

Outline of “Guideline for Protection of Waterworks from Cryptosporidium”

*“Guideline for Protection of Waterworks from Cryptosporidium” was originally established and applied in April 1st, 2007 by the Ministry of Health, Labor and Welfare. The targets are not only Cryptosporidium but also Giardia. But this outline was simplified and did not describe Giardia. The outline was made and translated into English by WaQuAC-NET. WaQuAC-NET has responsibility for the outline and translation.

The risk level of Cryptosporidium contamination in drinking water is classified into 4 levels based on the type of raw water. In accordance with each level, establishment of facilities, inspection of raw water and operation management are required. The flowchart of risk level of Cryptosporidium contamination and the requirement of each level are shown in Figure 1 and Table 1, respectively.

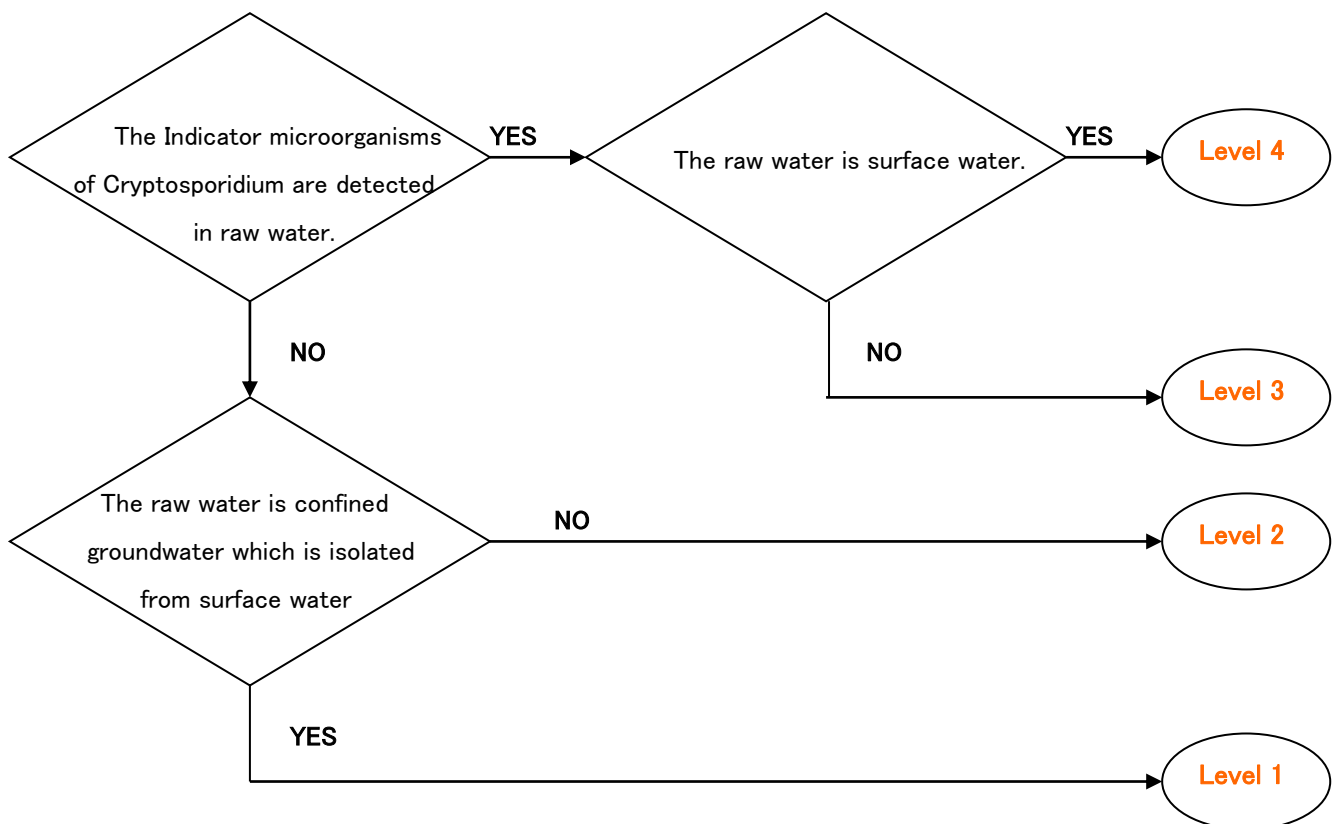


Figure 1. Flowchart of Judgement for risk level of Cryptosporidium contamination

Table 1. Requirements of each level

	Requirement for facilities	Requirement for inspections
Level 4	Filtration facilities (such as rapid sand filtration, slow sand filtration and membrane technology) which enable turbidity of outlet water from filtration basin to keep below 0.1 degree.	Inspect <i>Cryptosporidium</i> and <u>the indicator microorganism</u> in raw water with appropriate frequency based on water quality examination plan. However, if the removal facility for <i>Cryptosporidium</i> is still under construction, the following inspections are needed.
Level 3	One of the following equipments is required. 1) Filtration facilities (such as rapid sand filtration, slow sand filtration and membrane technology) which enable turbidity of outlet water from filtration basin to keep below 0.1 degree. 2) UV treatment	<i>Cryptosporidium</i> is inspected once every three months or more, and <u>the indicator microorganism</u> is inspected once a month or more.
Level 2		<u>Indicator microorganism of <i>Cryptosporidium</i></u> must be inspected once every three months or more.
Level 1		<ul style="list-style-type: none"> ·Inspect raw water once a year, and monitor whether or not there is a potential of pollution (<i>E.coli</i>, trichloroethene and so on) from surface water. ·Examine the condition of the casing, the strainer and the sediment in the well once every three years.

Indicator microorganism of *Cryptosporidium (Anaerobic spore-forming bacteria and *E.coli*)

By monitoring Indicator microorganism of *Cryptosporidium*, which are anaerobic spore-forming bacteria (*Clostridium perfringens*) and *E.coli*, it is possible to evaluate of *Cryptosporidium* contamination. *E.coli* is indigenous bacterium of warm-blooded animals, and exists in their feces. Anaerobic spore-forming bacteria tolerates chlorine, and has a high existing correlation with *Cryptosporidium*.