PRELIMINARY SITE ASSESSMENT
CAMDEN SHELL
191 HIGHWAY 158
CAMDEN COUNTY, NORTH CAROLINA
STATE PROJECT NO. 8.T020401 (R-2414B)

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1.0 INTRODUCTION

The NCDOT is planning improvements to U.S. Highway 158 in Camden County which will require acquiring property for new highway construction. On September 26, 2001, Solutions Industrial & Environmental Services, Inc. (Solutions-IES) submitted proposal NC01892P to the NCDOT for conducting preliminary site assessments (PSAs) on seven parcels of land sited within the planned construction area along U.S. Highway 158 in Camden, North Carolina (Figure 1). This report summarizes the results of file review and field activities conducted for one of the parcels, the Camden Shell, located at 191 U.S. Highway 158, Camden County, Camden, NC.

2.0 BACKGROUND

The Camden Shell service station, owned by Quality Oil Company, is located at 191 U.S. Highway 158 in Camden, NC (Figure 1). Previous investigation activities have been conducted at the site, as summarized below. Due to the extent of the previous investigations, Solutions-IES' assessment was limited in extent and focused on only the portions of the property that NCDOT intends to acquire.

As shown on Figure 2, the site is located on the southeast side of U.S. Highway 158. The site is currently an active convenience store and service station with three underground storage tanks (USTs). The USTs are 12000, 8000, and 8000 gallons in size and store gasoline. The facility has an active UST permit that expires June 2002. The UST Facility ID is 0-011167, and the UST permit number is 200106700.

3.0 PREVIOUS INVESTIGATIONS

Solutions-IES obtained copies of previous investigation reports for the Camden Shell from the NCDOT and from the Washington Regional Office of the North Carolina Department of Environment and Natural Resources (NCDENR). Copies of the reports reviewed by Solutions-IES are provided in Appendix A. Based on our review of available files, three USTs ranging in size from 6,000 to 10,000 gallons were formerly located at the site and were used to store either gasoline or diesel fuel. The tanks were of steel construction with no cathodic protection and were installed on May 5, 1970. These USTs were removed and permanently closed on September 18, 1995 (Turner Environmental Consultants [TEC], 1995b) and were replaced with the current, updated UST system. According to the Comprehensive Site Assessment

(CSA) report, a 550-gallon waste oil UST was also located at the site and was permanently closed on September 1, 1988 (TEC, 1995a).

An initial PSA was conducted at the site by Environmental Investigations, P.A., (EI) in February 1994 for the NCDOT. Fourteen soil samples were collected as part of the PSA, and the analytical results indicated that there had been a release of petroleum hydrocarbons from the USTs and fuel dispensers located on the Camden Shell property (EI, 1994).

Subsequent investigation activities were conducted at the site by TEC for Quality Oil Company, as summarized in the Comprehensive Site Assessment (CSA) report (TEC, 1995a). Four additional soil borings were advanced at the site and eight monitoring wells were installed to further investigate and delineate potential soil and groundwater impacts. The CSA results indicated that a release of gasoline had impacted a small, limited area of vadose zone soil beneath a product dispenser. In addition, a limited area of groundwater adjacent to the USTs contained dissolved petroleum constituents (TEC, 1995a).

A Corrective Action Plan (CAP) was prepared for the site by TEC in October 1995. The CAP documented the UST removal activities and recommended using bio-sparging and soil vapor extraction (SVE) to remediate hydrocarbon-affected soil and groundwater. During the UST removal, soils immediately surrounding the tanks were observed to be impacted with petroleum. Affected soil was removed from the UST area and from the previously identified fuel dispenser area. Confirmation samples were collected to document that the affected soil was removed from these areas (TEC, 1995b).

Subsequent to submittal of the CAP, three additional monitoring wells were installed downgradient across U.S. Highway 158 from the site. Groundwater sampling of the new and existing monitoring wells at the site indicated substantial decreases in constituent concentrations across the site. Due to the decrease in concentrations, implementation of the CAP was delayed. The most recent groundwater monitoring report for the site was submitted in August 2001 by TerraQuest Environmental Consultants, P.C. (TerraQuest). This report indicates that the alternate standards proposed in the CAP have been met and that natural attenuation groundwater monitoring currently occurs on a semi-annual basis. The extent of affected groundwater at the site may extend into the proposed right-of-way area, as indicated in TerraQuest's *Natural Attenuation Groundwater Monitoring Report* dated August 2001 (see Appendix A).

4.0 FIELD ACTIVITIES

Due to the extent of previous investigation and remediation activities conducted at the site, field activities were limited to collecting and field-screening soil samples from locations within the proposed highway expansion area. Based on the field screening results, soil samples were not submitted for laboratory analysis. The field activities were conducted by Solutions-IES on October 10, 2001. Photographs were taken to document site conditions during the assessment activities. The site photographs are included in Appendix B.

Prior to beginning subsurface sampling, Solutions-IES contacted Carolina No-Cuts to identify utilities on the subject property. Solutions-IES personnel also spoke with the Assistant Manager at the Camden Shell to notify her of the sampling activities and to obtain information regarding the current USTs.

After clearing the utilities on the property, Solutions-IES collected subsurface samples from the proposed right-of-way area. The samples were collected at three Geoprobe® boring locations, identified as GP-1A, GP-2A, and GP-3A. The locations of the Geoprobe® borings are indicated on Figure 2.

The Geoprobe® borings were advanced to a total depth of 2.4 m (8 feet) below ground surface (bgs), which was below the groundwater table. Continuous soil cores were collected from each boring using a Macro® Sampler. Upon removal from the ground, the cores were cut into 2-foot lengths. Soil from each 2-foot interval was further split into two identical portions. Each portion was placed in a separate resealable plastic bag. One bag was placed on ice for possible laboratory analysis, while the other bag was sealed and placed at ambient temperature for field screening with an organic vapor analyzer (OVA).

The soil samples were examined for soil type and the presence or absence of petroleum staining or odor. After a period of approximately 20 minutes, which allowed for the accumulation of volatile organic compounds (VOCs) in the headspace of the bags, each sealed bag left at ambient temperature was scanned with the OVA. A background reading was taken with the OVA prior to measuring VOC concentrations in the bags. The readings of the VOC concentrations in the headspace were then entered on the boring log along with a soil description and any indications of petroleum staining or odor (Appendix C). The results of the OVA field screenings are summarized on Table 1. Based on the lack of field-observable indications of petroleum hydrocarbons (i.e., staining, odor, OVA readings above background), soil samples were not submitted for laboratory analysis.

Following completion of the soil sampling activities, the Geoprobe borings were abandoned by completely filling each boring with soil and sand.

5.0 DISCUSSION

Solutions-IES advanced three soil borings to assess subsurface conditions in the proposed right-of-way at the Camden Shell. Solutions-IES personnel did not notice any staining or odor in the soil samples collected from the Geoprobe borings, which was consistent with the low OVA readings (less than or equal to 5 ppm). Based on field observations and the extent of previous investigation activities conducted at the site, soil samples were not submitted for laboratory analysis.

6.0 CONCLUSIONS AND RECOMMENDATIONS

This PSA was performed on behalf of the NCDOT for the Camden Shell located at 191 U.S. Highway 158, Camden County, NC. Based upon our file review and field observations at the time of our site visit, we offer the following conclusions:

- A historical release at the site from the former UST system was initially discovered in 1994. The former USTs were removed and replaced with an upgraded system. Impacted soils were excavated, and groundwater is currently being monitored on a semi-annual basis. Based on previous data collected at the site, affected groundwater appears to extend into the proposed right-of-way area.

- Soil samples collected in the proposed right-of-way indicated OVA readings less than or equal to 5.0 ppm, which was consistent with field observations. Thus, it appears that soils within the proposed highway expansion area may not be impacted by the documented historical release at the site.

7.0 REFERENCES

Environmental Investigations, P.A. (1994) Preliminary Site Assessment Report, Site 1: Camden Shell; Widening of US 158 from Elizabeth City to Belcross.

Turner Environmental Consultants, P.C. (1995a) Comprehensive Site Assessment Report, Camden Shell, US Hwy 158 at SR 1139, Camden, North Carolina. January 1995.

Turner Environmental Consultants, P.C. (1995b) Corrective Action Plan, Camden Shell, US Hwy 158 at SR 1139, Camden, North Carolina, October 1995.

Turner Environmental Consultants, P.C. (1996) Groundwater Monitoring Report, Camden Shell Station, Camden NC, NCDWQ Incident #12706. September 1996.

Terraquest Environmental Consultants, P.C. (2001) Natural Attenuation Groundwater Monitoring Report (Subsequent Report) for the Monitoring Period of January 2001 – July 2001, Camden Shell, US Hwy 158 at SR 1139, Camden, North Carolina, August 2001.