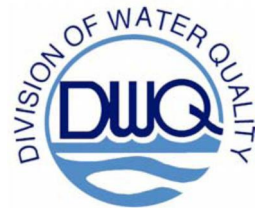


**Roanoke River Basin  
Basinwide Assessment Report  
Whole Effluent Toxicity Program  
2005-2009**



## The Division of Water Quality's Whole Effluent Toxicity Monitoring Program

Acute and/or chronic toxicity tests are used to determine toxicity of discharges to sensitive aquatic species (usually fathead minnows or the water flea, *Ceriodaphnia dubia*). Results of these tests have been shown by researchers to be predictive of discharge effects to receiving stream populations.

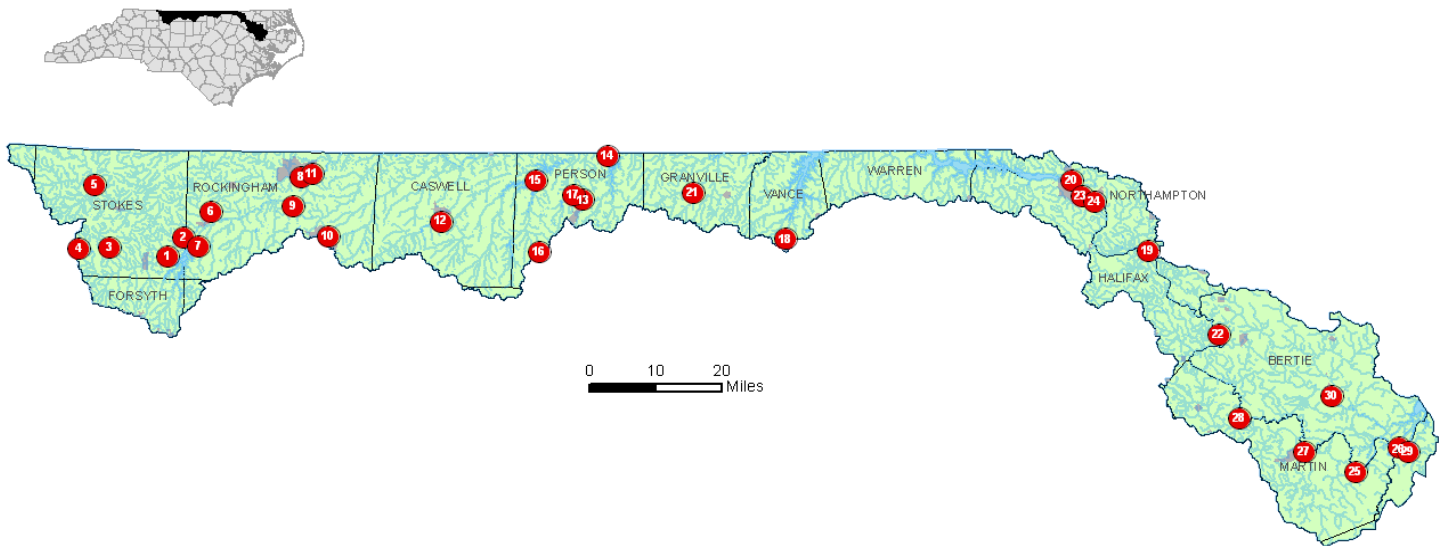
Many facilities are required to monitor whole effluent toxicity (WET) by their NPDES permit. Facilities without monitoring requirements may have their effluents evaluated for toxicity by DWQ's Aquatic Toxicology Laboratory. If toxicity is detected, DWQ may include aquatic toxicity testing upon permit renewal.

DWQ's Aquatic Toxicology Unit maintains a compliance summary for all facilities required to perform tests and provides a monthly update of this information to regional offices and WQ administration. Ambient toxicity tests can be used to evaluate stream water quality relative to other stream sites and/or a point source discharge.

### WET Monitoring in the Roanoke River Basin: 2005-2009

Twenty-Seven facility permits in the Roanoke River basin require whole effluent toxicity (WET) monitoring (Figure 1 and Table 1). Of these twenty-seven, four do not have permit limits.

**Figure 1 Facilities within the Roanoke River Basin conducting WET testing**



**Table 1. Roanoke River basin facilities required to conduct whole effluent toxicity testing**

	Facility	HUC	NPDES Permit No.	Receiving Stream	County	Flow (MGD)	IWC (%)	7Q10 (cfs)	2005-2009 Passes	2005-2009 Fails
1	Duke Power-Belews Cr	03010103	NC0024406/003	Dan River	Stokes	NA	19	80	20	0
2	Kobe Wieland	03010103	NC0035173/001	UT Dan River	Stokes	0.08	34	0.1	20	0
2	Kobe Wieland	03010103	NC0035173/003	UT Dan River	Stokes	NA	100	NA	8	0
3	Stokes Co S. Stokes HS	03010103	NC0044954/001	Little Neatman Cr	Stokes	0.17	9	0.3	20	0
4	AquaSource, Inc	03010103	NC0028746/001	UT Brushy Fork CK	Stokes	0.1	499	0.08	21	3
5	Stokes Co N. Stokes HS	03010103	NC0044962/001	UT Dan River	Stokes	0.01	23	0.06	20	0
6	Mayodan WWTP	03010103	NC0021873/001	Mayo River	Rockingham	4.5	8.5	75	20	0
7	Rockingham Power LLC	03010103	NC0086665/001	UT Jacobus Cr	Rockingham	NA	100	0	Monitoring only	
8	Duke Power-Dan River	03010103	NC0003468/002	Dan River	Rockingham	1.8	1.7	314	20	0
9	Eden WWTP	03010103	NC0025071/001	Dan River	Rockingham	13	5.1	386	20	0
10	Eden -Dry Creek WWTP	03010104	NC0025151/001	Dan River	Rockingham	0.5	0.24	313	20	1
11	Miller Brewing Co	03010103	NC0029980/001	Dan River	Rockingham	5.2	2.5	313	20	0
12	Yanceyville WWTP	03010104	NC0040011/001	Countryline Ck	Caswell	0.5	37	1.2	22	2
13	Primary Energy LLC	03010104	NC0065081/003	UT Mitchell Cr	Person	Var	100	0	25	4
14	CP & L Mayo Steam Plant	03010104	NC0038377/002	Mayo Reservoir	Person	NA	NA	NA	21	0
15	Progress Energy-Roxboro	03010104	NC0003425/003	Hycy Lake	Person	NA	NA	NA	20	0
16	Progress Energy-Roxboro	03010104	NC0003425/006	Hycy Lake	Person	NA	NA	NA	Monitoring only	
17	Roxboro WWTP	03010104	NC0021024/001	Marlowe Cr	Person	5.0	100	0	21	1
18	Henderson Nutbush WWTP	03010102	NC0020559/001	Nutbush Crk	Vance	4.1	97	0.20	20	0
19	Dept. of Corr-Caledonia	03010107	NC0027626/001	Roanoke River	Halifax	0.5	0.08	1000	21	0
20	Roanoke Rapids Mill WWTP	03010107	NC0000752/001	Roanoke River	Halifax	28	3.7	1120	20	0
21	Panda-Rosemary Power Station	03010102	NC0079014/001	UT Chockoyotte Cr	Halifax	NA	100	0	Monitoring only	
22	Perdue, Inc. Lewiston	03010107	NC0028835/001	Roanoke River	Bertie	3.0	0.4	1102	20	0
23	Roanoke Rapids Sanitary District	03010107	NC0024201/001	Roanoke River	Halifax	8.3	1.3	1172	20	0
24	Weldon WWTP	03010107	NC0025721/001	Roanoke River	Halifax	1.2	0.19	1000	21	1
25	McMurray Building WWTP	03010107	NC0023710/001	Roanoke River	Martin	0.45	0.1	1200	2	2
26	Domtar Paper Co	03010107	NC0000680/001	Roanoke River	Martin	55	6.8	1160	20	0
27	Williamston WWTP	03010107	NC0020044/001	Roanoke River	Martin	2.4	0.3	1170	20	0
28	Hamilton WWTP	03010107	NC0044776/001	Roanoke River	Martin	0.1	90	NA	9	0
29	Town of Plymouth WTP	03010107	NC0002313/001	UT Conaby Ck	Washington	NA	90	0	No Flow	
30	Windsor WWTP	03010107	NC0026751/001	UT Cashie River	Bertie	1.2	100	0	21	3

There are four facilities that had sporadic test failure for WET testing. Aqua source, which is Briarwood Subdivision, and Yanceyville WWTP had failures during this period but were compliant for each quarter. Each time a test would fail, the follow up tests showed no further toxicity was apparent. Windsor WWTP had failures during the period of April 2006 . June 2006 and was non-compliant. After the June 2006 compliant period, all follow up tests showed no apparent toxicity. Primary Energy had failures during the period of May 2006 . July 2006 and was non-compliant. They received an enforcement action which is a civil penalty assessment, for the quarterly WET non-compliance. After the July 2006, all follow up test showed no apparent toxicity. The McMurray Building facility had two fails in 2005 and two passes. After December of 2005, this facility has ceased to discharge. All other facilities were compliant each quarter for the 5 year basin cycle for the period 2005 through 2009.