUIREMENT	FEDERAL CITATION	STATE CITATION (DOCUMENT TITLE, PAGE NUMBER, SECTION/PARAGRAPH)	DIFFERENT FROM FED. REQUIREMENT? (EXPLAIN ON SEPARATE SHEET)
Removal efficiency of a membrane module must be calculated from the challenge test results and expressed as a log removal value according to the following equation: $LRV = LOG_{10}(C_f)$ B $LOG_{10}(C_p)$ Where: LRV = log removal value demonstrated during the challenge test; Cf = the feed concentration measured during the challenge test; and Cp = the filtrate concentration measured during the challenge test. Equivalent units must be used for the feed and filtrate concentrations. If the challenge particulate is not detected in the filtrate, the term Cp is set equal to the detection limit for the purpose of calculating the LRV. An LRV must be calculated for each membrane module evaluated during the challenge test.	▪141.719(b)(2)(v)	Adopted by Reference	
The removal efficiency of a membrane filtration process demonstrated during challenge testing must be expressed as a log removal value ($LRV_{C\text{-}Test}$). If fewer than 20 modules are tested, then $LRV_{C\text{-}Test}$ is equal to the lowest of the representative LRVs among the modules tested. If 20 or more modules are tested, then LRVC-Test is equal to the 10th percentile of the representative LRVs among the modules tested. The percentile is defined by (i/(n+1)) where i is the rank of n individual data points ordered lowest to highest. If necessary, the 10th percentile may be calculated using linear interpolation.	▪141.719(b)(2)(vi)	Adopted by Reference	
The challenge test must establish a quality control release value (QCRV) for a non-destructive performance test that demonstrates the *Cryptosporidium* removal capability of the membrane filtration module. This performance test must be applied to each production membrane module used by the system that was not directly challenge tested in order	▪141.719(b)(2)(vii)	Adopted by Reference	

SUMMARY OF FEDERAL REQUIREMENT	FEDERAL CITATION	STATE CITATION (DOCUMENT TITLE, PAGE NUMBER, SECTION/PARAGRAPH)	DIFFERENT FROM FED. REQUIREMENT? (EXPLAIN ON SEPARATE SHEET)
to verify *Cryptosporidium* removal capability. Production modules that do not meet the established QCRV are not eligible for the treatment credit demonstrated during the challenge test.			
If a previously tested membrane is modified in a manner that could change the removal efficiency of the membrane or the applicability of the non-destructive performance test and associated QCRV, additional challenge testing to demonstrate the removal efficiency of, and determine a new QCRV for, the modified membrane must be conducted and submitted to the state.	▪141.719(b)(2)(viii)	Adopted by Reference	
Direct integrity testing. Systems must conduct direct integrity testing in a manner that demonstrates a removal efficiency equal to or greater than the removal credit awarded to the membrane filtration process and meets the requirements described in paragraphs (b)(3)(i) through (vi) of this section. A direct integrity test is defined as a physical test applied to a membrane unit in order to identify and isolate integrity breaches (i.e., one or more leaks that could result in contamination of the filtrate).	▪141.719(b)(3)	Adopted by Reference	
The direct integrity test must be independently applied to each membrane unit in service. A membrane unit is defined as a group of membrane modules that share common valving that allows the unit to be isolated from the rest of the system for the purpose of integrity testing or other maintenance.	▪141.719(b)(3)(i)	Adopted by Reference	

SUMMARY OF FEDERAL REQUIREMENT	FEDERAL CITATION	STATE CITATION (DOCUMENT TITLE, PAGE NUMBER, SECTION/PARAGRAPH)	DIFFERENT FROM FED. REQUIREMENT? (EXPLAIN ON SEPARATE SHEET)
The direct integrity method must have a resolution of 3 micrometers or less, where resolution is defined as the size of the smallest integrity breach that contributes to a response from the direct integrity test.	'141.719(b)(3)(ii)	Adopted by Reference	
The direct integrity test must have a sensitivity sufficient to verify the log treatment credit awarded to the membrane filtration process by the state, where sensitivity is defined as the maximum log removal value that can be reliably verified by a direct integrity test. Sensitivity must be determined using the approach in either paragraph (b)(3)(iii)(A) or (B) of this section as applicable to the type of direct integrity test the system uses.	'141.719(b)(3)(iii)	Adopted by Reference	
For direct integrity tests that use an applied pressure or vacuum, the direct integrity test sensitivity must be calculated according to the following equation: $LRV_{DIT} = LOG_{10}(Q_p /(VCF \times Q_{breach}))$ Where: LRVDIT = the sensitivity of the direct integrity test; Q_p = total design filtrate flow from the membrane unit; Q_{breach} = flow of water from an integrity breach associated with the smallest integrity test response that can be reliably measured, and VCF = volumetric concentration factor. The volumetric concentration factor is the ratio of the suspended solids concentration on the high pressure side of the membrane relative to that in the feed water.	'141.719(b)(3)(iii)(A)	Adopted by Reference	
For direct integrity tests that use a particulate or molecular marker, the direct integrity test sensitivity must be calculated according to the following equation: $LRV_{DIT} = LOG_{10}(C_f)$ B $LOG_{10}(C_p)$ Where: LRV_{DIT} = the sensitivity of the direct integrity test;	'141.719(b)(3)(iii)(B)	Adopted by Reference	

SUMMARY OF FEDERAL REQUIREMENT	FEDERAL CITATION	STATE CITATION (DOCUMENT TITLE, PAGE NUMBER, SECTION/PARAGRAPH)	DIFFERENT FROM FED. REQUIREMENT? (EXPLAIN ON SEPARATE SHEET)
C_f = the typical feed concentration of the marker used in the test; and C_p = the filtrate concentration of the marker from an integral membrane unit.			
Systems must establish a control limit within the sensitivity limits of the direct integrity test that is indicative of an integral membrane unit capable of meeting the removal credit awarded by the state.	'141.719(b)(3)(iv)	Adopted by Reference	
If the result of a direct integrity test exceeds the control limit established under paragraph (b)(3)(iv) of this section, the system must remove the membrane unit from service. Systems must conduct a direct integrity test to verify any repairs, and may return the membrane unit to service only if the direct integrity test is within the established control limit.	'141.719(b)(3)(v)	Adopted by Reference	
Systems must conduct direct integrity testing on each membrane unit at a frequency of not less than once each day that the membrane unit is in operation. The state may approve less frequent testing, based on demonstrated process reliability, the use of multiple barriers effective for *Cryptosporidium*, or reliable process safeguards.	'141.719(b)(3)(vi)	Adopted by Reference	
Indirect integrity monitoring. Systems must conduct continuous indirect integrity monitoring on each membrane unit according to the criteria in paragraphs (b)(4)(i) through (v) of this section. Indirect integrity monitoring is defined as monitoring some aspect of filtrate water quality that is indicative of the removal of particulate matter. A system that implements continuous direct integrity testing of membrane units in accordance with the criteria in paragraphs (b)(3)(i) through (v) of this section is not	'141.719(b)(4)	Adopted by Reference	

SUMMARY OF FEDERAL REQUIREMENT	FEDERAL CITATION	STATE CITATION (DOCUMENT TITLE, PAGE NUMBER, SECTION/PARAGRAPH)	DIFFERENT FROM FED. REQUIREMENT? (EXPLAIN ON SEPARATE SHEET)
subject to the requirements for continuous indirect integrity monitoring. Systems must submit a monthly report to the state summarizing all continuous indirect integrity monitoring results triggering direct integrity testing and the corrective action that was taken in each case.			
Unless the state approves an alternative parameter, continuous indirect integrity monitoring must include continuous filtrate turbidity monitoring.	'141.719(b)(4)(i)	Adopted by Reference	
Continuous monitoring must be conducted at a frequency of no less than once every 15 minutes.	'141.719(b)(4)(ii)	Adopted by Reference	
Continuous monitoring must be separately conducted on each membrane unit.	'141.719(b)(4)(iii)	Adopted by Reference	
If indirect integrity monitoring includes turbidity and if the filtrate turbidity readings are above 0.15 NTU for a period greater than 15 minutes (i.e., two consecutive 15-minute readings above 0.15 NTU), direct integrity testing must immediately be performed on the associated membrane unit as specified in paragraphs (b)(3)(i) through (v) of this section.	'141.719(b)(4)(iv)	Adopted by Reference	
If indirect integrity monitoring includes a state-approved alternative parameter and if the alternative parameter exceeds a state-approved control limit for a period greater than 15 minutes, direct integrity testing must immediately be performed on the associated membrane units as specified in paragraphs (b)(3)(i) through (v) of this section.	'141.719(b)(4)(v)	Adopted by Reference	

SUMMARY OF FEDERAL REQUIREMENT	FEDERAL CITATION	STATE CITATION (DOCUMENT TITLE, PAGE NUMBER, SECTION/PARAGRAPH)	DIFFERENT FROM FED. REQUIREMENT? (EXPLAIN ON SEPARATE SHEET)
Second stage filtration. Systems receive 0.5-log *Cryptosporidium* treatment credit for a separate second stage of filtration that consists of sand, dual media, GAC, or other fine grain media following granular media filtration if the state approves. To be eligible for this credit, the first stage of filtration must be preceded by a coagulation step and both filtration stages must treat the entire plant flow taken from a surface water or GWUDI source. A cap, such as GAC, on a single stage of filtration is not eligible for this credit. The state must approve the treatment credit based on an assessment of the design characteristics of the filtration process.	▪141.719(c)	Adopted by Reference	
Slow sand filtration (as secondary filter). Systems are eligible to receive 2.5-log *Cryptosporidium* treatment credit for a slow sand filtration process that follows a separate stage of filtration if both filtration stages treat entire plant flow taken from a surface water or GWUDI source and no disinfectant residual is present in the influent water to the slow sand filtration process. The state must approve the treatment credit based on an assessment of the design characteristics of the filtration process. This paragraph does not apply to treatment credit awarded to slow sand filtration used as a primary filtration process.	▪141.719(d)	Adopted by Reference	

SUMMARY OF FEDERAL REQUIREMENT	FEDERAL CITATION	STATE CITATION (DOCUMENT TITLE, PAGE NUMBER, SECTION/PARAGRAPH)	DIFFERENT FROM FED. REQUIREMENT? (EXPLAIN ON SEPARATE SHEET)
'141.720 INACTIVATION TOOLBOX COMPONENTS			
Calculation of CT values. CT is the product of the disinfectant contact time (T, in minutes) and disinfectant concentration (C, in milligrams per liter). Systems with treatment credit for chlorine dioxide or ozone under paragraph (b) or (c) of this section must calculate CT at least once each day, with both C and T measured during peak hourly flow as specified in §§ 141.74(a) through (b).	'141.720(a)(1)	Adopted by Reference	
Systems with several disinfection segments in sequence may calculate CT for each segment, where a disinfection segment is defined as a treatment unit process with a measurable disinfectant residual level and a liquid volume. Under this approach, systems must add the *Cryptosporidium* CT values in each segment to determine the total CT for the treatment plant.	'141.720(a)(2)	Adopted by Reference	
CT values for chlorine dioxide and ozone.	'141.720(b)	Adopted by Reference	
CT values for chlorine dioxide and ozone. (1) Systems receive the *Cryptosporidium* treatment credit listed in this table by meeting the corresponding chlorine dioxide CT value for the applicable water temperature, as described in paragraph (a) of this section.	'141.720(b)(1)	Adopted by Reference	
Systems receive the *Cryptosporidium* treatment credit listed in the table presented in this section by meeting the corresponding ozone CT values for the applicable water temperature, as described in paragraph (a) of this section.	'141.720(b)(2)	Adopted by Reference	

SUMMARY OF FEDERAL REQUIREMENT	FEDERAL CITATION	STATE CITATION (DOCUMENT TITLE, PAGE NUMBER, SECTION/PARAGRAPH)	DIFFERENT FROM FED. REQUIREMENT? (EXPLAIN ON SEPARATE SHEET)
Site-specific study. The state may approve alternative chlorine dioxide or ozone CT values to those listed in paragraph (b) of this section on a site- specific basis. The state must base this approval on a site-specific study a system conducts that follows a state-approved protocol.	▪141.720(c)	Adopted by Reference	
UV. Systems receive *Cryptosporidium*, *Giardia lamblia*, and virus treatment credits for ultraviolet (UV) light reactors by achieving the corresponding UV dose values shown in paragraph (d)(1) of this section. Systems must validate and monitor UV reactors as described in paragraphs (d)(2) and (3) of this section to demonstrate that they are achieving a particular UV dose value for treatment credit.	▪141.720(d)	Adopted by Reference	
UV dose table. The treatment credits listed in this table are for UV light at a wavelength of 254 nm as produced by a low pressure mercury vapor lamp. To receive treatment credit for other lamp types, systems must demonstrate an equivalent germicidal dose through reactor validation testing, as described in paragraph (d)(2) of this section. The UV dose values in this table are applicable only to post-filter applications of UV in filtered systems and to unfiltered systems.	▪141.720(d)(1)	Adopted by Reference	
Reactor validation testing. Systems must use UV reactors that have undergone validation testing to determine the operating conditions under which the reactor delivers the UV dose required in paragraph (d)(1) of this section (i.e., validated operating conditions). These operating conditions must include flow rate, UV intensity as measured by a UV sensor, and UV lamp status.	▪141.720(d)(2)	Adopted by Reference	

SUMMARY OF FEDERAL REQUIREMENT	FEDERAL CITATION	STATE CITATION (DOCUMENT TITLE, PAGE NUMBER, SECTION/PARAGRAPH)	DIFFERENT FROM FED. REQUIREMENT? (EXPLAIN ON SEPARATE SHEET)
When determining validated operating conditions, systems must account for the following factors: UV absorbance of the water; lamp fouling and aging; measurement uncertainty of on-line sensors; UV dose distributions arising from the velocity profiles through the reactor; failure of UV lamps or other critical system components; and inlet and outlet piping or channel configurations of the UV reactor.	'141.720(d)(2)(i)	Adopted by Reference	
Validation testing must include the following: Full scale testing of a reactor that conforms uniformly to the UV reactors used by the system and inactivation of a test microorganism whose dose response characteristics have been quantified with a low pressure mercury vapor lamp.	'141.720(d)(2)(ii)	Adopted by Reference	
The state may approve an alternative approach to validation testing.	'141.720(d)(2)(iii)	Adopted by Reference	
Reactor monitoring. Systems must monitor their UV reactors to determine if the reactors are operating within validated conditions, as determined under paragraph (d)(2) of this section. This monitoring must include UV intensity as measured by a UV sensor, flow rate, lamp status, and other parameters the state designates based on UV reactor operation. Systems must verify the calibration of UV sensors and must recalibrate sensors in accordance with a protocol the state approves.	'141.720(d)(3)(i)	Adopted by Reference	
To receive treatment credit for UV light, systems must treat at least 95 percent of the water delivered to the public during each month by UV reactors operating within validated conditions for the required UV dose, as described	'141.720(d)(3)(ii)	Adopted by Reference	

SUMMARY OF FEDERAL REQUIREMENT	FEDERAL CITATION	STATE CITATION (DOCUMENT TITLE, PAGE NUMBER, SECTION/PARAGRAPH)	DIFFERENT FROM FED. REQUIREMENT? (EXPLAIN ON SEPARATE SHEET)
in paragraphs (d)(1) and (2) of this section. Systems must demonstrate compliance with this condition by the monitoring required under paragraph (d)(3)(i) of this section.			
'141.721 REPORTING REQUIREMENTS			
Systems must report sampling schedules under § 141.702 and source water monitoring results under § 141.706 unless they notify the state that they will not conduct source water monitoring due to meeting the criteria of § 141.701(d).	'141.721(a)	Adopted by Reference	
Systems must report the use of uncovered finished water storage facilities to the state as described in § 141.714.	'141.721(b)	Adopted by Reference	
Filtered systems must report their *Cryptosporidium* bin classification as described in § 141.710.	'141.721(c)	Adopted by Reference	
Unfiltered systems must report their mean source water *Cryptosporidium* level as described in § 141.712.	'141.721(d)	Adopted by Reference	
Systems must report disinfection profiles and benchmarks to the state as described in §§ 141.708 through 141.709 prior to making a significant change in disinfection practice.	'141.721(e)	Adopted by Reference	
Systems must report to the state in accordance with the following table for any microbial toolbox options used to comply with treatment requirements under § 141.711 or § 141.712. Alternatively, the state may approve a system to certify operation within required parameters for treatment credit rather than reporting monthly operational data for toolbox options.	'141.721(f)	Adopted by Reference	

SUMMARY OF FEDERAL REQUIREMENT	FEDERAL CITATION	STATE CITATION (DOCUMENT TITLE, PAGE NUMBER, SECTION/PARAGRAPH)	DIFFERENT FROM FED. REQUIREMENT? (EXPLAIN ON SEPARATE SHEET)
'141.722 RECORDKEEPING REQUIREMENTS			
Systems must keep results from the initial round of source water monitoring under § 141.701(a) and the second round of source water monitoring under § 141.701(b) until 3 years after bin classification under § 141.710 for filtered systems or determination of the mean *Cryptosporidium* level under § 141.710 for unfiltered systems for the particular round of monitoring.	'141.722(a)	Adopted by Reference	
Systems must keep any notification to the state that they will not conduct source water monitoring due to meeting the criteria of § 141.701(d) for 3 years.	'141.722(b)	Adopted by Reference	
Systems must keep the results of treatment monitoring associated with microbial toolbox options under §§ 141.716 through 141.720 and with uncovered finished water reservoirs under § 141.714, as applicable, for 3 years.	'141.722(c)	Adopted by Reference	
'141.723 REQUIREMENTS TO RESPOND TO SIGNIFICANT DEFICIENCIES IDENTIFIED IN SANITARY SURVEYS PERFORMED BY EPA			
A sanitary survey is an onsite review of the water source (identifying sources of contamination by using results of source water assessments where available), facilities, equipment, operation, maintenance, and monitoring compliance of a PWS to evaluate the adequacy of the PWS, its sources and operations, and the distribution of safe drinking water.	'141.723(a)	Adopted by Reference	

SUMMARY OF FEDERAL REQUIREMENT	FEDERAL CITATION	STATE CITATION (DOCUMENT TITLE, PAGE NUMBER, SECTION/PARAGRAPH)	DIFFERENT FROM FED. REQUIREMENT? (EXPLAIN ON SEPARATE SHEET)
For the purposes of this section, a significant deficiency includes a defect in design, operation, or maintenance, or a failure or malfunction of the sources, treatment, storage, or distribution system that EPA determines to be causing, or has the potential for causing the introduction of contamination into the water delivered to consumers.	'141.723(b)	Adopted by Reference	
For sanitary surveys performed by EPA, systems must respond in writing to significant deficiencies identified in sanitary survey reports no later than 45 days after receipt of the report, indicating how and on what schedule the system will address significant deficiencies noted in the survey.	'141.723(c)	Adopted by Reference	
Systems must correct significant deficiencies identified in sanitary survey reports according to the schedule approved by EPA, or if there is no approved schedule, according to the schedule reported under paragraph (c) of this section if such deficiencies are within the control of the system.	'141.723(d)	Adopted by Reference	

SUMMARY OF FEDERAL REQUIREMENT	FEDERAL CITATION	EXPLANATION OF STATE POLICIES AND PROCEDURES
PART 142B NPDWR IMPLEMENTATION		
'142.14 RECORDS KEPT BY STATES		
Any decisions made pursuant to the provisions of part 141, subpart W of this chapter.	'142.14(a)(9)	Adopted by Reference - where will all these records be kept?
Results of source water *E. coli* and *Cryptosporidium* monitoring.	'142.14(a)(9)(i)	Adopted by Reference
The bin classification after the initial and after the second round of source water monitoring for each filtered system, as described in '141.710 of this chapter.	'142.14(a)(9)(ii)	Adopted by Reference
Any change in treatment requirements for filtered systems due to watershed assessment during sanitary surveys, as described in '141.711(d) of this chapter.	'142.14(a)(9)(iii)	Adopted by Reference
The determination of whether the mean *Cryptosporidium* level is greater than 0.01 oocysts/L after the initial and after the second round of source water monitoring for each unfiltered system, as described in '141.712(a) of this chapter.	'142.14(a)(9)(iv)	Adopted by Reference
The treatment processes or control measures that systems use to meet their *Cryptosporidium* treatment requirements under '141.711 or '141.712 of this chapter.	'142.14(a)(9)(v)	Adopted by Reference
A list of systems required to cover or treat the effluent of an uncovered finished water storage facility, as specified in '141.714 of this chapter.	'142.14(a)(9)(vi)	Adopted by Reference

SUMMARY OF FEDERAL REQUIREMENT	FEDERAL CITATION	EXPLANATION OF STATE POLICIES AND PROCEDURES
'142.15 REPORTS BY STATES		
Subpart W. The bin classification after the initial and after the second round of source water monitoring for each filtered system, as described in '141.710 of this chapter.	'142.15(c)(6)(i)	Adopted by Reference
Any change in treatment requirements for these systems due to watershed assessment during sanitary surveys, as described in '141.711(d) of this chapter.	'142.15(c)(6)(ii)	Adopted by Reference
The determination of whether the mean *Cryptosporidium* level is greater than 0.01 oocysts/L both after the initial and after the second round of source water monitoring for each unfiltered system, as described in '141.712(a) of this chapter.	'142.15(c)(6)(iii)	Adopted by Reference
'142.16 SPECIAL PRIMACY CONDITIONS		
Requirements for states to adopt 40 CFR part 141, subpart W. In addition to the general primacy requirements elsewhere in this part, including the requirements that state regulations be at least as stringent as Federal requirements, an application for approval of a state program revision that adopts 40 CFR part 141, subpart W, must contain a description of how the state will accomplish the following program requirements where allowed in state programs.	'142.16(n)	
Approve an alternative to the *E. Coli* levels that trigger *Cryptosporidium* monitoring by filtered systems serving fewer than 10,000 people, as described in § 141.701(a)(5).	'142.16(n)(1)	
Assess significant changes in the watershed and source water as part of the sanitary survey process and determine appropriate follow-up action for systems, as described in § 141.711(d) of this chapter.	'142.16(n)(2)	

SUMMARY OF FEDERAL REQUIREMENT	FEDERAL CITATION	EXPLANATION OF STATE POLICIES AND PROCEDURES
Approve watershed control programs for the 0.5-log treatment credit in the microbial toolbox, as described in § 141.716(a) of this chapter.	▪142.16(n)(3)	
Approve protocols for demonstration of performance treatment credits in the microbial toolbox, as allowed under § 141.718(c) of this chapter.	▪142.16(n)(4)	
Approve protocols for alternative ozone and chlorine dioxide CT values in the microbial toolbox, as allowed under § 141.720(c) of this chapter.	▪142.16(n)(5)	
Approve an alternative approach to UV reactor validation testing in the microbial toolbox, as allowed under § 141.720(d)(2)(iii) of this chapter.	▪142.16(n)(6)	

SECTION

IV

State Reporting and Record Keeping Checklist

Reporting and Record Keeping Checklist

LT2ESWTR

Records Kept By States		
Summary of Federal Requirement	Federal Citation	Explanation of State Policies and Procedures
Any decisions made pursuant to the provisions of part 141, subpart W of this chapter.	142.14(a)(9)	Adopted by Reference
Results of source water *E. coli* and *Cryptosporidium* monitoring.	142.14(a)(9)(i)	Adopted by Reference
The bin classification after the initial and after the second round of source water monitoring for each filtered system, as described in 141.710 of this chapter.	142.14(a)(9)(ii)	Adopted by Reference
Any change in treatment requirements for filtered systems due to watershed assessment during sanitary surveys, as described in 141.711(d) of this chapter.	142.14(a)(9)(iii)	Adopted by Reference
The determination of whether the mean *Cryptosporidium* level is greater than 0.01 oocysts/L after the initial and after the second round of source water monitoring for each unfiltered system, as described in 141.712(a) of this chapter.	142.14(a)(9)(iv)	Adopted by Reference
The treatment processes or control measures that systems use to meet their *Cryptosporidium* treatment requirements under 141.711 or 141.712 of this chapter.	142.14(a)(9)(v)	Adopted by Reference
A list of systems required to cover or treat the effluent of an uncovered finished water storage facility, as specified in 141.714 of this chapter.	142.14(a)(9)(vi)	Adopted by Reference

Reports By States		
Summary of Federal Requirement	Federal Citation	Explanation of State Policies and Procedures
Subpart W. The bin classification after the initial and after the second round of source water monitoring for each filtered system, as described in '141.710 of this chapter.	142.15(c)(6)(i)	Adopted by Reference
Any change in treatment requirements for these systems due to watershed assessment during sanitary surveys, as described in '141.711(d) of this chapter.	142.15(c)(6)(ii)	Adopted by Reference
The determination of whether the mean *Cryptosporidium* level is greater than 0.01 oocysts/L both after the initial and after the second round of source water monitoring for each unfiltered system, as described in '141.712(a) of this chapter.	142.15(c)(6)(iii)	Adopted by Reference

SECTION

V

LT2ESWTR Special Primacy Requirements

COMMONWEALTH OF PUERTO RICO
DEPARTMENT OF HEALTH
PUBLIC WATER SUPPLY SUPERVISION PROGRAM

Commonwealth of Puerto Rico
Department of Health

Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR) § 142.16 Special Primacy Requirement

The following table contains the PRDOH Action/Compliance with the special primacy requirement of 40 CFR 142.16 for the implementation of the Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR). This requirement is addressed in the same order that it occur in the rule.

Summary of Federal Requirement	Federal Citation	Explanation of State Policies and Procedures
Requirements for States to adopt 40 CFR part 141, subpart W. In addition to the general primacy requirements elsewhere in this part, including the requirements that the State regulations be at least as stringent as federal requirements, an application for approval of a State program revision that adopts 40 CFR part 141, subpart W, must contain a description of how the State will accomplish the following program requirements where allowed in State programs.	§142.16 (n)	
Approve an alternative to the *E. coli* levels that trigger *Cryptosporidium* monitoring by filtered systems serving fewer than 10,000 people, as described in §141.701 (a)(5). OK	§142.16 (n)(1)	PRDOH, at this stage, does not intend to approve alternative indicators or an alternative to the *E. coli* concentrations provided in §141.701 (a)(4)(i), (ii), or (iv) to trigger source water *Cryptosporidium* monitoring for filtered systems serving fewer than 10,000 people. Nevertheless, PRDOH will consider reviewing alternative approaches to indicator monitoring, if EPA finally develops and issues any additional guidance after reviewing the indicator data

		collected by the larger systems (filtered systems serving 10,000 people or more) that confirms or refines the use of *E. coli* and turbidity as indicators for monitoring by filtered systems serving fewer than 10,000 people.
Assess significant changes in the watershed and source water as part of the sanitary survey process and determine appropriate follow up actions for systems, as described in §141.711 (d) of this chapter. Uses same AO 2002-364-02, originally for IESWTR. There is no reference to LT2. Should be re-written to indicate that the AO applies to LT2 as well.	§142.16 (n)(2)	PRDOH conducts sanitary surveys that assess the condition of the eight primary water system components, including the source water. Our Sanitary Survey (SS) Form was prepared according to EPA's *Guidance Manual for Conducting Sanitary Surveys of PWSs.* PRDOH's authority to decide whether corrective measures are needed and to determine and enforce appropriate follow up actions for systems is addressed in Administrative Order AO No. 2002-364-02. Furthermore, to comply with §141.711(d) requirement of assessing that significant changes has occurred in the watershed, we developed an Annex to be incorporated as part of the SS Form. The AO and the Annex may be found in the Appendix Section of this document.
Approve watershed control programs for the 0.5 log treatment credit in the microbial toolbox, as described in §141.716 (a) of this chapter. OK	§142.16 (n)(3)	PRDOH's approach to the evaluation and approval process of the systems' proposed programs is to develop a protocol using as reference Chapter 2 of EPA's *LT2ESWTR Toolbox Guidance Manual*.* As stated in EPA's *LT2ESWTR Implementation Guidance*, this manual provides a checklist that includes assessment criteria that will help states review the systems' watershed control plans and evaluations of annual status reports. The protocol will also establish that all filtered systems that request the approval of a

ok, con't		watershed control program to obtain the 0.5 log treatment credit in the microbial toolbox must comply with the required elements as described in §141.716 (a) and §141.713(c). (*This Manual as of December 2007 was not yet published on EPA's web site.)
Approve protocols for demonstration of performance treatment credits in the microbial toolbox, as allowed under §141.718 (c) of this chapter. ok,	§142.16 (n)(4)	PRDOH may award *Cryptosporidium* treatment credits other that the prescribed treatment credit specified in §141.711 and §§141.715 through 141.720 based on a demonstration of performance study that meet the following criteria: (1) the study must follow a state-approved protocol, and (2) the study must demonstrate the level of *Cryptosporidium* reduction the treatment process will achieve under the full range of expected operating conditions for the system. PRDOH will establish criteria for determining how additional credits will be granted developing a protocol using as reference Chapter 12 of EPA's *LT2ESWTR Toolbox Guidance Manual*.* As stated in EPA's *LT2ESWTR Implementation Guidance*, this Manual describes potential approaches that the state may use in preparing the demonstration of performance program. (*This Manual as of December 2007 was not yet published on EPA's web site.)
Approve protocols for alternative ozone and chlorine dioxide CT values in the microbial tool box, as allowed under §141.720 (c) of this chapter. ok	§142.16 (n)(5)	Systems in Puerto Rico do not use ozone and chlorine dioxide as disinfectants. To this extent, PRDOH, at this stage, does not intend to approve alternative ozone and chlorine dioxide CT values for systems. *Cryptosporidium* log inactivation credit will be determine using CT Tables in §141.720(b). Nevertheless, in the case

OK, cont		that a system begins using ozone or chlorine dioxide as disinfectant and requests PRDOH the approval of an alternative CT value, PRDOH will prepare a protocol to require the system to conduct a site-specific inactivation study. The protocol will be prepared using as guidance Appendix A of EPA's *LT2ESWTR Toolbox Guidance Manual* and will submitted to EPA. (*This Manual as of December 2007 was not yet published on EPA's web site.)
Approve an alternative approach to UV reactor validation testing in the microbial toolbox, as allowed under §141.720 (d)(2)(iii) of this chapter. OK	§142.16 (n)(6)	Systems in Puerto Rico, at this moment, do not use UV reactors for disinfection. However, in the case that a system begins using UV disinfection processes for inactivation, PRDOH may approve an alternative approach to UV reactor validation testing. A protocol was developed using as guidance Chapter 5 of EPA's *Ultraviolet Disinfection Guidance Manual* for this purpose. The protocol may be found in the Appendix Section of this document.

References:

- *LT2ESWTR Implementation Guidance*, USEPA, August 2007. EPA 816-R-07-006.
- *LT2ESWTR Toolbox Guidance Manual*, USEPA, N.d.e. Forthcoming.
- *Ultraviolet Disinfection Guidance Manual*, USEPA, 2006. EPA 815-R-06-007.

SECTION

VI

Attorney General's Statement of Enforceability

The Attorney General
San Juan, Puerto Rico

August 21, 2000

Ms. Jeanne M. Fox
Regional Administrator
Environmental Protection Agency
Region II
290 Broadway
New York, New York 10007-1866

Re: Puerto Rico's Primacy Revision Application-Safe Drinking Water

Dear Ms. Fox:

According to the requirements established in Title 40 of the Code of Federal Regulation ("CFR"), §142.12, the Puerto Rico Department of Health ("PRDOH") has to obtain approval of program revisions undertaken to adopt the National Primacy Safe Drinking Water Regulations as promulgated in 40 CFR Part 141 (the "NPSDWR") in order to demonstrate its primary enforcement responsibility ("Primacy"). In its efforts to evidence its Primacy, the PRDOH has requested that we issue an opinion regarding its legal authority to adopt the amendments to the Safe Drinking Water Act ("SDWA") introduced in 1996 by Public Law 104-182 (the "SDWA Amendments"). We must also opine as to whether the PRDOH has duly incorporated the SDWA Amendments and if the adoption of said amendments has been done by adequate and enforceable means.

PRDOH's Role as Local Agency with Primacy

Puerto Rico Act No. 5 of July 21, 1977, 12 L.P.R.A. §1551, et seq., also known as the "Act to Protect the Purity of Drinking Water of Puerto Rico," (the "APPDWPR") authorized the Secretary of the PRDOH to protect the purity of the drinking water in Puerto Rico. Pursuant to the authority delegated in the APPDWPR, the Secretary of the PRDOH should issue appropriate regulations fixing the maximum contaminant levels for drinking water according to the criteria established by the Administrator of the Environmental Protection Agency. Puerto Rico Act No. 193, approved by the Puerto Rico Legislature on December 26, 1997, reasserted the PRDOH's primary responsibility for protecting the purity of drinking water and public health, in general, in this jurisdiction.

Regulation No. 50 adopted by the PRDOH on June 20, 1983, also known as "Regulation to Protect the Purity of the Drinking Water of Puerto Rico," ("Regulation 50") and its subsequent amendments were adopted to comply with the delegated power and responsibilities of the PRDOH under the APPDWPR and for the PRDOH to adequately function as the state agency with Primacy. On February 4, 2000, in an effort to update and clarify its role as the agency with

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Primacy in this jurisdiction, the PRDOH adopted Regulation No. 6090, also known as the "General Regulation of Environmental Health," ("PRDOH Regulation No. 6090") and derogated Regulation No. 50. For the sake of evidencing its unequivocal intent to comply with all SDWA requirements and with the SDWA Amendments, in particular, in Article II §1.02 of PRDOH Regulation No. 6090 the PRDOH adopted the totality of 40 CFR Part 141, as amended from time to time, by reference.

Requirements for a Showing of Primacy

We proceed to analyze the requirements established in the NPSDWR for a showing of Primacy and the local statutes and regulations that serve to grant Primacy to the PRDOH.

1. Under 40 CFR §142.10 (a), in order to establish its primary responsibility for public water systems, the PRDOH must adopt drinking water regulations no less stringent than those imposed by the NPSDWR.

   In compliance with this requirement, the PRDOH Regulation No. 6090 establishes in its Article II §1.02 that primary standards for drinking water will be fixed and regulated according to 40 CFR Part 141, as amended. Article II §1.06 (1) of PRDOH Regulation No. 6090 goes even farther than the requirement established in 40 CFR § 142.10 in as much as, in order to protect public health, it grants to the Secretary of the PRDOH the authority to impose more stringent standards on drinking water safety than those established on the SDWA and the CFR.

2. In 40 CFR § 142.10 (b)(2) it is required that the PRDOH systematically perform sanitary surveys of public water systems, prioritizing on water systems violating primary drinking water regulations.

   PRDOH Regulation No. 6090 adopted in its Article II §1.02, by reference, all requirements contained in 40 CFR Part 141, as it may be amended from time to time.

3. According to 40 CFR §142.10 (b)(6)(i), the PRDOH must have authority to apply its primary drinking water regulations to all public water systems in Puerto Rico. The PRDOH must also have statutory or regulatory enforcement authority adequate to assure compliance with locally adopted primary drinking water regulations, as necessary.

   Section 3 of the APPDWPR, 12 L.P.R.A. §1551, et seq., authorizes the PRDOH to enforce drinking water regulations applicable to all water systems for human consumption.

   In Chapter II, Article II §1.04 of the PRDOH Regulation No. 6090, the PRDOH is authorized (a) to require that all water systems in Puerto Rico comply with NPSDWR requirements regarding safe drinking water, and (b) to immediately close any facility violating said requirements.

4. 40 CFR §142.10 (b)(6)(ii) requires that the PRDOH be able to sue in courts of competent jurisdiction to enjoin any threatened or continuing violation of the State's primary drinking water regulations.

Section 5 of the APPDWPR, 12 L.P.R.A. §1551, et seq., authorizes the Secretary of the PRDOH to take any actions deemed necessary to protect a water system and its users' health. These actions include, but are not limited to, the commencement of a civil suit and the request of a permanent or temporary injunction.

5. Under 40 CFR §142.10 (b)(6)(iii), the PRDOH must have right of entry and inspection of public water systems, including the right to take water samples, whether or not it has evidence of violations of an applicable legal requirement.

Section 3 of the APPDWPR, 12 L.P.R.A. §1551, et seq., authorizes the Secretary of the PRDOH to conduct inspections and perform monitoring on water systems for human consumption.

Chapter I, Article IX § 2 of the PRDOH Regulation No. 6090 authorizes the inspection by the PRDOH of any drinking water system without previous notice.

Chapter I, Article IX § 5 of the PRDOH Regulation No. 6090 authorizes the Secretary of the PRDOH to take and analyze samples on water systems or any of its components to determine water quality and purity.

6. 40 CFR §142.10 (b)(6)(iv) requires that the PRDOH require suppliers of water to keep appropriate records and make appropriate reports to the State.

Article II §1.02 of the PRDOH Regulation No. 6090 adopted the 40 CFR Part 141, as amended, by reference.

Chapter I, Article IX § 5 of the PRDOH Regulation No. 6090 authorizes the Secretary of the PRDOH to require and examine any record from facilities or systems under its jurisdiction, as deemed necessary.

7. In order to comply with the requirements of 40 CFR §142.10 (b)(6)(v), the PRDOH must be authorized to require public water systems to give public notice according to requirements established in 40 CFR §§ 141.32 and 142.16 (a), respectively.

Section 7 of the APPDWPR, 12 L.P.R.A. §1551, et seq., requires a water system that is, in any way, in noncompliance with drinking water standards to immediately notify the nature and extent of the situation and its possible adverse health effects the local health office, the Secretary of the PRDOH and the media in the area served by the system. If the Secretary of the PRDOH so requires, said notice must be published in a daily newspaper of general circulation while the violation or variance exists, and must be included in water bills issued to system users. Article II §1.02 of the PRDPH Regulation No. 6090 adopted, by reference, the 40 CFR Part 141, as amended.

8. 40 CFR §142.10 (b)(6)(vi) requires that the PRDOH have authority to assess civil or criminal penalties for violation of the local primary drinking water regulations and public notification requirements, including the authority to assess daily penalties or multiple penalties when a violation continues.

Section 9 of the APPDWPR, 12 L.P.R.A. §1551, et seq., authorizes the Secretary of the PRDOH to impose civil penalties not greater than five thousand dollars ($5,000.00) per day per violation of the APPDWPR, of regulations adopted by the PRDOH regarding drinking water, or of any administrative order issued relating to this matter.

Chapter III of the PRDOH Regulation No. 6090 authorizes the imposition of criminal penalties not greater than five thousand dollars ($5,000.00) per day per violation of Section I of Regulation No. 6090.

Violation of public notice requirements would constitute a violation of both of the APPDWPR and PRDOH Regulation No. 6090.

9. Pursuant to the requirements in 40 CFR §142.10 (b)(6)(vii), the PRDOH must be authorized to require consumer confidence reports to all community water systems. Said reports must be prepared according to 40 CFR Part 141, subpart 0.

Article II §1.02 of the PRDOH Regulation No. 6090 adopted, by reference, 40 CFR Part 141, as amended from time to time.

10. Under 40 CFR §142.10 (d)(1), if the PRDOH allows small system variances pursuant to Section 1415(e) of the SDWA, it must provide procedures no less stringent than the SDWA and Subpart K of this part.

Section 4 of the APPDWPR, 12 L.P.R.A. §1551, et seq., authorizes the Secretary of the PRDOH to grant variances and exemptions to drinking water regulations, provided they are authorized under conditions not less rigorous than variances or exemptions allowed under federal law.

11. As required pursuant to 40 CFR §142.10 (d)(2), if the PRDOH permits other type of variances, or exemptions, or both, from local primary drinking water regulations, it shall do so under conditions and in a manner no less stringent than the requirements of §§ 1415 and 1416 of the SDWA. In granting these variances, the State must adopt EPA Administrator's findings of best available technology, treatment techniques, or other means available as specified in Subpart G of this part.

Article II §1.02 of the PRDOH Regulation No. 6090 adopted 40 CFR Part 141, as amended, by reference, and Article II §1.05 of said regulation authorizes variances and exemptions only according to 40 CFR Part 141.4.

12. 40 CFR § 142.10(e) requires the adoption and implementation of an adequate plan for the provision of safe drinking water under emergency circumstances including, but not limited to, earthquakes, floods, hurricanes, and other natural disasters.

Section 6 of the APPDWPR, 12 L.P.R.A. §1551, et seq., directs the Secretary of the PRDOH to promulgate a plan to supply drinking water in emergency circumstances, and authorizes the Secretary of the PRDOH to take any measures deemed necessary to supply it. The plan has been adopted and is periodically revised to reflect any relevant change of

circumstances in the island or its infrastructure, and changes regarding agency officials to be contacted.

13. 40 CFR §142.10 (f)(1) requires that the PRDOH have authority for assessing administrative penalties of at least $1,000 per day, per violation, for public water systems serving a population of more than 10,000 individuals. For public water systems serving a population of 10,000 or fewer individuals the penalties to be imposed by the PRDOH must be adequate to ensure compliance with local regulations. As long as these criteria are met, the maximum administrative penalty per violation to be assessed on a public water system may be determined by the PRDOH.

    Section 9 of the APPDWPR, 12 L.P.R.A. §1551, et seq., authorizes the Secretary of the PRDOH to impose civil penalties not greater than five thousand dollars ($5,000.00) per day, per violation of the APPDWPR, of regulations adopted by the PRDOH regarding drinking water, or of any administrative order issued relating to this matter.

    Chapter III of the PRDOH Regulation No. 6090 authorizes the imposition of criminal penalties not greater than five thousand dollars ($5,000.00) per day per violation of regulations contained on Section I of PRDOH Regulation No. 6090.

    Administrative Order No. 2000-27500 issued on August 18, 2000, by the Secretary of the PRDOH specifically requires that any penalty imposed on public water systems serving a population of more than 10,000 individuals must be of at least $1,000 per day per violation, and for public water systems serving a population of 10,000 or less individuals, penalties assessed must adequately deter future violations of applicable regulations.

14. The state agency must administer a Public Water Supply Supervision Program ("PWSS") pursuant to Section 1413 of the SDWA.

    The PRDOH administers its PWSS pursuant to Section 1413 of the SDWA and the primary enforcement authority delegated to the PRDOH by the Administrator of the EPA, through communication dated March 1, 1980.

The preceding analysis of the authorities and functions delegated to the PRDOH in the previously reviewed statutes and regulations reveals, in our opinion, that the PRDOH is fully authorized by the APPDWPR to adopt and enforce the SDWA Amendments, that the referenced amendments have been lawfully adopted by the PRDOH and are enforceable through legally adequate means.

Respectfully,

Edda Serrano Blasini
Deputy Attorney General

COMMONWEALTH OF PUERTO RICO

DEPARTMENT OF JUSTICE

PO BOX 00192, SAN JUAN, PUERTO RICO 00902-0192

ADDRESS ALL COMMUNICATIONS TO THE SECRETARY

June 5, 2002

Hon. Johnny Rullán
Secretary
Department of Health
PO Box 70184
San Juan, Puerto Rico 00936-0184

Opinion No. 227-02-A
Translated

Dear Secretary Rullán:

This letter is in response to your request for an opinion as to the legal basis upon which the Department of Health of the Commonwealth of Puerto Rico (Department) may adopt, by reference, the amendments to the regulations administered by the Environmental Protection Agency (EPA).

On March 5, 2002, the Department of Health enacted Regulation No. 6090, *General Regulation for Environmental Health* (General Regulation), pursuant to the provisions of Act No. 5 of July 21, 1977, as amended, *Act to Protect the Pureness of Drinking Water of Puerto Rico*, 12 PR Laws Ann. §§ 1551 *et seq* (Act No. 5). The General Regulation established the standards to be met with regards to the drinking water in Puerto Rico. Towards that end, it provides for the adoption, by reference, of the amendments that may be approved to sections 141 to 143 of Title 40 of the Code of Federal Regulations (CFR) and the *Safe Drinking Water Act* (SDWA) without complying with the requirements established by Act No. 170 of August 12, 1988, as amended, *Uniform Administrative Procedure Act of the*

Commonealth of Puerto Rico, 3 PR Laws Ann. §§ 2101 *et seq* (Administrative Act).

You indicate that the EPA questions the validity of adopting amendments by reference, without complying with the procedure of the Administrative Act. On August 21, 2000, then Acting Secretary of Justice, Edda Serrano Blasini, Esq., issued an opinion addressed to Mrs. Jeanne M. Fox, an oficial of the EPA, expressing that the Department had complied with the requirements established by the *National Primacy Safe Drinking Water Regulation*, as stated in section 141 of the CFR. The opinion certified that such rules were validly adopted and incorporated into Puerto Rico's legal system. However, the opinion did not state the basis in law and jurisprudence that allowed the Department to adopt federal regulations by reference. This letter intends to fulfill such omission.

Act No. 5 was approved in order to regulate compliance with the standards for the purity of the drinking water, as well as the level of tolerance of contaminants. By virtue of section 3 of Act No. 5, the Secretary of Health (Secretary) is conferred the authority to enact and enforce the rules necessary to ensure the safety of drinking water in Puerto Rico, in accordance to the criteria established by the EPA. This includes the adoption of procedures for monitoring and inspection.

The regulations issued by the Secretary under Act No. 5 are aplicable to all the systems that offer water for human consumption in Puerto Rico. Section 4 of Act No. 5 provides that the Secretary can establish variations and waivers to the approved regulations. This includes the power to adopt the conditions he deems necessary and desirable, as long as such conditions are not less strict than the ones established by the federal regulations under the SDWA.

In its provisions regarding the safety of drinking water, the General Regulation establishes that the adoption of primary and secondary contaminant standards of drinking water, as well as the operation of the water systems, are to be ruled by the aplicable federal regulations in the CFR and the SDWA, as they may be amended.

The constitutionality of the delegation of power to a public agency by the Legislative Branch is determined by the boundaries prescribed with the delegation in question. In addition, the scope of the power granted to an agency must be examined in light of the methods of control present in the statutes aplicable to the specific agency. D. Fernández, Derecho Administrativo y Ley Uniforme de Procedimientos Administrativos, Forum, 2da Ed, 2001. Therefore, the analysis regarding the validity of the power an administrative action must begin with the boundaries limiting the power and the statutory context in which they appear.

The doctrine which prescribes the proper delegation of power is jurisprudential and is based on broad and general principles. Due to the complexity of the current social and economic problems faced by modern legislation, the doctrine in this field establishes that the delegation of power to administrative agencies is more efficient when done in terms of broad and general standards. Hilton Hotels v. Junta de Salario Mínimo, 74 DPR 670, 698 (1953). See also, American Power & Light v. Security Exchange Comission, 329 US 90 (1946).

The validity of an administrative agency's power to adopt regulations must be examined in accordance to the following standard: (1) the administrative action is authorized by law; (2) the administrative agency is invested with the power to issue regulations; (3) the regulations enacted fall within the boundaries of the delegated powers; (4) the rules were enacted in compliance with the procedural norms established by the organic act, and any other applicable statute, (5) the rules are not arbitrary or capricious. M & B.S., Inc. v. Departamento de Agricultura, 118 DPR 319 (1987). Consequently, the legislative delegation can be wide and flexible, as long as the regulations issued remain in harmony with the statutory provisions under which they are enacted. Ex Parte Irizarry, 66 DPR 672 (1946). Otherwise, the regulation faces a potential risk of ilegal. Franco Dominicci v. Departamento de Educación, Opinion and Judgment of June 30, 1999, 99 JTS 108.

As stated above, Act No. 5 authorizes the Secretary to enact such regulations as he finds necessary, within the parameters for drinking water established by the EPA, as long as they are not less rigorous than the federal regulations. The General Regulation explicitly contains said statutory

limitation. The main guiding principle for the administrative action is precisely the federal rules, specificly sections 141 to 143 of the CFR. Therefore, the Regulation meets the standard mentioned above. The Secretary posseses legal power to enact those provisions as he deems necessary, without any additional requirement besides the delegation already given by the Legislative Branch.

Further, the adoption by reference of any amendment that may be enacted to the CFR and to the SDWA, implies that changes of a substantive nature will take place in the local regulation with every amendment to the federal rules. However, any intended amendment or modification to the local regulation must be done in compliance with the provisions of the Administrative Act in order to be valid.

The Administrative Act was approved with the purpose, among others, of creating a uniform body of minimum rules with which the agencies subject to said statute must comply whenever they intend to propose and adopt regulations. Said statute establishes the proceedings to be followed to implant regulations.

However, the *General Provisions* contained in the corresponding sub-chapter, 3 PR Laws Ann. § 2103, exempts the agencies from complying with the requirements of the Administrative Act whenever they determine it is necessary in order to avoid the denial of funds or sevices by the federal government of the United States of America. Said section acknowledges the discretionary power of the agencies to shape and conform their administrative procedures to those required by the aplicable federal laws, without complying neither with the provisions of the Administrative Act or the *Administrative Procedure Act*, 5 USC §§ 551 *et seq.* This waiver from said statutes is complete, except for the requirements concerning the publication of the rules.

In accordance to the aforementioned jurisprudence, it is clearly evident that the Legislative Branch has empowered the Secretary to enact and enforce the regulations he deems necessary to monitor and supervise the drinking waters in Puerto Rico, according to the standards established by the Administrator of the EPA. As part of the duties imposed by Act No. 5, the