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November 10, 2016

Jeffrey Hinton, Director
US Commission on Civil Rights
Suite 16T126
61 Forsyth Street, SW
Atlanta, Georgia 30303

Dear Mr. Hinton,

The N.C. Department of Environmental Quality (DEQ) is committed to ensuring that communities subject to Title VI of the Civil Rights Act of 1964 are not negatively impacted by newly proposed and expanded coal ash landfills. A study has been conducted by DEQ in recent months to evaluate the communities surrounding the landfill sites.

Marshall Steam Station is in an approximately 1,370-acre property in Catawba County, in Terrell, N.C. and is situated along Lake Norman on the south, east, and northeast. The Marshall Steam Station is the third of Duke's sites to be studied by department staff. Attached to this letter you will find the study.

The study included an assessment of the race and ethnicity, income, sex, disability, age and English proficiency of residents near the Marshall Steam Station. DEQ has determined that the existing solid waste management facilities at the Marshall Steam Station do not impose disproportionately high or adverse environmental harm to residents in these target populations. We are asking for you to review this study and acknowledge to the DEQ any recommendations or comments on this study within 30 days. Also, please provide any feedback to us on the process which we have undertaken and any suggested changes, as we will be working through numerous environmental justice studies at Duke Energy disposal sites. Two copies of the report are enclosed; please forward one copy to the appropriate Regional Advisory Committee.

Thank you for taking the time for this review. We look forward to hearing from you.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Michael E. Scott', with a large, stylized circular flourish at the end.

Michael Scott, Division of Waste Management Director

EC: Matthey Lazo-Chadderton, US Commission on Civil Rights
North Carolina Advisory Committee

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1 Introduction

Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations and policies. This report summarizes a study of the demographic and environmental conditions in Catawba County in North Carolina, Census Tracts 115.03, and a three-mile radius around the Marshall Steam Station property. Duke Energy Carolinas, LLC, owns and operates the Marshall Steam Station (facility), electrical power generating facility, 8320 East North Carolina Highway 150 in Terrell, North Carolina. The facility includes a total area of approximately 1,370 acres. The facility has within its boundaries three (3) industrial solid waste landfills, including:

- Permit Number 1804-INDUS-1983 – which has been closed since 2009,
- Permit Number 1809-INDUS – which stopped receiving waste in 2015, and
- Permit Number 1812-INDUS-2008 – for which Duke Energy has received a Permit to Construct Phase 1 – Cells 3 and 4, and a Permit to Operate Phase 1 – Cells 1 and 2.

The study was completed to identify disproportionately high or adverse environmental and human health effects on low income or minority populations. This report also details the actions taken by the N.C. Department of Environmental Quality in response to the results of the study.

2 Environmental Justice Evaluation

Officials with the N.C. Department of Environmental Quality (department or NCDEQ) administration stated in a press release they would exceed federal and state requirements to protect minority communities from negative impacts when evaluating Duke Energy's applications to store coal ash in landfills. Since then, the department has assessed the potential impact on communities surrounding the Marshall Steam Station in Terrell, N.C. This assessment has included:

- A review of the facility's coal ash management plan, proposed landfill operations plan and potential exposure pathways to determine impact boundaries.
- Establishment of a three-mile impact radius, which was based on coal ash transportation plans.
- A study of area demographics, completed using the Environmental Protection Agency's Environmental Justice tool (EJScreen) <https://ejscreen.epa.gov/mapper/> and current available census data at: <http://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>.
- A comparison of area demographics to project county census data.
- Completion of a site visit to ensure current available census data was accurate.
- Communicate with local government officials from Catawba County.

3 Marshall Steam Station Landfills

Permit 1804-INDUS-1983 (Closed)

Landfill permit number 1804-INDUS-1983 encompasses three areas, of which two are currently closed. Area 1 consists of a 58-acre ash landfill south of the asbestos landfill, which was closed in 2001. Area 2 consists of an asbestos landfill northwest of the ash landfill with an original permitted area of 38.1 acres. Area 3 consists of the construction and demolition landfill, which has an original permitted area of 2.9 acres. Operations at the asbestos landfill stopped on or before June 30, 2008, and the landfill is being closed in accordance with Section 15A N.C.A.C 15B .0510.



Figure 3-1: Permit 1804-INDUS-1983- SITE PLAN

Permit 1809-INDUS- (Open)

On Oct. 19, 2015, Duke Energy notified the department that the final placement of coal combustion residuals occurred at the Marshall Flue Gas Desulfurization (FGD) Landfill (11/19/2015, DIN 25319). At that time, the FGD Landfill was covered with a minimum of one foot of intermediate soil cover on Nov. 18, 2015. A mixture of permanent and temporary seeding has been applied and stabilized with Hydromulch. Duke may be applying for a permit renewal as they determine next steps for this landfill. The Marshall FGD Landfill is currently permitted to accept coal combustion residuals, including fly and bottom ash, pyrites, and coal mill rejects, generated at Duke Energy facilities.

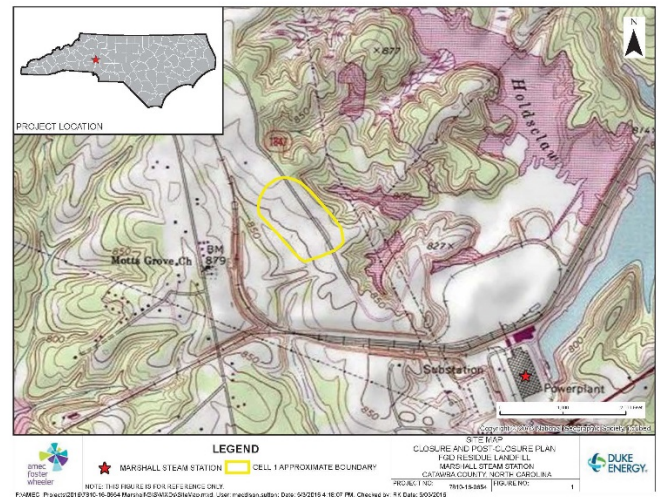


Figure 3-2: Permit 1809-INDUS- SITE PLAN

Permit 1812-INDUS-2008 (Open)

Industrial landfill permit number 1812-INDUS-2008 is permitted to receive industrial solid wastes, including coal combustion residuals, asbestos, construction and demolition debris, land clearing and inert debris, coal mill rejects, waste limestone material and remediation wastes. The industrial landfill covers approximately 103 acres and is permitted to include five phases made up of 13 cells with a total disposal capacity of approximately 18 million cubic yards.

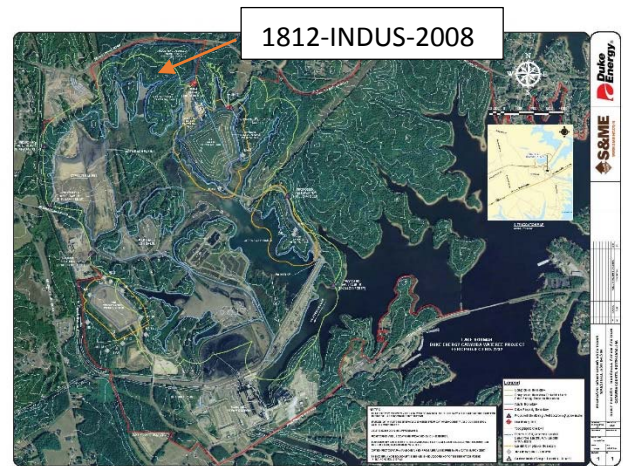


Figure 3-3: Permit 1812-INDUS-2008 SITE PLAN

4 Geographic Area

Marshall Steam Station is in Terrell, N.C., and is situated along Lake Norman on the south, east and northeast.

5 Regional Setting

Data on race and ethnicity, age and sex, disability, poverty, household income, and limited English proficiency (LEP) populations contained in the following sections are based on the U.S. Census Bureau's data at a county level. Demographics of Catawba County were compared to the demographics of the three-mile radius to identify any disparities.

5.1 Race and Ethnicity

According to the 2010 U.S. Census Data QT-P3, Race and Hispanic Origin: 2010; 2010 Census Summary File 1 report, the largest populations in Catawba County's total population of 154,358 were White (81.7 percent), Black or African American (8.4 percent), Mexican (6.1 percent), Some other Race (4.1 percent), and Asian (3.5 percent). The classifications of Two or More Races, and Other Hispanic or Latino were also above 1 percent in Catawba County in 2010.

Table 1. U.S. Census Bureau, Race and Ethnicity - Catawba County

Race and Ethnicity	Catawba County	
	Number	Percent
Total Population	154,358	100%
White	126,151	81.7%
Black or African American	13,041	8.4%
American Indian or Alaska Native	489	0.3%
Asian	5,352	3.5%
Native Hawaiian and Other Pacific Islander	53	0.0%
Some other Race	6,395	4.1%
Two or More Races	2,877	1.9%
HISPANIC OR LATINO (of any race)	13,032	8.4%
Mexican	9,446	6.1%
Puerto Rican	673	0.4%
Cuban	173	0.1%
Other Hispanic or Latino	2,739	1.8%

5.2 Age and Sex

According to the U.S. Census Bureau, QT-P1, Age Groups and Sex: 2010 Census Summary File 1, Catawba County has an estimated male and female total population of 154,358. The highest percentage of the Catawba County population is between the ages of 18 and 64, with a median age of 38.5 for males and 40.6 for females.

Table 2. U.S. Census Bureau, Age and Sex – Catawba County

Age	Catawba County					
	Number			Percent		
	Both sexes	Male	Female	Both sexes	Male	Female
Total Population	154,358	75,603	78,755	100%	100%	100%
Under 5 years	9,670	4,889	4,781	6.3%	6.5%	6.1%
Under 18 years	36,795	18,834	17,961	23.8%	24.9%	22.8%
18 to 64 years	95,790	47,481	48,309	62.1%	62.8%	61.3%
65 years and over	21,773	9,288	12,485	14.1%	12.3%	15.9%
Median Age	39.6	38.5	40.6			

5.3 Disability

According to the 2015 American Community Survey “Disability Characteristics 1-year Estimate,” S1810 from the U.S. Census Bureau, Catawba County has an estimated total of 153,538 population of non-institutionalized civilians. Of those civilians, an estimated 15.4 percent have a disability. The highest population of disabled civilians are of the population 65 years and older, with an estimated percentage of 70.1 percent. Fewer males than females were estimated to be disabled in Catawba County by 0.5 percent, with a margin of error of +/-2.3 percent for males and +/-2.8 percent for females.

Table 3. U.S. Census Bureau, Disability- Catawba County

Subject	Catawba County					
	Total		With a Disability		Percent with a Disability	
	Estimate	Margin of Error +/-	Estimate	Margin of Error +/-	Estimate	Margin of Error +/-
Total civilian noninstitutionalized population	153,538	766	13,607	3,201	15.4%	2.1
Population under 5 years	8,117	548	206	256	2.5%	3.1
Population 5 to 17 years	26,866	543	1,345	682	5.0%	2.5
Population 18 to 64 years	30,642	921	3,046	1,075	9.9%	7.0
Population 65 years and over	24,491	1,011	8,062	1,694	70.1%	13.4
SEX						
Male	76,500	1,175	10,781	1,730	14.1%	2.3
Female	77,038	1,031	12,826	2,109	16.6%	2.8
RACE AND HISPANIC OR LATINO ORIGIN						
White	120,315	1,482	21,352	2,936	17.7%	2.4
Black or African American	13,057	906	1,709	757	13.1%	5.9
American Indian and Alaska Native						
Asian						
Native American and Other Pacific Islander						
Some other Race						
Two or more races						
Hispanic or Latino	14,260	200	847	710	5.9%	5.0

5.4 Poverty

The following table was compiled using data from Census Table S1701, "Poverty Status in the Past 12 Months in 2015 for Catawba County, North Carolina." Estimates from 2015 show there was a population of 152,462 in Catawba County, N.C. with 15.3 percent living below poverty. An estimated 39.9 percent of Some other Race civilians, 35.6 percent of Hispanic or Latin civilians, and 31.6 percent of Black or African American civilians living in Catawba County live below the poverty level. These groups represent the highest percentage of civilians living below the poverty level. The data shows that an estimated 10.8 percent of White civilians live below the poverty level.

Table 4. U.S. Census Bureau, Poverty Status in the Past 12 Months in 2015 – Catawba County

Subject	Catawba County					
	Total		Below poverty level		Percent below poverty level	
	Estimate	Margin of Error +/-	Estimate	Margin of Error +/-	Estimate	Margin of Error +/-
Population for whom poverty status is determined	152,462	951	23,395	4,221	15.3%	2.8
AGE						
Under 18	34,640	335	6,390	1,974	18.4%	5.7
18 to 64	93,331	819	15,401	2,808	16.5%	3.0
65 years and over	24,491	864	1,604	534	6.5%	2.1
SEX						
Male	75,869	1,155	10,527	2,017	13.9%	2.6
Female	76,593	1,125	12,868	2,794	16.8%	3.6
RACE AND HISPANIC OR LATINO ORIGIN						
White	119,571	1,599	12,959	2,758	10.8%	2.3
Black or African American	12,892	911	4,073	1,558	31.6%	12.1
American Indian and Alaska Native	N	N	N	N	N	N
Asian	N	N	N	N	N	N
Native Hawaiian and Other Pacific Islander	N	N	N	N	N	N
Some other Race	10,820	1,960	4,316	2,375	39.9%	20.9
Two or more races	N	N	N	N	N	N
Hispanic or Latino	14,189	91	5,049	2,316	35.6%	16.4
RACE AND HISPANIC OR LATINO ORIGIN						
All individuals below:						
50 percent of poverty level	9,733	2,656				
125 percent of poverty level	35,064	4,882				
150 percent of poverty level	42,805	5,381				
185 percent of poverty level	58,314	4,862				
200 percent of poverty level	62,980	5,034				

5.5 Household Income

The following table was completed using data from the Census Table S1901, "Income in the Past 12 Months (in 2015 Inflation-Adjusted Dollars) 2015 American Community Survey 1-Year Estimates for Rockingham County." The household income bracket with the highest estimated percentage (18.4 percent) is \$35,000 to \$49,999. The median income is \$40,450 and the mean income is \$59,347 for Catawba County.

Table 5. U.S. Census Bureau, Household Income in the Past 12 Months (2015) – Catawba County

Subject	Catawba County	
	Households	
	Estimate	Margin of Error +/-
Total	60,498	1,668
Less than \$10,000	8.0%	1.8
\$10,000 to \$14,999	7.2%	1.8
\$15,000 to \$24,999	12.1%	2.6
\$25,000 to \$34,999	12.9%	2.0
\$35,000 to \$49,999	18.4%	2.3
\$50,000 to \$74,999	16.9%	2.8
\$75,000 to \$99,999	10.8%	1.7
\$100,000 to \$149,999	7.0%	1.3
\$150,000 to \$199,999	3.9%	1.4
\$200,000 or more	2.9%	0.8
Median income (dollars)	40,450	2,006
Mean income (dollars)	59,347	3,891

5.6 Limited English Proficiency (LEP)

According to the 2014 Census Table B16001, "2010-2014 American Community Survey 5-year Estimates, for Catawba County," the most common languages spoken by people ages five and older speaking a language at home other than English were Spanish or Spanish Creole and Hmong. English was spoken by an estimated 89 percent of people in the county. An estimated population of 10,161 people spoke Spanish or Spanish Creole at home, which is approximately 7.0 percent of the total population of Catawba County. Of the estimated 10,161 people who speak Spanish or Spanish Creole, an estimated 5,242 speak English "very well" and an estimated 4,919 speak English "less than very well." An estimated population of 2,919 people spoke Hmong at home, which is approximately 2 percent of the total population of Catawba County. Of the estimated 2,919 people who speak Hmong, an estimated 1,427 speak English "very well" and an estimated 1,492 speak English "less than very well." Other languages spoken in Catawba County between 0.1 percent and 0.5 percent were French, Other Asian Languages, German, Russian, Chinese, Other Indo European Languages, French, and Vietnamese respectively. Twenty-one other languages that were reported in Catawba County were reported below 0.1 percent population.

Should a limited English proficiency (LEP) group be identified during the pre-permit issuance process, written translations of vital documents shall be provided for each eligible LEP group. An eligible LEP group is defined as a language group that includes 1,000 civilians or is 5 percent of the population of persons eligible to be served or likely to be affected or encountered. If there

are fewer than 50 persons in a language group that constitutes 5 percent of the given population, then the N.C. Department of Environmental Quality would not translate vital written materials. Rather, written notice would be provided in the primary language of the LEP language group of the right to receive competent oral interpretation of those written materials for free. The safe harbor provisions apply to the translation of written documents only. Safe harbor guides follow the EPA guidance for LEP persons.

Table 6. U.S. Census Bureau, Limited English Proficiency – Catawba county

Catawba County							
1. LANGUAGE SPOKEN AT HOME	Estimate	Margin of Error	Percent of Population	1. LANGUAGE SPOKEN AT HOME	Estimate	Margin of Error	Percent of Population
Total (population 5 years and over):	145,290	+/- 34	100%	Total (population 5 years and over):	145,290	+/- 34	100%
Speak only English	129,288	+/- 699	89.0%	Speak only English	129,288	+/- 699	89.0%
Spanish or Spanish Creole:	10,161	+/- 500	7.0%	Chinese:	250	+/- 216	0.17%
Speak English "very well"	5,242	+/- 538	3.6%	Speak English "very well"	97	+/- 130	0.07%
Speak English less than "very well"	4,919	+/- 433	3.4%	Speak English less than "very well"	153	+/- 176	0.10%
French:	331	+/- 1641	0.23%	Japanese:	129	+/- 133	0.09%
Speak English "very well"	284	+/- 163	0.20%	Speak English "very well"	90	+/- 102	0.06%
Speak English less than "very well"	47	+/- 39	0.03%	Speak English less than "very well"	39	+/- 44	0.03%
French Creole:	12	+/- 16	0.01%	Korean:	19	+/- 21	0.01%
Speak English "very well"	0	+/- 29	0.00%	Speak English "very well"	10	+/- 16	0.01%
Speak English less than "very well"	12	+/- 16	0.01%	Speak English less than "very well"	9	+/- 14	0.00%
Italian:	108	+/- 141	0.07%	Hmong:	2,919	+/- 389	2.0%
Speak English "very well"	108	+/- 141	0.07%	Speak English "very well"	1,427	+/- 273	0.98%
Speak English less than "very well"	0	+/- 29	0.00%	Speak English less than "very well"	1,492	+/- 318	1.03%
Portuguese or Portuguese Creole:	34	+/- 56	0.02%	Laotian:	96	+/- 116	0.07%
Speak English "very well"	17	+/- 29	0.01%	Speak English "very well"	42	+/- 57	0.03%
Speak English less than "very well"	17	+/- 27	0.01%	Speak English less than "very well"	54	+/- 90	0.04%
German:	191	+/- 73	0.13%	Vietnamese:	761	+/- 298	0.52%
Speak English "very well"	161	+/- 75	0.11%	Speak English "very well"	298	+/- 160	0.20%
Speak English less than "very well"	30	+/- 29	0.02%	Speak English less than "very well"	463	+/- 207	0.32%
Scandinavian languages:	19	+/- 30	0.01%	Other Asian languages:	164	+/- 123	0.11%
Speak English "very well"	19	+/- 30	0.01%	Speak English "very well"	138	+/- 91	0.09%

Marshall Steam Station
Environmental Justice Impact Statement

Catawba County							
1. LANGUAGE SPOKEN AT HOME	Estimate	Margin of Error	Percent of Population	1. LANGUAGE SPOKEN AT HOME	Estimate	Margin of Error	Percent of Population
Speak English less than "very well"	0	+/- 29	0.0%	Speak English less than "very well"	26	+/- 39	0.02%
Greek:	22	+/- 36	0.02%	Tagalog:	9	+/- 15	0.0%
Speak English "very well"	22	+/- 36	0.02%	Speak English "very well"	9	+/- 15	0.0%
Speak English less than "very well"	0	+/- 29	0.0%	Speak English less than "very well"	0	+/- 29	0.0%
Russian:	202	+/- 156	0.14%	Other Pacific Island languages:	44	+/- 63	0.03%
Speak English "very well"	86	+/- 29	0.06%	Speak English "very well"	44	+/- 63	0.03%
Speak English less than "very well"	116	+/- 143	0.08%	Speak English less than "very well"	0	+/- 29	0.00%
Italian:	108	+/- 141	0.07%	Other Native North American languages:	2	+/- 4	0.00%
Speak English "very well"	108	+/- 141	0.07%	Speak English "very well"	2	+/- 4	0.00%
Speak English less than "very well"	0	+/- 29	0.00%	Speak English less than "very well"	0	+/- 29	0.00%
Other Slavic languages:	3	+/- 5	0.00%	Hungarian	6	+/- 11	0.00%
Speak English "very well"	3	+/- 5	0.00%	Speak English "very well"	6	+/- 11	0.00%
Speak English less than "very well"	0	+/- 29	0.00%	Speak English less than "very well"	0	+/- 29	0.00%
Gujarati:	126	+/- 94	0.09%	Arabic:	38	+/- 64	0.03%
Speak English "very well"	52	+/- 47	0.04%	Speak English "very well"	38	+/- 64	0.03%
Speak English less than "very well"	74	+/- 71	0.05%	Speak English less than "very well"	0	+/- 29	0.00%
Urdu:	40	+/- 63	0.03%	Hebrew:	5	+/- 10	0.00%
Speak English "very well"	40	+/- 63	0.03%	Speak English "very well"	5	+/- 10	0.00%
Speak English less than "very well"	0	+/- 29	0.00%	Speak English less than "very well"	0	+/- 29	0.00%
Other Indic languages:	14	+/- 23	0.01%	African languages:	41	+/- 67	0.03%
Speak English "very well"	0	+/- 29	0.00%	Speak English "very well"	41	+/- 67	0.03%
Speak English less than "very well"	14	+/- 23	0.01%	Speak English less than "very well"	0	+/- 29	0.00%
Other Indo-European languages:	252	+/- 153	0.17%	Other and unspecified languages:	4	+/- 6	0.00%
Speak English "very well"	140	+/- 100	0.10%	Speak English "very well"	4	+/- 6	0.00%
Speak English less than "very well"	112	+/- 82	0.07%	Speak English less than "very well"	0	+/- 29	0.00%

Source: U.S. Census Bureau, 2010-2014 American Community Survey 5-Year Estimates.

6 Local Setting

Data on race and ethnicity, age and sex, poverty, household income, and LEP population contained in the following sections are for U.S. Census Tracts 115.03 to display demographics at a tract level. Disability status could only be analyzed on a county level as the information available at the U.S. Census could not be reduced to the tract level. Disability information can be found in Section 5.3. The Census Tract 115.03 encompass all of the Marshall Steam Station and is approximately 8.5 miles by 4 miles as shown in Figure 6-1, from the EPA's EJ Screen tool.

Demographic data within a three-mile radius around the proposed coal ash landfill will be discussed in conjunction with Census Tract 115.03 data. A three-mile radius was chosen for Marshall Steam Station as transportation of coal ash products to the site are unknown.

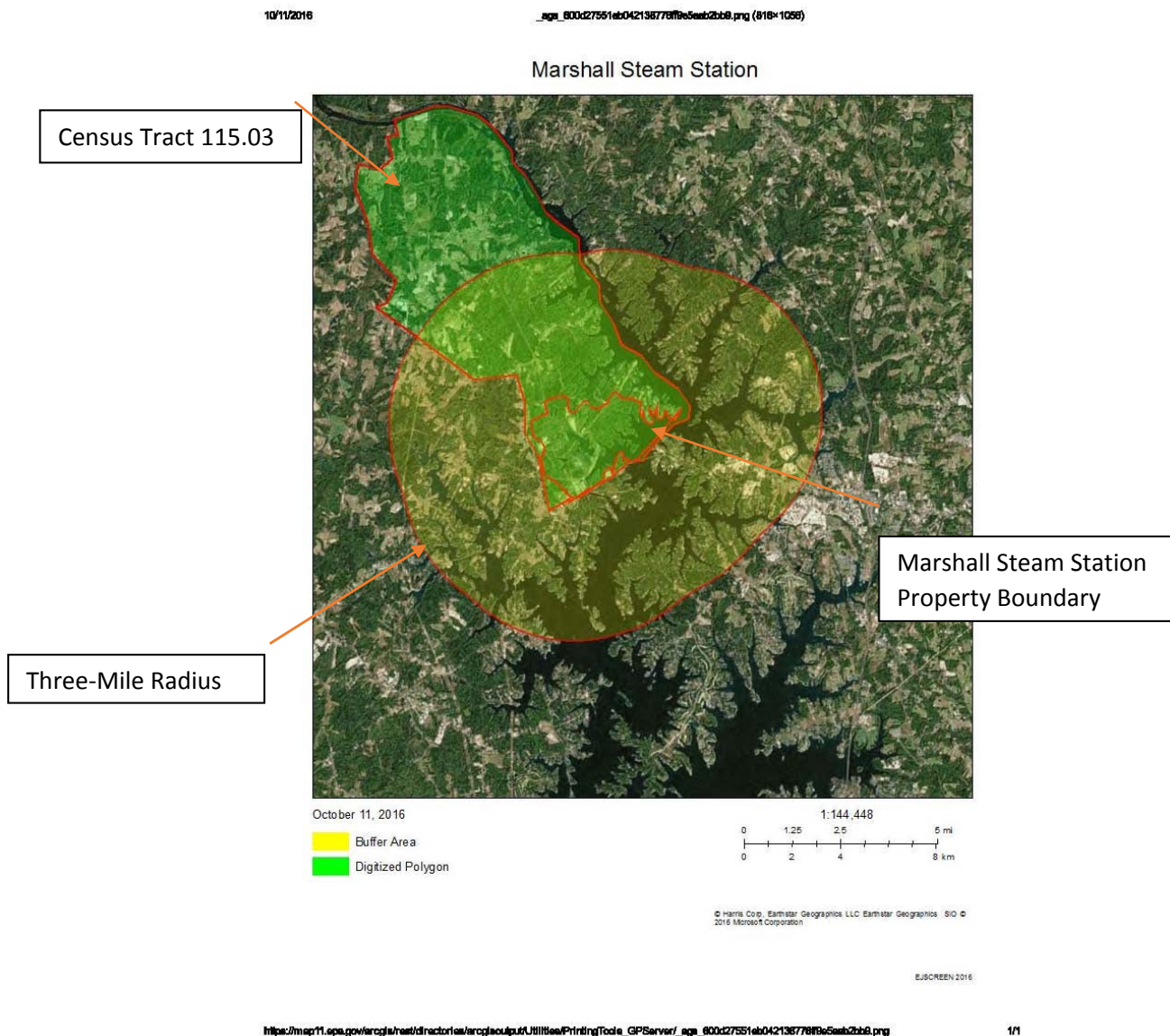


Figure 6-1. Map of Three-Mile Radius within U.S. Census Tracts 115.03 – Catawba County, NC

6.1 Local Industrial Sites

Marshall Steam Station is surrounded by residential areas within the unincorporated community of Sherrills Ford and a census designated place, Lake Norman of Catawba. Local industrial facilities within the Sherrills Ford area are:

- Timber Creek Mulch, LLC.
- Cabarrus Concrete Co.
- Kemp, Inc.

6.2 Local Sensitive Receptors

Sensitive receptors include churches, hospitals, schools, daycare facilities, elderly housing and convalescent facilities. Eight churches were identified within the three-mile radius, as shown in Figure 6-3.

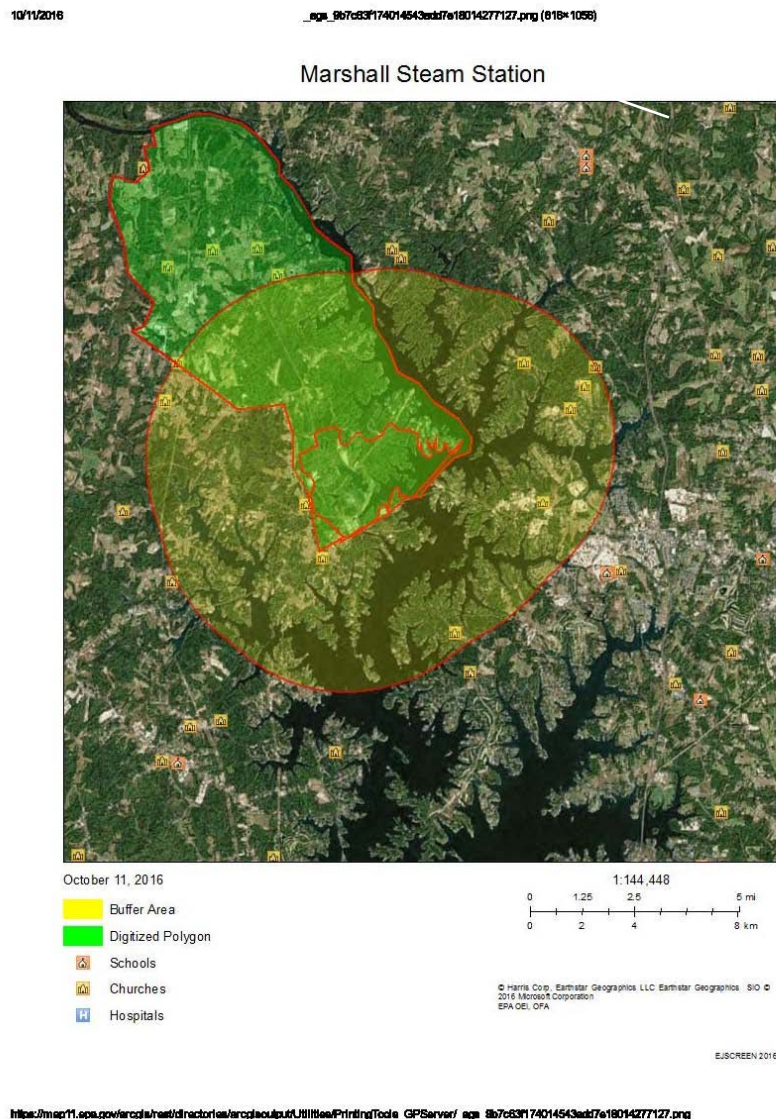


Figure 6-2. Sensitive Receptors surrounding Marshall Steam Station

6.3 Race and Ethnicity

According to the 2010 U.S. Census Data QT-P3, "Race and Hispanic Origin: 2010; 2010 Census Summary File 1," 2.4 percent of the Catawba County population live in Census Tract 115.03, as shown in Figure 6-1. The highest populations among the 3,715 people living in Census Tract 115.03 were White (93.4 percent), Black or African American (3.5 percent), and Mexican (3.2 percent) of the total population. Persons identifying as Some Other Race, Two or More Races, and Two or More Races were also above 1 percent within Census Tract 115.03.

Within three miles of Marshall Steam Station, there was an estimated total residential population of 15,472. The population consisted of 94 percent White, 2 percent Black or African American, and 3 percent Hispanic or Latino (of any race). Asian, Some Other Race, and Two or More Races were also found at 1 percent within three-miles of the steam station.

Table 7. U.S. Census Bureau, Race and Ethnicity – Catawba County - Census Tract 115.03 and Three-Mile Radius

Race and Ethnicity	Census Tract 115.03		Three-Mile Radius ²	
	Number	Percent	Number	Percent
Total Population	3,715	100%	15,472	100%
White	3,471	93.4%	14,584	94%
Black or African American	129	3.5%	278	2%
American Indian or Alaska Native	13	0.3%	95	0%
Asian	16	0.4%	200	1%
Native Hawaiian and Other Pacific Islander	0	0.0%	0	0%
Some other Race	46	1.2%	181	1%
Two or More Races	40	1.1%	133	1%
HISPANIC OR LATINO (of any race)	118	3.2%	455	3%
Mexican	80	2.2%		
Puerto Rican	20	0.5%		
Cuban	2	0.1%		
Other Hispanic or Latino	16	0.4%		

² Source: US Census Data from EJ Screen ACS Summary Report. Summary of ACS Estimates 2010-2014.

6.4 Age and Sex

The following table was completed using data from Census Table QT-P1, "Age Groups and Sex: 2010 for Census Tract 115.03 in Catawba County, NC" as well as the EJSCREEN 2016 tool for the three-mile data. The median age of civilians inhabiting Census Tract 115.03 is lower than the median age of the county by 2.9 percent, 1.7 percent, and 4.0 percent for the categories Both Sexes, Males and Females, respectively.

Approximately 10 percent of the total population of the county resides within three miles of the Marshall Steam Station. The majority (77 percent) of residents are between 18 and 64 years old.

Table 8. U.S. Census Bureau, Age and Sex – Census Tract 115.03 and Three-Mile Radius

Census Tract 115.03						
Age	Number			Percent		
	Both sexes	Male	Female	Both sexes	Male	Female
Total Population	3,949	1,856	2,093	100%	100%	100%
Under 5 years	322	156	166	8.2%	8.4%	7.9%
Under 18 years	1,035	511	524	26.2%	27.5%	25%
18 to 64 years	2,307	1,092	1,215	58.4%	58.8%	58.1%
65 years and over	607	253	354	15.4%	13.6%	16.9%
Median Age	36.7	36.8	36.6			
Three-Mile Radius						
Age	Number			Percent		
	Both sexes	Male	Female	Both sexes	Male	Female
Total Population	15,472	7,967	7,505	100%	51%	49%
Under 5 years	874				6%	
Under 18 years	3,627				23%	
18 to 64 years	11,845				77%	
65 years and over	2,593				17%	
Median Age						

6.5 Poverty

The following table was compiled using data from EJSCREEN 2016 to acquire the data used for Census Tract 115.03 and the three-mile radius. EJSCREEN 2016 Tool did not give sufficient data to determine estimated percentage below poverty within the Census Tract or within a three-mile radius of the proposed Marshall Steam Station. Estimated household income was reviewed as a source of general income.

Table 9. U.S. Census Bureau, Poverty Status in the Past 12 Months in 2014 – Census Tract 115.03 and Three-Mile Radius

Subject	Census Tract 115.03						Three-mile Radius					
	Total		Below poverty level		Percent below poverty level		Total		Below poverty level		Percent below poverty level	
	Estimate	Margin of Error +/-	Estimate	Margin of Error +/-	Estimate	Margin of Error +/-	Estimate	Margin of Error +/-	Estimate	Margin of Error +/-	Estimate	Margin of Error +/-
Population for whom poverty status is determined	4,118	378					3,559	280				
AGE												
Under 18	1,185	228					732	164				
18 to 64	2,255	230					1,870	191				
65 years and over	678	91					957	144				
SEX												
Male	2,054	293					1,570	189				
Female	2,064	218					1,989	201				
RACE AND HISPANIC OR LATINO ORIGIN												
White	2,579	328					26263	702				
Black or African American	1,099	246					562	289				
American Indian and Alaska Native	63	54					140	85				
Asian	0	12					644	178				
Native Hawaiian and Other Pacific Islander	0	12					0	12				
Some other Race	192	158					268	112				
Two or more races	185	121					284	114				
Hispanic or Latino	365	220					969	254				
RACE AND HISPANIC OR LATINO ORIGIN												
All individuals below:												
50 percent of poverty level												
125 percent of poverty level												
150 percent of poverty level												
185 percent of poverty level												
200 percent of poverty level												

Source: U.S. Census Bureau, American Community Survey (ACS) 2010-2014

6.6 Household Income

The following table was compiled using data from EJSCREEN 2016 to acquire the data used for Census Tract 115.03 and the three-mile radius. Within the Census Tract and the three-mile radius, an estimated 11 percent and 12 percent of households are below \$24,999, respectively. This is approximately 3 percent lower than the county average of 15.2 percent for this income bracket.

Table 10. EJSCREEN 2016: 2010 – 2014 ACS Estimates – Census Tract 115.03 and Three-Mile Radius

Subject	Census Tract 115.03		Three-mile Radius	
	Households		Households	
	Estimate	Margin of Error +/-	Estimate	Margin of Error +/-
Total	1,418	100.0	6,212	161
Less than \$10,000	5%	30	5%	79
\$10,000 to \$14,999				
\$15,000 to \$24,999	6%	49	7%	126
\$25,000 to \$34,999	22%	87	23%	120
\$35,000 to \$49,999				
\$50,000 to \$74,999	23%	116	18%	116
\$75,000 to \$99,999	44%	96	47%	147
\$100,000 to \$149,999				
\$150,000 to \$199,999				
\$200,000 or more				
Median income (dollars)				
Mean income (dollars)				

6.7 Limited English Proficiency (LEP)

The following table was compiled using data from Census Table B16001, "Language Spoken at Home by Ability to Speak English for the Population 5 years and over, 2010-2014 estimate for Census Tracts 115.03, Catawba County, North Carolina." The screening tool EJSCREEN 2016 was used to establish data from three miles surrounding the Marshall Steam Station. The Spanish or Spanish Creole population in Census Tract 115.03, totaled an estimated 29 people, making up 0.02 percent of the total estimated population for Catawba County.

EJSCREEN 2016 did not give sufficient data to determine estimates of languages spoken at home within a three-mile radius of the Marshall Steam Station. However, an estimated population of 557 citizens were determined as non-English speaking at home. Eighty of those residents were reported to speak English less than "very well."

Table 11. U.S. Census Bureau, Limited English Proficiency – Census Tract 115.03 and Three-Mile Radius

1. LANGUAGE SPOKEN AT HOME	Census Tract 115.03			Three-Mile Radius		
	Estimate	Margin of Error (+/-)	Percent of Population	Estimate	Margin of Error (+/-)	Percent of Population
Total (population 5 years and over):	3,602	369	100.0%	14,598	453	100%
Speak only English	3,573	369	99.2%	14,040	401	96.2%
Spanish or Spanish Creole:	29	27	0.8%			
Speak English "very well"	29	27	0.8%			
Speak English less than "very well"	0	12	0.0%			
Non-English Speaking at Home				557	179	3.81%
Speak English "very well"				447	152	3%
Speak English less than "very well"				80	101	0.55%
3-mile radius: Linguistically Isolated Households include Other Indo-European Languages and Asian-Pacific Island Languages.						

7 Field Reconnaissance

On July 5, 2016, the N.C. Department of Environmental Quality staffers Sarah Rice, an environmental senior specialist, and Shannon Aufman, an engineering project manager, visited the area of the Marshall Steam Station to corroborate the EPA's EJScreen data, which was populated within three miles of the landfill. Sensitive receptors were also sought out during the visit, as shown in Figure 6-2.

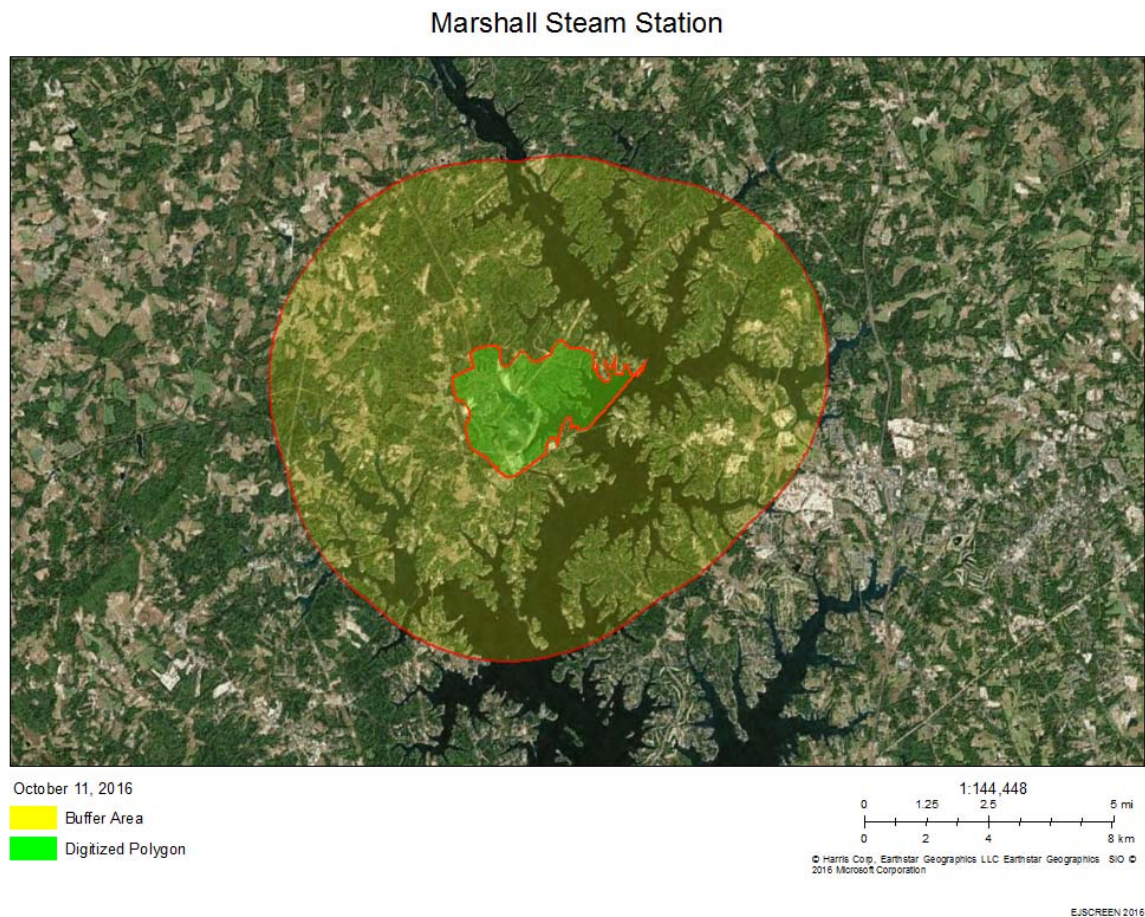


Figure 7-1. Three-mile radius surrounding Marshall Steam Station

7.1 Demographic Analysis of Potential Area of Concern

According to the EPA EJSCREEN, which is a summary of 2010-2014 population data, there were no identified potential areas of concern within three miles of the Marshall Steam Station.

7.2 Actions Completed by the Department

The department has communicated with the public officials regarding the environmental justice efforts. On Oct. 11, 2016, N.C. Department of Environmental Quality's staff members, including Rice, Aufman, Lorscheider and Mussler, contacted Catawba County Commissioner Chair Randall Isenhower and Catawba County Manager Mick Berry. The commissioner and the county manager were receptive to the information received about the information session. They asked if the N.C. Department of Environmental Quality intended to reach out to the specific residents in other ways. At this time, staff in the state agency determined it was not necessary to reach out to the residents within the three-mile radius of the Marshall Steam Station. The local government officials agreed.

[CONTINUED ON PAGE 21]

8 Summary of Potential Adverse Environmental and Human Health Effects and Analysis of the Potential for Disproportionately High and Adverse Effects.

Potential impacts and their mitigation during the construction and operation of the landfills at the Marshall Steam Station are summarized below.

8.1 Traffic

Permit number 1809-INDUS-, Marshall FGD LF is permitted to accept, but not limited to coal combustion residuals, including fly and bottom ash, pyrites, and coal mill rejects, generated by or at any Duke Energy facility.

Permit number 1812-INDUS-2008, Marshall Steam Station Landfill is permitted to accept, but not limited to coal combustion residuals, including fly and bottom ash, pyrites, and coal mill rejects, generated by or at any Duke Energy facility. The Marshall landfill may also accept coal combustion residuals transported via vacuum truck dedicated to Duke Energy's operations or documentation will be obtained to ensure that the vacuum truck contains no human or other non-permitted waste streams. Vacuum truck waste could also mean similar waste material transported in smaller water tight units.

8.2 Potential releases of coal combustion residuals to the environment

Potential migration pathways for coal combustion residuals contamination through leaching, migration to groundwater, erosion and transport to soil and surface water, and wind erosion/dust migration were considered during this study.

8.2.1 Leachate Collection System

It is anticipated that leachate generated at the proposed landfill will ultimately discharge to a publicly-owned treatment works (POTW) for treatment. Modifications to the Engineering and Facility Plan may be required pending ongoing discussions concerning the POTW.

A leachate storage tank facility with dual-containment will be located near the northwest corner of the landfill to provide temporary leachate storage in case of extenuating circumstances. It is anticipated that leachate will be pumped from the storage tank facility to a sanitary sewer force main along the northern edge of the landfill area for treatment by a POTW or alternative leachate treatment approach as approved by the department. Leachate may be used as a dust suppressant only in areas that drain to the leachate collection system (i.e. active face of the landfill) in accordance with the Dust Control Plan. (Amec, 2016)

8.2.2 Erosion and Sedimentation Control

Erosion and sedimentation control (E&SC) during landfill operations would consist of monitoring and repairing E&SC stormwater conveyance features and surface erosion.

Erosion control principles could include:

- Disturbing as little area as practical at any one time for landfill operations.
- Seeding/mulching of disturbed areas commencing as soon as practically possible.

- Employing erosion control matting or seeding and mulching on steep slopes and other erosion prone areas.
- Use of earthen berms, hay bales, wattles, silt fences, riprap, or equivalent devices downgradient of disturbed areas, stockpiles, drainage pipe inlets and outlets, and at intervals along grassed waterways, until permanent vegetation is established.
- Placement of riprap at the inlets and outlets of stormwater piping

Surface erosion monitoring at the landfill includes:

Erosion control measures established to help prevent sediment from leaving the site. Channels would be inspected once every seven days and within 24 hours of any rainfall event of 0.5 inches or greater.

Slopes will be periodically checked for erosion and vegetative quality, fertilized and mowed. A slope or portion of the slope shall be identified as needing maintenance if it meets any one of the following conditions:

- Exposed waste on exterior slopes;
- Areas of cracking, sliding or sloughing; or
- Areas of seepage.

Slopes identified as needing maintenance shall be repaired as soon as practical and as appropriate to correct deficiencies. Repair activities may include re-dressing the slope, filling in low areas, and/or seeding.

8.2.3 Dust Control Plan

The primary potential source of dust emissions in the landfill is the top deck area and active area of waste placement. These areas are at a higher risk for producing dust due to vehicular and equipment traffic and earthworks during construction. Exterior landfill slopes are less of a dust control concern, as they have intermediate or operational soil covers that are vegetated as required in the Operations Plan. (Amec, 2016)

Dust emissions from the landfill can be controlled through a variety of dust control methods. Possible dust control methods are identified here. Dust control methods may be characterized as products and/or applications, structural wind breaks and/or covers, and operational methods.

Dust control methods for the proposed landfill area could include:

- | | | |
|---------------------------------|------------------------------|------------------------|
| • Watering | • Calcium chloride | • Modifying operations |
| • Establishing vegetative cover | • Spray applied suppressants | during dry and windy |
| • Mulching | • Soil stabilizers | conditions |
| • Structural controls fencing | • Operational soil cover | |
| • Wind breaks | • Modifying the active | |
| • Temporary coverings | working area | |

9 Conclusion

Marshall Steam Station, electrical power generating facility, located at 8320 East North Carolina Highway 150 in Terrell, N.C. and includes a total area of approximately 1,370 acres. This report examined the demographic and environmental conditions within Catawba County, as well as census tracts 115.03 and a three-mile radius of the Marshall Steam Station to determine any disproportionately high or adverse environmental and human health effects on low-income or minority populations. Low-income and minority populations were not identified in the vicinity.

BIBLIOGRAPHY

Amec Foster Wheeler, 2016, FGD Landfill Permit Renewal, *prepared on behalf of* Duke Energy, DIN 26608

Duke Energy, November 20, 2015, Industrial Landfill Status, Permit No.: 1809-INDUS (FGD Landfill), DIN 25319

EPA EJScreen, <https://ejscreen.epa.gov/mapper/>

U.S. Census Bureau, American Fact Finder,
<http://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>