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MEMORANDUM

To: **State Environmental Review Clearinghouse**

From: **J. Todd Kennedy, Tetra Tech**

Cc: **Toya Fields, Division of Water Resources**

Date: **April 17, 2009**

Subject: **Brunswick County Interbasin Transfer – SEPA Scoping Document**

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1 Introduction

Brunswick County, among the fastest growing counties in the state, provides water to more than 30,500 retail customers and 11 wholesale customers. Future demand for water has prompted a proposal to expand the County's Northwest Water Treatment Plant (WTP). The expansion of the Northwest WTP plant is expected to trigger the need for an IBT certificate from the North Carolina Environmental Management Commission (EMC) under the Regulation of Surface Water Transfers Act. A portion of the surface water treated at the Northwest WTP in the Cape Fear River Basin, as defined by G.S. § 143-215.22G, is distributed to customers in the Shallotte River Basin and the Waccamaw River Basin, both of which are located in the Lumber Major River Basin (Figure 1).

Brunswick County (lead applicant) and the towns of Oak Island, Shallotte, Holden Beach, and Ocean Isle Beach (co-applicants) are requesting comments on the scope of the Environmental Impact Statement (EIS) required under G.S. § 143-215.22L.

2 Project Description

2.1 Brunswick County's Water System

The County has two water treatment plants: the Northwest WTP, located near Northwest and supplied by water from the Cape Fear River, and the 211 WTP, located near St. James and supplied by 15 groundwater wells into the Castle Hayne Aquifer (Figure 2). The Lower Cape Fear Water and Sewer Authority supplies raw water to the Northwest WTP from an intake on the Cape Fear River above Lock and Dam 1. There is one additional intake located downstream (industrial; International Paper). The Northwest WTP and 211 WTP have permitted capacities of 24 million gallons per day (MGD) and 6 MGD, respectively.

The County's water system serves the majority of Brunswick County. Current customers include the following wholesale entities: Bald Head Island, Boiling Spring Lakes, Caswell Beach, Holden Beach,

North Brunswick SD, Northwest, Oak Island, Ocean Isle Beach, Shallotte, Navassa, and Southport. The system also serves retail and industrial customers located within the County's jurisdiction as well as customers residing in the towns of Sunset Beach, Carolina Shores, Bolivia, Calabash, and Varnamtown.

Wastewater is handled through a variety of system types. Septic tanks are common. In addition, non-discharge systems are used in the Shallotte River Basin including the West Brunswick Regional Water Reclamation Facility. One minor discharge is located in the Waccamaw River Basin. In the Cape Fear River Basin, wastewater is processed through small non-discharge facilities, several minor dischargers, and the County's Northeast Wastewater Treatment Plant.

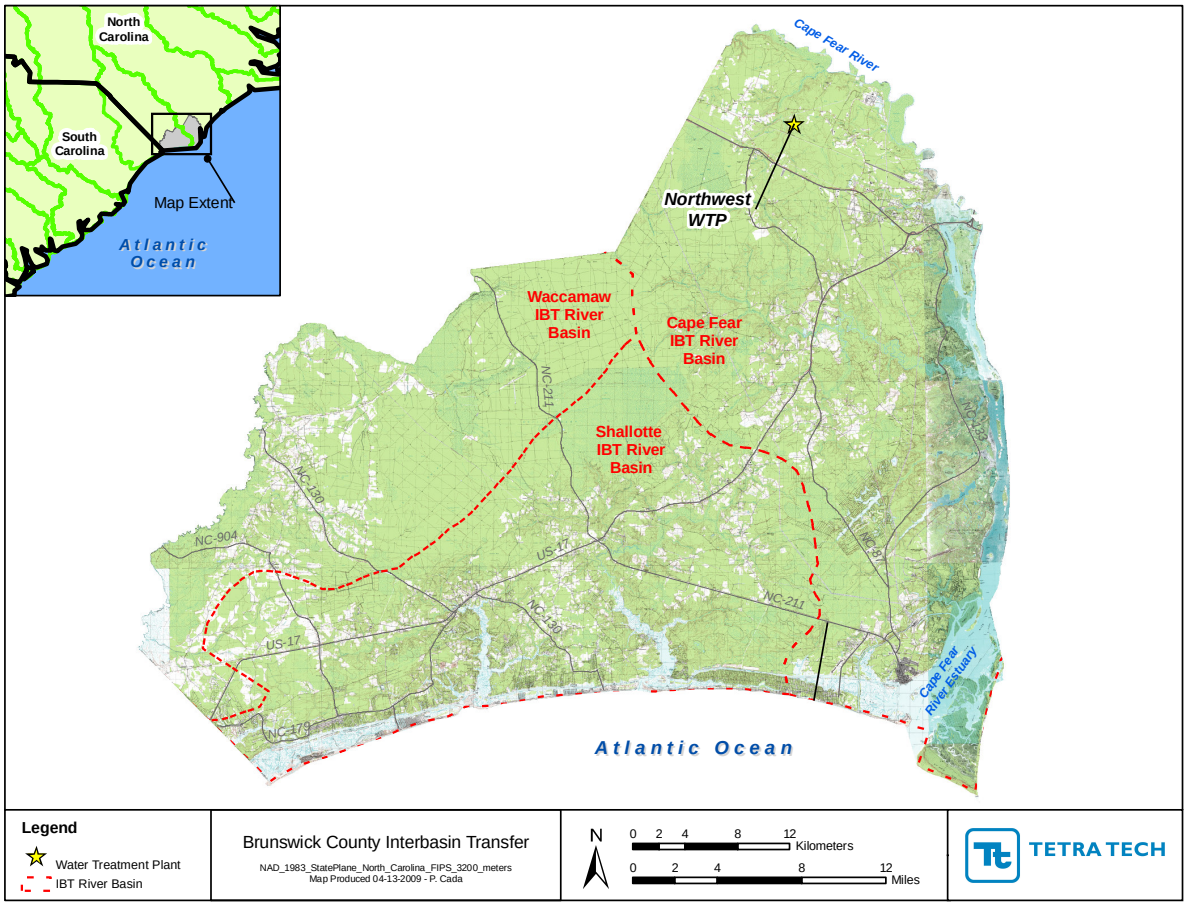

Figure 1. USGS Topographic Map

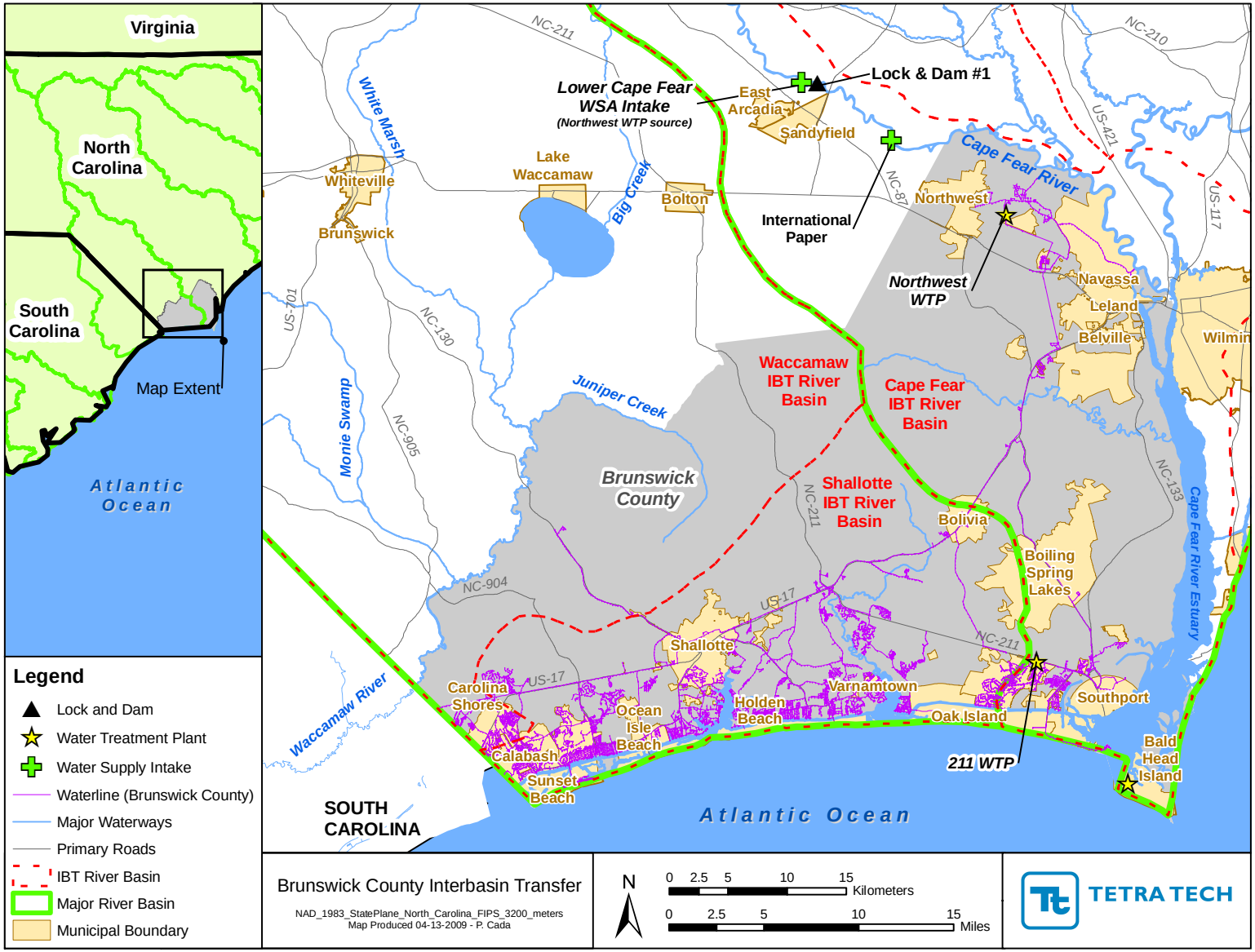

Figure 2. Map of Study Area

2.2 WATER DEMAND PROJECTIONS

Water demand projections were prepared for the County's most recent Water Master Plan by Hazen and Sawyer in 2006 (Figure 3). Typically, municipalities will begin a water treatment plant expansion process when the maximum daily demand reaches 80 percent of the plant capacity. As shown in Figure 3, the projected maximum daily demand was estimated to reach 80 percent of the water treatment capacity, for the Northwest and 211 plants combined, in about 2007. To meet future water demand, the County is proposing to expand the Northwest WTP from 24 MGD to 36 MGD.

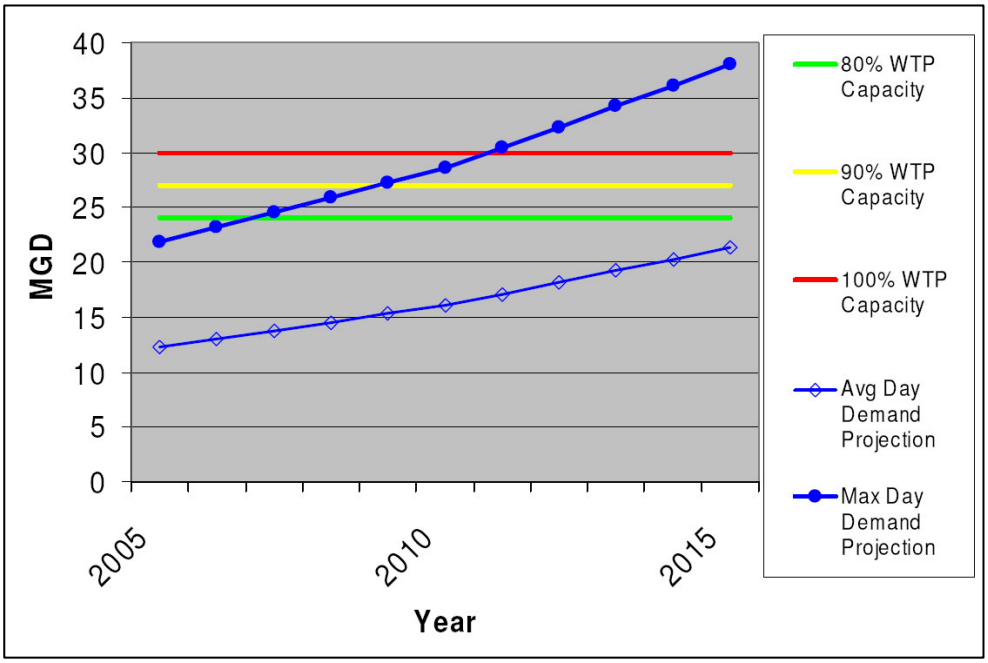

Figure 3. Water Demand Projections for Brunswick County Water System (from Hazen and Sawyer, 2006)

2.3 INTERBASIN TRANSFER

The expansion of the Northwest WTP plant is expected to trigger the need for an IBT certificate since a portion of the surface water treated at the Northwest WTP in the Cape Fear River Basin, as defined by G.S. § 143-215.22G, is distributed to customers in the Shallotte River Basin and the Waccamaw River Basin, both of which are located in the Lumber Major River Basin. Waters located in the Lumber Major River Basin (except for the Lockwoods Folly and Shallotte rivers), including the Waccamaw River, are tributaries of the Pee Dee River, which flows to Winyah Bay in South Carolina. The Shallotte River and Lockwoods Folly River are also considered part of the Lumber Major River Basin and flow directly into the Atlantic Ocean.

Under the grandfather provision of the Regulation of Surface Water Transfers Act, Brunswick County may transfer up to 10.44 MGD from one designated river basin to another without an IBT certificate (Table 1). Based on water demand projections, it is expected that the County's grandfathered transfer capacity will be exceeded during the year 2012 and therefore require an IBT certificate (Table 2). At that time, 9.68 MGD and 0.76 MGD are expected to be transferred to the Shallotte River Basin and Waccamaw River Basin, respectively, and not returned to the source river basin. The County is requesting an IBT certificate from the EMC for a maximum transfer of 18.35 MGD to the Shallotte River

Basin and a maximum transfer of 0.94 MGD to the Waccamaw River Basin based on projections through 2040.

Table 1. Transfer Capacity as of July 1, 1993

Water Transfer Element	Capacity (MGD)
Water Treatment Plant	24
Transmission/Distribution System	18
Discharge Capacity[1]	10.44
Transfer Capacity	10.44

[1] Includes max day WWTP permitted capacity, max day consumptive loses (i.e., septic tanks), and other system losses (i.e., a reasonable estimate of unaccounted losses such as leaking pipes).

Table 2. Maximum Daily Water Transfer (Actual 2006; Projected 2010 – 2040)

Year	Withdrawal from Source (MGD)	Total Return to Source Basin (MGD)	Interbasin Transfer – Shallotte (MGD)	Interbasin Transfer – Waccamaw (MGD)	Total Interbasin Transfer (MGD)
2006	18.2	9.18	8.37	0.65	9.02
2010	20.04	10.06	9.24	0.75	9.99
2012	21.02	10.58	9.68	0.76	10.44
2020	24.96	12.24	11.92	0.80	12.72
2030	31.23	15.02	15.35	0.87	16.21
2040	37.50	18.21	18.35	0.94	19.29

Note: The flow amounts are only for the Northwest WTP and do not include flows from the 211 Groundwater WTP.

3 Preliminary Alternatives

During development of the EIS, alternatives to the requested increase in interbasin transfer will be evaluated. The types of alternatives that are likely to be explored include:

- No action
- An increase in interbasin transfer to meet water demand in receiving river basins
- Avoiding interbasin transfer by using water sources in receiving river basins
- Avoiding interbasin transfer by returning wastewater to the source river basin

4 Next Steps (EIS and IBT Petition)

Following four public meetings in April and the scoping process, the County will begin preparing an EIS. It is expected that the following items will be discussed in the document:

- Project description, purpose and need
- Water supply, demand, and use
- Affected environment and environmental consequences
    - Direct impacts
    - Secondary and cumulative impacts
- Alternatives analysis
- Mitigation measures

Discussions are expected to include consideration of topography, soils, land use, wetlands, prime or unique agricultural lands, public lands and scenic, recreational, and state natural areas, areas of archaeological or historical value, air quality, noise, water resources, forest resources, shellfish, fish and their habitat, wildlife and natural vegetation, endangered or threatened species, and the introduction of toxic substances.

Analysis of direct, indirect (or secondary), and cumulative environmental impacts of the proposed action and reasonable alternatives is required for the EIS. Potential analyses may include hydrologic analysis of alternatives using the Cape Fear Hydrologic Model, water quality analysis within the lower Cape Fear River and Estuary, and analysis of secondary impacts due to potential induced growth in the receiving basin.

Following development of an EIS, the County and its co-applicants will prepare a petition for an interbasin transfer for submittal to the EMC. By statute, factors considered by the EMC in determining whether to issue a certificate must include:

- Necessary and reasonableness of the transfer
- Present and reasonable foreseeable future detrimental effects; and findings as to measures necessary or advisable to mitigate or avoid detrimental impacts (applies to the source and receiving basins)
- The cumulative effect on the source basin
- The availability of reasonable alternatives to the transfer
- If applicable, the use of impoundment storage capacity to store water
- Whether the service area of the applicant is in both the source and receiving basins
- Any other facts and circumstances that are reasonably necessary to implement the statute