



**New Mexico Environment Department
Drinking Water Bureau**

Application for Groundwater Rule 4-log Certification by Chlorination

The Groundwater Rule was published by EPA on November 8, 2006 to provide increased protection against pathogens in public water systems that use groundwater sources. The rule requires that systems that do not provide 4-log (99.99%) removal or inactivation of viruses perform “triggered source water monitoring” in response to each positive total coliform sample collected in the distribution system under the Total Coliform Rule. Alternatively, after State approval, systems that do provide 4-log treatment can perform “compliance monitoring” rather than “triggered source water monitoring.”

Inactivation of viruses using a chemical disinfectant is based on the "CT" concept, where "C" is the measured concentration of the chemical disinfectant residual and "T" is the contact time between the point of application of the disinfectant and the point where the disinfection residual is measured. The point where the residual is measured must be before or at the first customer or first connection providing water to the public. The contact time of the disinfectant in minutes (T) is determined by dividing the total volume (in gallons) of system components (pipe, storage tank) by the flow, in gallons per minute (gpm), of the system. Once C is measured and T is determined from the flow and size of the system components, the product C x T (CT) is compared to the EPA developed tables of CT values shown below that are required to achieve 4-log inactivation of viruses.

CT Values for Inactivation of Viruses by Free Chlorine, pH 6.0 – 9.0																									
Temperature																									
°C	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
°F*	33	35	37	39	41	42	44	46	48	50	51	53	55	57	59	60	62	64	66	68	69	71	73	75	77
* truncated conversions to ensure conservative values																									
Log Inactivation																									
2	5.8	5.3	4.9	4.4	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	1.0	1.0	1.0	1.0	1.0
3	8.7	8.0	7.3	6.7	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	1.8	1.6	1.4	1.2	1.0
4	11.6	10.7	9.8	8.9	8.0	7.6	7.2	6.8	6.4	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

From Table 4-4 in the GWR Implementation Guidance EPA 816-R-09-004 January 2009

If your system **does provide** 4-log inactivation of viruses by chlorination and chooses to perform “compliance monitoring” rather than “triggered source water monitoring” you must complete and submit this application for each entry point on the system to New Mexico Environment Department Drinking Water Bureau (Department).

A. System Information		
System Name		
System Type	Community <input type="checkbox"/> Non-Transient Non-Community <input type="checkbox"/> Transient Non-Community <input type="checkbox"/>	
System Population	Less Than 3300 <input type="checkbox"/> Greater Than 3300 <input type="checkbox"/>	
PWS Number		
System Owner		
System Representative		
System Address		
Email Address		
Phone Number		Fax Number



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B. Flows (in Millions of Gallons a Day, MGD)

Minimum Flow	
Monthly Average	
Peak Hourly Flow	
Maximum Flow Possible	

C. Contact Chamber Information

Submit drawings of the contact time chambers/storage tank. The drawings shall show any baffling associated with the chamber/storage tank including the configuration of the inlet and outlet. Include each pipe segment as a separate contact chamber.

Contact Chamber Name	Maximum Volume (Gallons)	Minimum Volume (Gallons)	Baffling Factor
1.			
2.			
3.			
4.			
5.			
6.			

D. Primary Disinfectant

E. Disinfection Schematic

Submit drawings which show the location of injection points, residual sample points, and raw water taps. The drawings shall also indicate the location and size of contact chambers/storage tank and each pipe segment used to calculate log inactivation.

F. Chemical Feed Pumps

(Submit the specifications for chemical feed pump including dosing rates)

G. Contact Time Calculations

These calculations must provide enough detail to demonstrate to the Department that the system can achieve 4-log inactivation/filtration of viruses. If these calculations include contact chambers (other than pipe segments), storage tanks, disinfectant systems other than sodium hypochlorite, or filtration systems, the calculations must be performed by a State Certified Operator at a Level 3 or higher certification, or a Professional Engineer licensed in the State of New Mexico.

H. Chemical Dosing Rate Calculations

These calculations must specify the chemical pumping rate and concentration of the primary disinfectant.

I. Sampling (attach additional sheets as necessary)

Proposed Sampling Location	
Proposed Sampling Method	
Proposed Minimum Residual	



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Application for Groundwater Rule 4-Log Treatment Certification

Project and System Information	
System Name	
PWSID	
Entry Point Name/Number	

I (name), _____ certify that the _____ Public Water System has chosen to comply with the Ground Water Rule by demonstrating 4-log inactivation of viruses, in accordance with all requirements outlined in the Ground Water Rule, 20.7.10.100 NMAC incorporating 40 CFR 141 Subpart S. The Public Water System acknowledges that it will need to maintain the Department approved free chlorine residual at the Department approved sampling location in order to ensure that the public water system is providing enough treatment to protect the public.

If the Public Water System chooses to comply with the Ground Water Rule in another manner, it must notify the Department immediately. The water system will be subject to triggered source water monitoring if the water system decides to cease providing 4-log treatment. Please contact your NMED DWB Compliance Officer with any changes in Ground Water Rule compliance methodology.

Please submit your completed Application for Ground Water Rule 4-log Treatment Certification to NMENV-DWBPlanReview <NMENV-DWBPlanReview@state.nm.us>. Please make submittals electronically. Please email a link to an FTP site with attachments posted as Adobe Acrobat files (pdf). For submittals smaller than 50 MB, an email message with attachments is acceptable.

Signature of System Representatives			
Role	Date	Printed Name	Signature
¹ Owner			
¹ The owner is an individual, corporation, partnership, association, state or political subdivision thereof, municipality, or other legal entity.			
² Applicant/System Legal Representative			
² The system legal representative is the legally responsible agent and decision-making authority for a public water system (e.g. mayor, president of a board, public works director). The Designer or Consulting Engineer is not the legal representative.			

Signature of NMED Representative / Reviewer			
Position	Date	Typed Name	Signature
Entry Point number:			
Department Approved Residual (mg/L):			
Department Approved Sampling Location:			