

4.2.6 Soil Sampling

Soil samples are collected from ten locations every three years and beach sand is collected from three locations semiannually. Analysis of soil samples includes ⁹⁰Sr and gamma spectrometry.

4.2.7 Milk Sampling

Milk samples will be collected from either one or two locations on a weekly frequency. One sampling station is a family cow that does not produce sufficient milk for a sample every week. Within seven days of sampling, an ¹³¹I analysis will be completed using an analytical procedure similar in sensitivity to the procedure outlined in Regulatory Guide 4.3. Samples of individual locations will be composited monthly and analyzed for ⁸⁹Sr, ⁹⁰Sr, and by gamma spectrometry. To determine the presence of an infant, child or teen consuming the milk from the cow(s) at sample station 35 (Steven's Farm), a survey on the usage of the milk should be conducted at least once per calendar quarter. The result of this survey should be included in the semiannual Radiation Effluent Release Report.

4.2.8 Terrestrial Vegetation

Samples of the leafy portions of natural terrestrial vegetation will be collected quarterly from four locations in the vicinity of the plant. Samples will be analyzed by gamma spectrometry.

4.2.9 Food Crops

Edible portions of food crops will be collected from two locations three times during the growing season. Samples will be analyzed by gamma spectrometry.

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4.2.10

Fodder and Feed Crops

Feed crops will be collected at two locations on a monthly frequency during the growing season. Samples will be analyzed by gamma spectrometry.

Table 4.2-1 (Cont'd)

| <u>Sample Station</u> | <u>Location</u> | <u>Sample Types</u> | <u>Sample Frequency</u> | <u>**Sample Size</u> |
|-----------------------|---|--|--|--|
| 31 | Ocean approximately 1/2 mile west of discharge | (1) Surface Water (SW) (2) Bottom Sediments (SD) (3) Aquatic Vegetation (AV) (4) Zooplankton (ZO) (5) Benthic Organisms (BO) | (1) Monthly (2) Semiannual (3) Semiannual (4) Semiannual (5) Semiannual | (1) 2 liters (2) 0.5 kilogram wet (3) 0.5 kilogram wet (4) 10 cc wet (5) 10 cc wet |
| 32 | Discharge canal | (1) Surface Water (SW) | (1) Monthly | (1) 2 liters |
| 33 | Discharge canal at Stilling Pond | (1) Bottom Sediments (SD) | (1) Semiannual | (1) 0.5 kilogram wet |
| 34 | Discharge canal near the plant | (1) Bottom Sediments (SD) | (1) Semiannual | (1) 0.5 kilogram wet |
| 35 | River Road & the Stevens Farm | (1) Milk (MS) (2) Soil Sample (SS) (3) Fodder & Feed (FO) (4) Groundwater (GW) | (1) Weekly* (2) Three Years (3) Monthly during growing season (4) Quarterly | (1) 2 liters (2) 0.5 kilogram (3) 0.5 kilogram (4) 2 liters |
| 37 | Thirteen miles NNW off Highway 17, Johnson Farm | (1) Milk (MS) (2) Soil Sample (SS) (3) Fodder & Feed (FO) (4) Terrestrial Vegetation (TV) | (1) Weekly (2) Three Years (3) Monthly during growing season (4) Quarterly | (1) 2 liters (2) 0.5 kilogram (3) 0.5 kilogram (4) 0.5 Kilogram |

IV. Ground Water

- A. Quarterly sampling at six (6) locations
- B. Analyses:
 - 1. Gamma spectrometry
 - 2. Tritium

V. Bottom Sediments

- A. Semiannual sampling at six locations
- B. Analyses:
 - 1. ^{90}Sr
 - 2. Gamma spectrometry

VI. Soil Sampling

- A. Ten locations every three years and semiannual sampling at the other three locations
- B. Analyses:
 - 1. ^{90}Sr
 - 2. Gamma spectrometry

VII. Milk Sampling

- A. Weekly sampling at either one or two locations depending upon availability.
- B. Analyses:
 - 1. Iodine within seven days of collection (0.5 pCi/l sensitivity)
 - 2. ^{89}Sr , ^{90}Sr (monthly composite of individual locations)
 - 3. Gamma spectrometry (monthly composite of individual locations)

VIII. Terrestrial Vegetation

- A. Quarterly at four locations
- B. Analyses: Gamma spectrometry

IX. Food Crops

- A. Three times during the growing season from two locations
- B. Analyses: Gamma spectrometry

X. Fodder and Feed Crops

- A. Monthly samples taken at two locations during the growing season
- B. Analyses: Gamma spectrometry

XI. Aquatic Vegetation

- A. Semiannual sampling at three locations near the plant discharge off Caswell Beach and at a fourth location away from the influence of the plant
- B. Analyses:
 - 1. ^{89}Sr , ^{90}Sr
 - 2. Gamma spectrometry

XII. Zooplankton

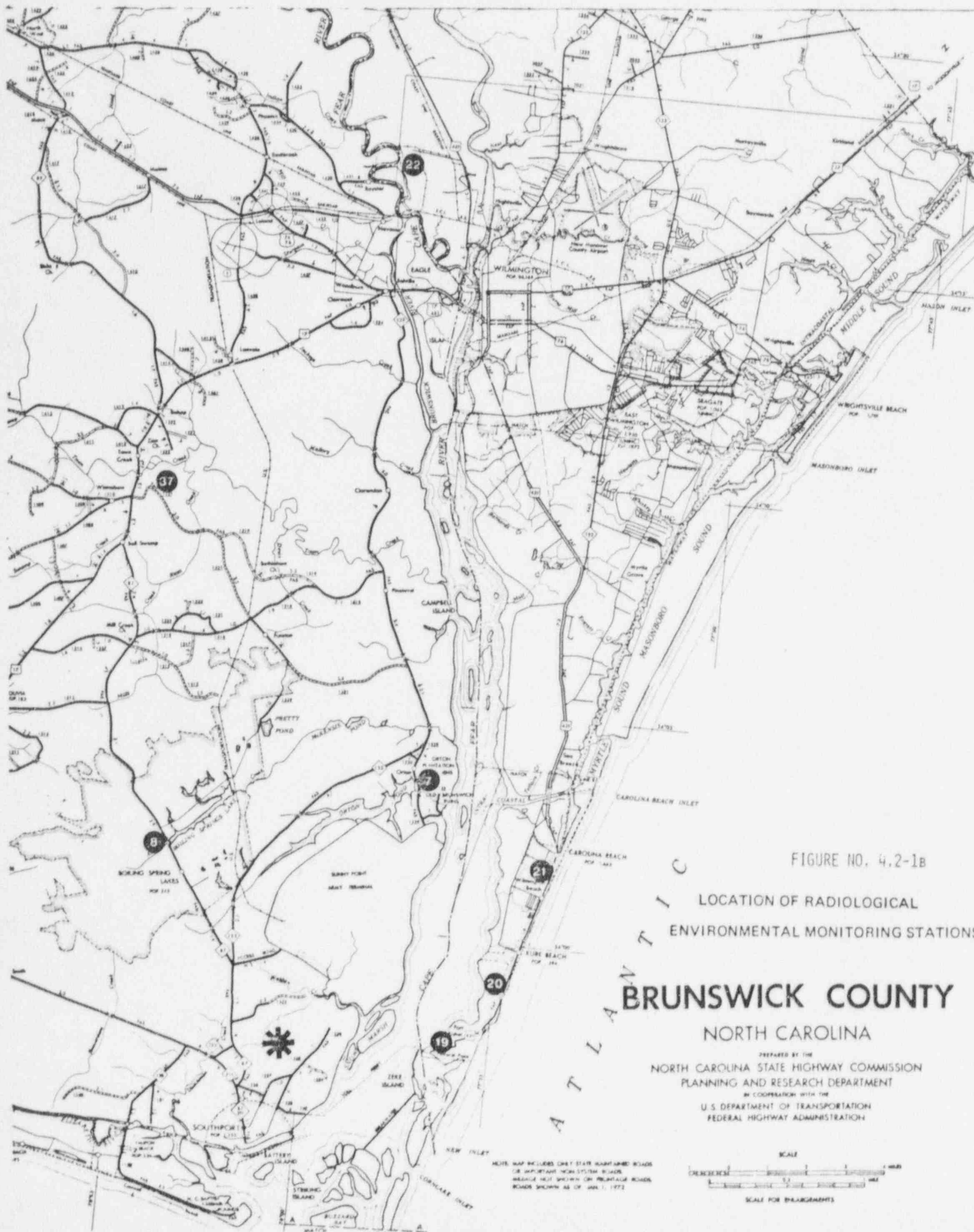
- A. Semiannual sampling at three locations near the plant discharge off Caswell Beach and a fourth location away from the influence of the plant.
- B. Analyses:
 - 1. ^{89}Sr , ^{90}Sr
 - 2. Gamma spectrometry

XIII. Benthic Organisms

- A. Semiannual sampling at three locations near the plant discharge off Caswell Beach and at a fourth location away from the influence of the plant
- B. Analyses:
 - 1. ^{89}Sr , ^{90}Sr
 - 2. Gamma spectrometry

XIV. Fish

- A. Quarterly sampling at two locations
- B. Analyses of flesh: Gamma spectrometry



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- B. Analyses: Gamma spectrometry

IX. Food Crops

- A. Three times during the growing season from two locations
- B. Analyses: Gamma spectrometry

X. Fodder and Feed Crops

- A. Monthly samples taken at two locations during the growing season
- B. Analyses: Gamma spectrometry

XI. Aquatic Vegetation

- A. Semiannual sampling at three locations near the plant discharge off Caswell Beach and at a fourth location away from the influence of the plant
- B. Analyses:
 - 1. ^{89}Sr , ^{90}Sr
 - 2. Gamma spectrometry

XII. Zooplankton

- A. Semiannual sampling at three locations near the plant discharge off Caswell Beach and a fourth location away from the influence of the plant.
- B. Analyses:
 - 1. ^{89}Sr , ^{90}Sr
 - 2. Gamma spectrometry

XIII. Benthic Organisms

- A. Semiannual sampling at three locations near the plant discharge off Caswell Beach and at a fourth location away from the influence of the plant
- B. Analyses:
 - 1. ^{89}Sr , ^{90}Sr
 - 2. Gamma spectrometry

XIV. Fish

- A. Quarterly sampling at two locations
- B. Analyses of flesh: Gamma spectrometry



FIGURE NO. 4.2-1b

LOCATION OF RADIOLOGICAL
ENVIRONMENTAL MONITORING STATIONS

BRUNSWICK COUNTY

NORTH CAROLINA

PREPARED BY THE
NORTH CAROLINA STATE HIGHWAY COMMISSION
PLANNING AND RESEARCH DEPARTMENT

IN COOPERATION WITH THE
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

NOTE: MAP SHOWS ONLY STATE MAINTAINED ROADS
OR IMPORTANT HIGH SYSTEM ROADS.
MAJOR HIGH SYSTEMS OR ROUTES SHOWN
ROAD SHOWN AS OF JAN. 1, 1972

