

INACTIVE SITES RANKING SYSTEM
SUMMARY SHEET

Site Name: APAC-Carolina, Castle Hayne Asphalt Plant

Location: 4909 N. College Rd., Castle Hayne, New Hanover Co. 34.34190°N
77.89690°W

ID Number: NONCD0002779

Ranked By: Ginny Henderson Date: 05/12-13/08

Reviewed By: Sue Robbins Date: 06/05/08

Site Description/Comments:

Former asphalt plant. Phase II Environmental Real Estate Assessment revealed groundwater and soil contamination. Levels were low, but full assessment not done. Two supply wells on site, no municipal water available. One well with low levels of chlorinated compounds.

Route Scores: GW = 72.87 SW = 52.63 A = 0 P = 25.00

Total Score:
$$\frac{((72.87)^2 + (52.63)^2 + (0)^2 + (25.00)^2)^{1/2}}{2} = \underline{46.65}$$

I. GROUND WATER ROUTE WORK SHEET

Rating Factor	Assigned Value (Circle One)	Score
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A. Route Characteristics

- 1. Depth to Water Table 0 2 4 6 8 **10**
- 2. Net Precipitation 0 1 **2** 3
- 3. Hydraulic Conductivity 0 1 2 **3**
- 4. Physical State 0 1 2 **3**

	Total Route Characteristics Score	18
B. Containment	0 1 2 3	3

C. Waste Characteristics

- 1. Toxicity/Persistence 0 3 6 9 12 **15** 18
- 2. Hazardous Waste Quantity 0 1 2 3 4 **5** 6 7 8

	Total Waste Characteristics Score	20
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Ground Water Route of Migration Score

The Ground Water Route of Migration Score is obtained by multiplying lines A, B, and C and dividing this by 14.82 to give a score between 0 and 100.

Total Ground Water Route of Migration Score: 72.87

II. SURFACE WATER ROUTE WORK SHEET

Rating Factor	Assigned Value (Circle One)	Score
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A. Route Characteristics

- | | |
|---|--------------|
| 1. Facility Slope and Intervening Terrain | 0 ① 2 3 |
| 2. 1-yr., 24-hour Rainfall | 0 1 2 ③ |
| 3. Distance to Nearest Surface Water | 0 2 4 ⑥ 8 10 |
| 4. Physical State | 0 1 2 ③ |

	Total Route Characteristics Score	13
B. Containment	0 1 2 ③	3

C. Waste Characteristics

- | | |
|-----------------------------|-------------------|
| 1. Toxicity/Persistence | 0 3 6 9 12 ⑮ 18 |
| 2. Hazardous Waste Quantity | 0 1 2 3 4 ⑤ 6 7 8 |

	Total Waste Characteristics Score	20
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Surface Water Route of Migration Score

The Surface Water Route of Migration Score is obtained by multiplying lines A, B, and C and dividing this by 14.82 to give a score between 0 and 100.

Total Surface Water Route of Migration Score: 52.63

III. AIR ROUTE WORK SHEET

Rating Factor	Assigned Value (Circle One)	Score
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A. Waste Characteristics

- | | |
|-----------------------------------|-------------------|
| 1. Reactivity and Incompatibility | 0 1 2 3 |
| 2. Toxicity | 0 3 6 9 |
| 3. Hazardous Waste Quantity | 0 1 2 3 4 5 6 7 8 |

Total Waste Characteristics Score	0
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B. Targets

- | | |
|--------------------------------------|-----------------------------|
| 1. Population Within a 4-Mile Radius | 0 9 12 15 18
21 24 27 30 |
| 2. Distance to Sensitive Environment | 0 2 4 6 |
| 3. Land Use | 0 1 2 3 |

Total Targets Score	0
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Air Route of Migration Score

The Air Route of Migration Score is obtained by multiplying lines A and B and dividing this by 7.80 to give a score between 0 and 100.

Total Air Route of Migration Score: 0

IV. DIRECT CONTACT ROUTE SCORE SHEET

Rating Factor	Assigned Value (Circle One)	Score
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A. Residential Population

- 1. Toxicity 0 3 6 9

- 2. Targets
 - a) High Risk Population
(count x 8, max. 100) _____
 - b) Total Resident Population
(count x 2, max. 100) _____
 - c) Sensitive Environment 0 10 15 20 25

Resident Target Score
(lines 2a + 2b + 2c, max. 100) _____

Total Residential Population Score	0
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B. Nearby Population

- 1. Likelihood of Exposure
(matrix score) _____ 0.5 _____
 - a) Area of Contamination 0 25 (50) 75 100
 - b) Accessibility/
Frequency of Use 5 25 50 (75) 100

- 2. Toxicity
Environment 0 3 6 (9)

- 3. Targets (max. 100) _____ 100 _____

Total Nearby Population Score	450
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Overall Population Exposure Score

The Overall Population Exposure Score is determined by adding lines A and B and dividing this by 18 to give a score between 0 and 100.

Total Population Exposure Route of Migration Score: 25.00

DOCUMENTATION RECORDS
FOR
STATE HAZARD RANKING SYSTEM

INSTRUCTIONS: Briefly summarize the information you used to assign a score to each factor and document the source of the information and/or the rationale for each score.

Facility Name:	<u>APAC-Castle Hayne Asphalt Plant</u>	
ID Number:	<u>NONCD0002779</u>	
Location:	<u>4909 N. College Rd., Castle Hayne, New Hanover Co.</u>	<u>34.34190°N 77.89690°W</u>
Date Scored:	<u>05/12-13/08</u>	
Person Scoring:	<u>Ginny Henderson</u>	
Factors Not Scored:	<u>Air Route and Residential Population</u>	

Comments:

References:

1. State file.
2. North Carolina Atlas, University of NC Press, Chapel Hill, NC 1975.
3. Rainfall Frequency Atlas of the US, Technical Paper 40, US Department of Commerce, Washington, DC, 1963.
4. 2000 Census of Population and Housing: Summary Population and Housing Characteristics: North Carolina, US Department of Commerce. <http://quickfacts.census.gov/qfd/>.
5. Dangerous Properties of Industrial Materials, N. Irving Sax, Van Reinhold Company, Inc., 1984.
6. 40 CFR 300, Appendix A, July 1, 1988.

GROUND WATER ROUTE

A. Route Characteristics:

1. Depth to Water Table: = 10 (1)

Contaminant in supply well

2. Net Precipitation: = 2 (2)

56 in. – 43 in. = 13 in.

3. Hydraulic Conductivity of Unsaturated Zone: = 3 (1)

Coastal Plain

4. Physical State: = 3 (1)

Unknown

B. Containment: = 3 (1)

None

C. Waste Characteristics:

1. Toxicity/Persistence: = 15 (1,5)

1,1-DCE = 15, cis-1,2-DCE = 12, 1,1-DCA = 12, MEK = 6, Benzene = 12

2. Hazardous Waste Quantity: = 5 (1)

Unknown

SURFACE WATER ROUTE

A. Route Characteristics:

1. Facility Slope and Intervening Terrain: = 1 (1)

$$FS = \frac{7 \text{ ft.}}{600 \text{ ft.}} = 1.17\%, \quad IT = \frac{5 \text{ ft.}}{75 \text{ ft.}} = 6.67\%$$

2. One-Year 24-hour Rainfall: = 3 (3)

3.6 in.

3. Distance to Nearest Surface Water/Name: = 6 (1)

~300 ft., Prince George Creek

4. Physical State: = 3 (1)

Unknown

B. Containment: = 3 (1)

None

C. Waste Characteristics:

1. Toxicity/Persistence: = 15 (1,5)

1,1-DCE

2. Hazardous Waste Quantity: = 5 (1)

Unknown

AIR ROUTE

A. Waste Characteristics: **NOT SCORED**

1. Reactivity and Incompatibility:

2. Toxicity:

3. Hazardous Waste Quantity:

B. Targets: **NOT SCORED**

1. Population within 4-mile Radius/Distance from Hazardous Substance:

2. Distance to Sensitive Environment:

3. Land Use:

POPULATION EXPOSURE ROUTE

A. Residential Population: **NOT SCORED**

1. Toxicity:

2. Targets:

a. High Risk Population:

b. Total Resident Population:

c. Sensitive Environment

B. Nearby Population:

1. Likelihood of Exposure Score: = 0.5

a. Area of Contamination: = 50 (1)

Between 1 and 5 acres

b. Accessibility/Frequency of Use: = 75 (1)

No barrier to entry

2. Toxicity: = 9 (1,5)

1,1-DCE

3. Targets: $0.1 (\underline{632.4}) + 0.05 (\underline{1,897.19}) = \underline{158 \approx 100 \text{ max}}$

a. 0- 1/2 mile: $3.14 (0.5^2) \times \underline{805.6} \text{ people/sq.mi} = \underline{632.4}$ (4)

b. 1/2 - 1 mile: $3.14 (1^2 - 0.5^2) \times \underline{805.6} \text{ people/sq.mi} = \underline{1,897.19}$ (4)