west virginia department of environmental protection

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Earl Ray Tomblin, Governor
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March 26, 2013

Mr. Jerome Cibrik
Union Carbide Corporation
P.O. Box 8361
South Charleston, WV 25303

RE: RCRA Corrective Action Final Decision and Response to Comments
Building 82 Area, UCC South Charleston Facility, South Charleston, West Virginia

Dear Mr. Cibrik,

This Response to Comments and Final Decision, issued by the West Virginia Department of Environmental Protection (WVDEP), is for one Parcel within the Union Carbide Corporation facility, referred to as the "Building 82 Area", and is located on MacCorkle Avenue in South Charleston, West Virginia.

WVDEP issued a public notice for Agency's draft determination that began on February 14, 2013 and end on March 16, 2013. No comments were received during the public comment period; therefore, WVDEP has determined that no further corrective action is necessary at this time.

This determination completes the corrective action process under HSWA, at this time, for the Building 82 Area. If you have any questions, feel free to contact Catherine Guynn at (304) 926-0499 ext. 1288 or by the email address listed below

Sincerely,

Ken Ellison

cc: Charleston File #WVD060682291
Charlie Armstead, WVDEP/OER/RCRA CA Program Manager, charles.w.armstead@wv.gov
Catherine Guynn, WVDEP/OER/ RCRA CA Project Manager, catherine.n.guynn@wv.gov
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WEST VIRGINIA

DEPARTMENT OF ENVIRONMENTAL PROTECTION

FINAL DECISION AND RESPONSE TO COMMENTS

UNION CARBIDE CORPORATION
A SUBSIDIARY OF THE DOW CHEMICAL COMPANY
BUILDING 82 AREA

SOUTH CHARLESTON, WEST VIRGINIA

MARCH 2013

TABLE OF CONTENTS

SECTION		PAGE
I.	Introduction	3
II.	Final Decision	3
III.	Parcel Background	4
IV.	Site Characterization	4
V.	Summary of Environmental Investigations	5
VI.	Summanry of Human Health Risk Assessment	6
VII.	Corrective Action Objectives	7
VIII.	Evaluation of WVDEP's Proposed Decision	7
IX.	Financial Assurance	7
X.	Declaration	7

FIGURES

Figure 1 Facility Overview and Site Location Map

Figure 2 Building 82 Remediation Area

Acronyms and Abbreviations

BEHP	bis(2-ethylhexyl)phthalate
bgs	below ground surface
COA	Corrective Action Objectives
Dow	The Dow Chemical Company
EC	Environmental Covenant
Facility	Union Carbide Corporation South Charleston Facility
FDTRC	Final Decision Response to Comments
HHRA	Human Health Risk Assessment
HSWA	Hazardous and Solid Waste Amendments
IM&M	Inspection, Maintenance, and Monitoring
MCL	maximum contaminant level
PAH	polynuclear aromatic hydrocarbon
Parcel	Building 82 Area
PCB	polychlorinated biphenyl
RCRA	Resource Conservation and Recovery Act
RSL	Regional Screening Level
SB	Statement of Basis
SVOC	semi-volatile organic compound
UCC	Union Carbide Corporation
U.S.C.	United States Code
USEPA	United States Environmental Protection Agency (also EPA)
VOC	volatile organic compound
WVDEP	West Virginia Department of Environmental Protection (also DEP)

I. INTRODUCTION

The West Virginia Department of Environmental Protection (WVDEP) is issuing this Final Decision and Response to Comment (FDRTC or Final Decision) for one Parcel within the Union Carbide Corporation (UCC) South Charleston Facility (Facility), located on MacCorkle Avenue in South Charleston, West Virginia.

The Parcel is subject to the Corrective Action program under the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA) of 1976, and the Hazardous and Solid Waste Amendments (HSWA) of 1984, 42 U.S.C. Sections 6901 to 6992k. The Corrective Action program is designed to ensure that certain facilities subject to RCRA have investigated and cleaned up any releases of hazardous waste and hazardous constituents that have occurred at their property.

On February 7, 2013, WVDEP issued a Statement of Basis (SB) in which WVDEP proposed the final remedy for the Parcel. WVDEP's proposed Final Remedy consisted of a soil remedy and a groundwater remedy which collectively addresses Parcel-wide soils contamination and Parcel-wide groundwater contamination.

On February 14, 2013, consistent with public participation provisions under RCRA, WVDEP requested comments from the public on the proposed Final Remedy. WVDEP placed an announcement with the Charleston Newspapers to notify the public of and to request comments on WVDEPs proposed Final Remedy. The thirty (30) day public comment period began on February 14, 2013 and ended March 16, 2013. No comments were received by WVDEP during the public comment period.

Since no comments were received during the public comment period, WVDEP has determined that it is not necessary to modify its proposed Final Remedy as set forth in the SB. The Final Decision as set forth in Section II, "Final Decision," below.

II. FINAL DECISION

The Parcel has been divided into seven tracts, Tracts 1, 2, 3, 4, 5, 6 and 7, respectively. WVDEP's final remedy consists of the following components:

A. Soils

WVDEP's final remedy for soils at Tracts 3 and 7 (see Figure 2) is restricting future land use to industrial or commercial use only and Institutional Controls to manage potential future contact with impacted soil or movement of impacted soil.

B. Groundwater

WVDEP's final remedy for groundwater is groundwater monitoring to assess changes in concentrations over time; Institutional Controls to address potential vapor intrusion into new occupied buildings and to prohibit the use of groundwater for purposes other than monitoring or remediation.

C. Institutional Controls

The Institutional Controls consist of an environmental covenant, pursuant to the Uniform Environmental Covenants Act, West Virginia Code Chapter 22, Article 22B, that will restrict Tracts 3 and 7 of the Parcel to industrial or commercial use only. Also, disturbance, excavation, relocation, or removal of soils in Tract 3 and 7 will be restricted. Groundwater use will be prohibited for purposes other than monitoring or remediation, and would require installation of a vapor mitigation system on any new occupied structures constructed at the Parcel. The environmental covenant for groundwater restrictions will encompass the entire Parcel and will be monitored in accordance with the *Inspection, Maintenance and Monitoring Plan* included in Appendix C of the *Building 82 Area Remedial Approach Report* (CH2M HILL, 2012).

III. PARCEL BACKGROUND

The Parcel encompasses approximately 6 acres in the southwestern portion of the Facility and currently consists of paved and grass-covered areas and is surrounded by industrial, commercial, and residential properties. The Parcel is bounded by Fifth Avenue and MacCorkle Avenue (U.S. Route 60) on the north, Third Avenue on the south, B Street on the east, and C Street on the west. Additionally, a Chevron fuel service station is located immediately across B Street from the northeastern portion of the Former Building 603 Area and a Speedway fuel service station is located directly across Fourth Avenue from the Northern extent of the Former Building 603 Area. Commercial businesses and two residential properties lie immediately across 3rd Avenue to the South. Figure 2 displays the current features of the Parcel and surrounding properties.

The Parcel formerly contained two office buildings (Buildings 82 and 603) that were used for administrative functions until the late 1990s. The Parcel was once also occupied by a UCC machine shop (located in the southwestern portion of the Parcel approximately 100 feet South of Former Building 82) (CH2M Hill, 2012; Civil & Environmental Consultants, Inc., 2006) and a synthetic Dynel® fiber manufacturing facility (located in the southeastern part of the Parcel about 100 feet south of Former Building 603). A laundromat and dry cleaning facility was formerly located east of Former Building 603 within the Parcel property.

Other industries formerly located in the vicinity of the Parcel include a former chemical production facility, which was located northwest of Former Building 82 off of the Parcel property.

Building 603 was decommissioned and demolished by UCC in the early 2000s and the Parcel, as a whole, was divested to the University of Charleston in 2006. Following the divestiture, the University of Charleston divided the Parcel into seven land tracts and demolished Building 82 in 2009 (Figure 2). Following demolition activities of both buildings, the debris was removed from the Parcel but the pavement and existing material making up the ground surface were left in place. Clean fill soils were then placed in these areas to a thickness of at least 1 foot for grading purposes.

IV. SITE CHARACTERIZATION

The upper fill material at the Parcel ranges from 1 to 5 feet in thickness and varies in composition within each tract. The upper material within Tract 3 and Tract 7 consists of approximately 1 foot of clean fill soil overlying pavement or other ground cover materials. The pavement and cover materials were left in place following demolition activities and extend to approximately 2.5 feet below ground surface (bgs). The clean fill soil within Tract 3 was placed by the University of Charleston subsequent to the demolition of Building 82 in 2009. The clean fill within Tract 7 was obtained by UCC from a formerly undeveloped site located adjacent to Corridor G during construction of a church in 2003 and placed after demolition debris was removed. The remainder of the tracts at the Site are paved or covered with grass or other landscaping material that extend to depths ranging from 3 to 5 feet bgs. The soils that underlie the cover material are "native" and consist of silty clay and silt to depths of approximately 28 feet bgs. These fine-grained soils are underlain by silty sand down to the bedrock surface at approximately 55 feet bgs.

Groundwater occurs in the silty sand beneath the Parcel and ranges from approximately 28 to 32 feet bgs. Groundwater beneath the Site and the southwestern portion of the UCC South Charleston Facility Mainland Area flows under the influence of a low hydraulic gradient. Groundwater beneath the Parcel flows generally to the north toward the Kanawha River.

V. SUMMARY OF ENVIRONMENTAL INVESTIGATIONS

Investigative activities took place at the Parcel from 2002 to 2011 for the purpose of evaluating soil and groundwater. Additionally, associated data were evaluated in a Human Health Risk Assessment (HHRA) to identify potential negative impacts to human health for current and potential future exposure scenarios.

A. Soils

During Parcel investigations in 2002, 2004, 2010, and 2011, a total of 50 soil samples were collected from 41 soil borings collected at depths ranging from 0.5 to 8.5 feet below ground surface (bgs). The soil samples were analyzed for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), including polynuclear aromatic hydrocarbons (PAHs) present in oil and tar compounds, polychlorinated biphenyls (PCBs), and metals. The metals concentrations at the Parcel were either detected at concentrations below the associated screening criteria or were detected within the range of the mean natural background level in soil for the State of West Virginia (WVDEP, 2001).

PAHs, including benzo(a)pyrene, benzo(a)anthracene, dibenz(a,h)anthracene, and six related constituents were detected at concentrations greater than the residential, trespasser, and/or industrial EPA industrial screening levels for several limited areas in Tract 7.

B. Groundwater

Groundwater has been sampled numerous times since 2003 from three temporary wells and two permanent wells, in addition 14 groundwater grab samples were collected from

temporary well points. The groundwater samples were analyzed for metals, VOCs, and SVOCs, as appropriate. Metals (arsenic and barium), VOCs, and SVOCs were greater than EPA screening criteria.

VOCs detected in groundwater beneath the Parcel at concentrations above screening levels include chlorinated volatiles, carbon tetrachloride, and one of its associated breakdown products, chloroform. The detected concentrations of carbon tetrachloride and chloroform exceed the EPA tap water screening levels, maximum contaminant levels (MCLs), and/or screening criteria for evaluation of the groundwater-to-indoor air vapor intrusion exposure pathways. The source of the carbon tetrachloride in groundwater beneath the Parcel has not been identified, but it does appear to have originated from a location that is neither on the Parcel nor on the Facility.

Additionally, tetrachloroethene and vinyl chloride were detected at concentrations above tap water screening levels and/or MCLs in groundwater samples collected within Tract 7, which includes the area where the laundromat/dry cleaner was formerly located. Tetrachloroethene and vinyl chloride are commonly associated with contamination resulting from releases of dry cleaning solvents. Isolated benzene detections (concentrations greater than the tap water screening levels and the MCL) have also been reported in Parcel groundwater beneath Tracts 3 and 5. Benzene is a common contaminant associated with gasoline, and may be related to one of the nearby fuel stations.

VOCs detected greater than EPA tap water screening levels beneath the Parcel include bis(2-ethylhexyl)phthalate (BEHP) and the PAH benzo(k)fluoranthene. SVOCs that exceeded criteria were found in some of the groundwater grab samples collected from temporary well points. These exceedances may not be representative of actual groundwater conditions due to higher-turbidity groundwater collected from the groundwater grab sampling locations. Benzo(a)pyrene was not detected in any of the groundwater samples at the Parcel.

VI. SUMMARY OF HUMAN HEALTH RISK ASSESSMENT

Even though it is unlikely that receptors could be exposed to soil because most of the Parcel is currently paved or grass-covered, potential exposure to soil by current and future receptors was evaluated. The HHRA evaluated potential exposures under one current land use condition (i.e., current trespasser) and four future land use conditions (i.e., future residential, future trespasser, future commercial/industrial, and future construction activities). The HHRA also took into consideration that Buildings 82 and 603 had been demolished and that the deed of sale to the University of Charleston for the Parcel contains language limiting redevelopment in Tract 3 to commercial and/or industrial use and prohibiting groundwater use.

The HHRA results indicate risk estimates for exposure to soil are within or below the risk management range for the current and future trespassers, future commercial/industrial workers, and future construction workers for all areas of the Parcel. Risk estimates for potential future residents exposed to soil indicate risks estimates above EPA's risk management range at some locations within Tract 7. Risk estimates for potential future residents exposed to VOCs in groundwater via the vapor intrusion pathway were also above EPA's risk management range; however, risks for future indoor commercial/industrial workers were within EPA's risk management range.

VII. CORRECTIVE ACTION OBJECTIVES

WVDEP identified Corrective Action Objectives (CAO) for soils and groundwater for the Parcel to include preventing direct human exposure to groundwater by restricting groundwater use; mitigating the exposure pathway for human receptors potentially exposed to groundwater via the vapor intrusion pathway; and, preventing residential land use where soil exposure indicates potential risks above EPA's risk management range.

VIII. EVALUATION OF WVDEP'S REMEDY

WVDEP's final remedy for soils is protective of human health and the environment. The extent of the soil contamination is mostly paved or grass-covered. Therefore, under current land use conditions, contaminated soil can be left in place with acceptable health risks. The implementation of institutional controls will prevent potential future exposure due to unanticipated land use change or construction activities that may deviate from the current exposure scenario.

For groundwater, institutional controls and long-term groundwater monitoring will be protective of human health and the environment. There are no human health threats associated domestic uses of groundwater because the groundwater at the Parcel is not used for drinking water purposes.

IX. FINANCIAL ASSURANCE

WVDEP is deferring the Financial Assurance requirement for this Parcel until the completion of the RCRA Corrective Action requirements at the UCC South Charleston Facility. At that time, Financial Assurance will be required as part of the Final Remedy for the entire site.

X. DECLARATION

Based on the Administrative Record, I have determined that the Final Remedy as set forth in this Final Decision is appropriate and will be protective of human health and the environment.

March 26, 2013
Date:

Ken Ellison
Ken Ellison, Director
Division of Land Restoration
W.V. Department of Environmental Protection

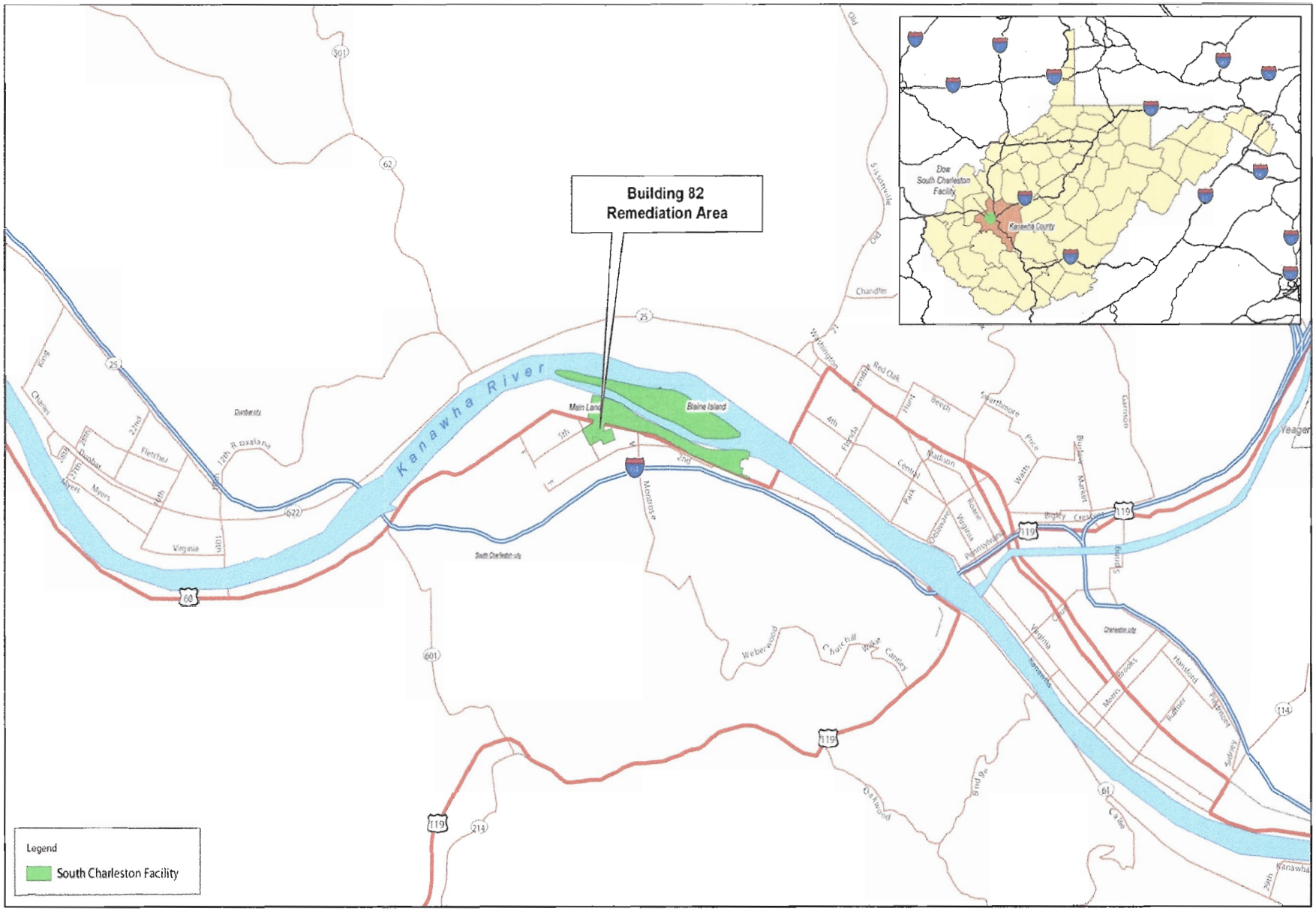

Figure 1
Facility Overview and Site Location Map
UCC South Charleston Facility, South Charleston, West Virginia

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QA397022.01.REV.1-2010

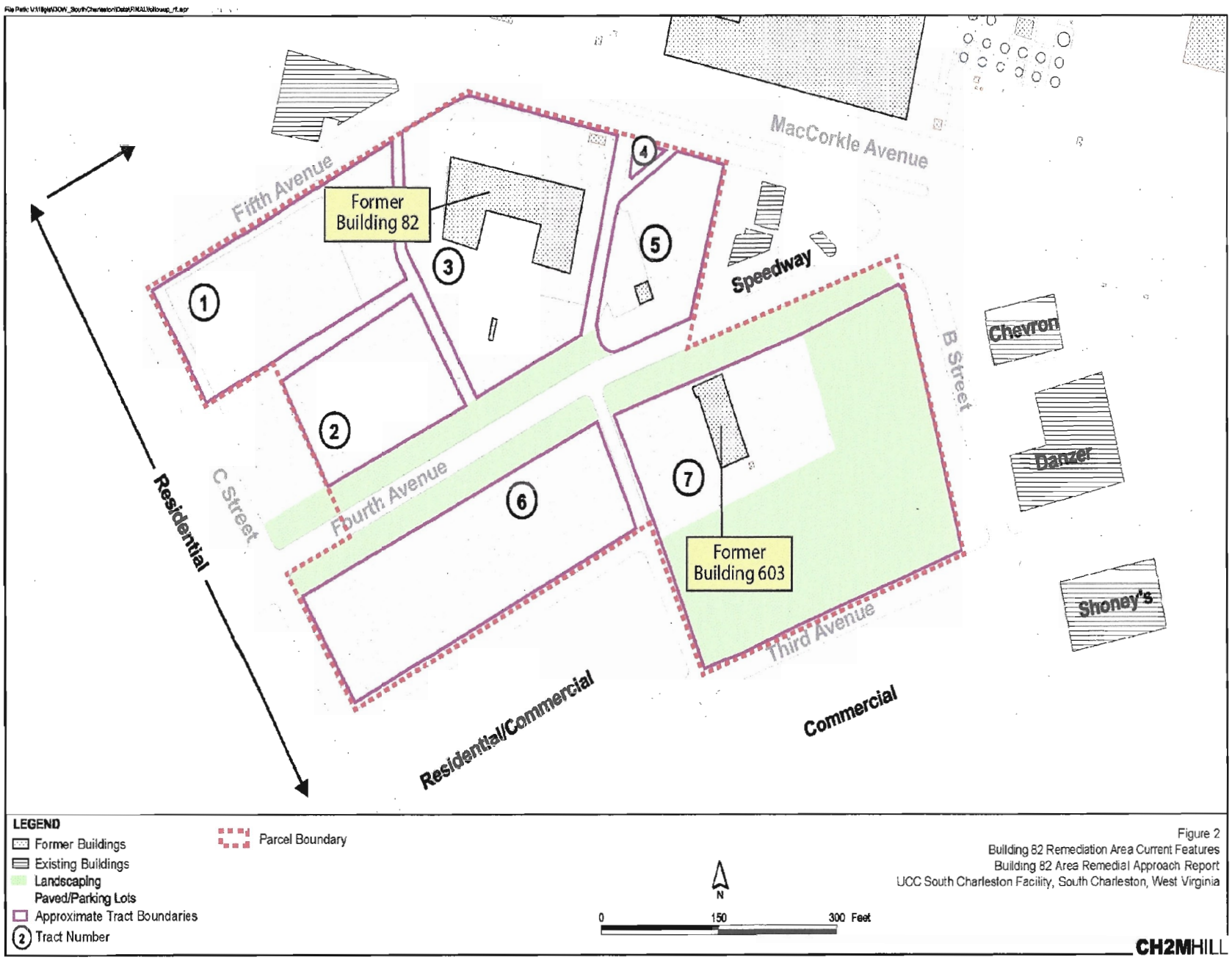

Figure 2
Building 82 Remediation Area Current Features
Building 82 Area Remedial Approach Report
UCC South Charleston Facility, South Charleston, West Virginia

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