

Response from Catawba Nuclear Station

**ONSITE GROUND/SURFACE WATER MONITORING
QUESTIONNAIRE**

Onsite Radiological Effluent/REMP Monitoring Program

Phase 1 (Near Term Response)

1. Does the licensee have radioactive groundwater monitoring wells onsite? Yes No

If YES: How many wells: Catawba has ten (10) onsite groundwater monitoring wells.
See Note 1.

Where are they located (e.g., distributed around/throughout the site, in a particular region of the site and/or near particular buildings/structures, etc.)

- (a) within the Protected Area
- (b) within the Radiologically Restricted Area
- (c) within the owner-controlled area

(d) at what frequency does the licensee sample/analyze the wells Groundwater wells are sampled and analyzed semi-annually. See Note 2.

(e) for what radionuclides does the licensee monitor

Gamma emitters (Gamma Spec)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
If Yes - at what MDA	<u>See below.</u>		
Tritium	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
If Yes - at what MDA	<u>See below.</u>		
Gross Beta	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
If Yes - at what MDA	<u>See below.</u>		
Other: _____	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If Yes - at what MDA	_____		

<u>Nuclide</u>	<u>Typical Minimum Detectable Activity (MDA) (pCi/l)</u>
Gross Beta	4
Tritium	250
Mn-54	6
Fe-59	17
Co-58, Co-60	9
Zn-65	4
Zr-95	8
Nb-95	3
I-131	6
Cs-134	6
Cs-137	9
Ba/La-140	11

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2. If the licensee does NOT have an onsite radioactive groundwater monitoring program:

Yes No

(a) Does the licensee plan to implement a groundwater monitoring program? Yes No

If Yes, when and to what extent: _____

(b) Does the licensee plan to take other measures to assure they can identify radioactive groundwater contamination? Yes No

3. Does the licensee have a french drain system surrounding the main reactor facility and auxiliary structures? Yes No

(a) is the system analyzed for radionuclides? Yes No

(b) at what frequency does the licensee sample/analyze the wells

Catawba has a Ground Water Drainage System (WZ System). This system collects the groundwater drainage from under the site and channels it into the WZ sumps. A grab sample from these sumps is collected and analyzed monthly.

(c) for what radionuclides does the licensee monitor

Gamma emitters (Gamma Spec) Yes No

If Yes - at what MDA See below

Tritium Yes No

If Yes - at what MDA See below

Gross Beta Yes No

If Yes - at what MDA _____

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<u>Nuclide</u>	<u>Typical Minimum Detectable Activity (MDA) (pCi/l)</u>
Tritium	5,098
Mn-54	28
Fe-59	17
Co-58, Co-60	25
Zn-65	50
Zr-95	53
Nb-95	29
Mo-99	312
I-131	26
Xe-133	73
Xe-135	21
Cs-134	21
Cs-137	33
Ba/La-140	111
Ce-141	36
Ce-144	183

4. Does the licensee have a surveillance program to periodically:
- (a) walkdown outside areas around the site to look for potential leaks and spills? Yes No
- (b) pressurize buried radwaste lines to evaluate structural integrity and evaluate potential for leaks and spills? Yes No
5. Does the licensee perform any other onsite monitoring (e.g., soil sampling) to identify unexpected radioactive releases? Yes No
- See Note 3
6. Does the licensee's radioactive liquid discharge line traverse any non-licensee owned property (e.g., it is on a right-of-way surrounded by private properties)? Yes No
7. If the licensee has a discharge pipe that runs underground or any underground piping that carries radioactive liquids, does the licensee perform monitoring along the discharge pathway to identify potential leakage. Yes No

If YES:

How frequently is the sampling performed? _____

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Phase II (Longer Term Response)

8. Historical Onsite Radioactive Contamination:

(a) Does the licensee have any history of radioactive spills and/or leaks outside of buildings/structures? Yes No

Are they documented in 10 CFR 50.75g file?

(b) Has the licensee identified onsite radioactive groundwater contamination?
See Note 4.

If Yes:

⇒ When was it identified - If known:
Dates: _____

LER/Abnormal Event Report/Condition Report Nos:

⇒ Has the contamination moved outside the
Restricted area or the owner-controlled area

9. Comments: _____

Notes:

- (1) Catawba has six (6) onsite wells for monitoring the Catawba Landfill. There are also four (4) onsite wells used for chemical monitoring near the WC Ponds.
- (2) The Catawba Landfill wells are sampled semi-annually. The Catawba WC Pond wells have not traditionally been used to monitor for radionuclides. However, samples from these wells were collected and sent for radioanalysis on March 8th 2006.
- (3) Infrequent limited sampling has been performed (*i.e.*, rain water and vegetation sampling).
- (4) Tritium is a naturally occurring radioactive isotope of hydrogen. It has the same chemical properties as hydrogen so it exists primarily in the form of water or water vapor in the air. When present in the environment, it does not pose an external radiation hazard but is an internal hazard because it can be ingested or inhaled. However, due to its low-energy beta particle and its quick clearance from the body, it must be ingested in very large quantities to pose any significant health risk.

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The State of South Carolina has established groundwater standards and has defined "contamination" as levels exceeding these established standards. For tritium the relevant standard is the Maximum Contaminant Level of 20,000 pCi/l, which has been established as a level of consumption considered protective of human health which would equate to a radiation dose of 4 mrem if an individual were to drink 1/2 gallon of the water every day for a year. The radiation dose limit of 4 mrem is equivalent to about half of the dose received from a typical chest x-ray.

Samples were collected from wells near the Catawba WC Ponds on March 8th 2006. Preliminary results indicate the presence of tritium at concentrations well below South Carolina state groundwater standard. Confirmatory sampling and analysis is currently underway to validate the initial sample results. We have no indication that tritium has moved outside the owner controlled area.