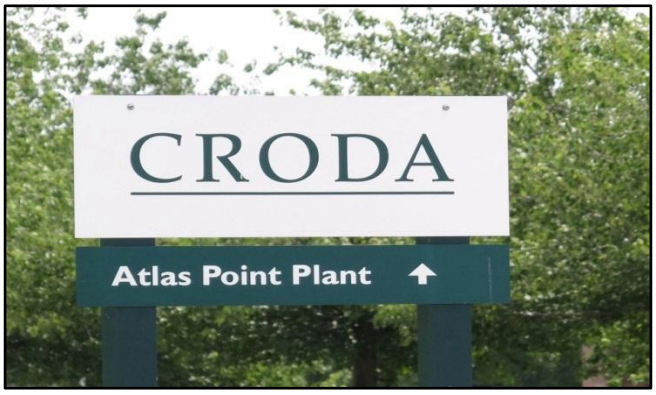
PROPOSED PLAN OF REMEDIAL ACTION

ICI Americas Inc. Atlas Point Site
Operable Unit 2: Groundwater
New Castle, Delaware
DNREC Project No. DE-0049



February 2014

Delaware Department of Natural Resources and Environmental Control
Division of Waste and Hazardous Substances
Site Investigation & Restoration Section
391 Lukens Drive
New Castle, Delaware 19720

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Approval:
This Proposed Plan meets the requirements of the Hazardous Substance Cleanup Act.

Approved by:

Timothy Ratsep, Environmental Program Administrator
Site Investigation & Restoration Section

2/17/2014
Date

What is the Proposed Plan of Remedial Action?

The Proposed Plan of Remedial Action (Proposed Plan) summarizes the clean-up (remedial) actions that are being proposed to address contamination found at the Site for public comment. A legal notice is published in the newspaper for a 20-day comment period. DNREC considers and addresses all public comments received and publishes a Final Plan of Remedial Action (Final Plan) for the Site.

What is the Atlas Point Site Operable Unit 2?

This Proposed Plan pertains to contaminated groundwater in the vicinity of the historical location of the ICI Americas Atlas Point facility, (the 'Site'). The Site is now occupied by three owners: Croda Inc., FujiFilm Imaging Colorants, Inc, and BioMed Realty. Croda purchased the ICI portion of the facility in 2006, and the SPI Polyol portion in 2007 and has assumed responsibility for the environmental cleanup of the Site under the DNREC Hazardous Substance Cleanup Act Voluntary Cleanup Program. The remedial actions described in this Proposed Plan will only address contaminated groundwater at the Site as Operable Unit 2. Contaminated soil and sediment were previously addressed as Operable Unit 1.

The Site is situated in the northeastern portion of New Castle County, Delaware. It is adjacent to the Veterans Memorial Park and visible from I-295. The Collins Park neighborhood is the closest residential area to the Atlas Point Site, which is zoned "M-3" heavy commercial.

Street addresses for 177 acres comprising the site are 315 Cherry Lane, 321 Cherry Lane, 213 Cherry Lane, 233 Cherry Lane, 1000 Uniqema Blvd., 900 Uniqema Blvd., and 243 Cherry Lane. The Site consists of 9 tax parcels (10-016.00-002, 10-016.00-007, 10-016.00-008, 10-015.00-020, 10-015.00-003, 10-015.00-022, 10-015.00-021, 10-015.00-023, and 10-015.00-024).

What happened at the Atlas Point Site?

A chemical plant has existed on the property since 1936 producing a wide range of products. Throughout this period of operation, numerous small spills and incidents occurred which resulted in contamination of soil, sediment and ground water. There were also a number of locations on the property which were designated waste disposal areas for both solid and liquid wastes.

What is the environmental problem at the Atlas Point Site?

The most significant outstanding environmental problem at the Site is the contamination of the groundwater by bis (2-choroethyl)ether (BCEE). Presently, groundwater extracted from Artesian Water Company Collins Park well is affected by contamination from the Site. The groundwater extracted from the Collins Park well undergoes treatment prior to use. Continuous pumping of an industrial supply well on the Site has partially contained the BCEE contamination

and reduced its concentration in the Collins Park well. However, this hydraulic containment is not optimal. Extraction from the industrial supply well (DW-13, shown on Figure 1) and the Collins Park well is causing the BCEE plume to spread across the Columbia aquifer in a northerly direction until it encounters a downward gradient at the approximate location of Magazine Ditch. The plume then migrates downward to the Potomac aquifer, which is unconfined in that area. Once it reaches the Potomac aquifer, it reverses direction and is drawn toward the Collins Park well and the Site's industrial well.

What does the owner want to do at the Atlas Point Site?

The present owners, Croda Inc. and FujiFilm, plan to continue operation of their respective plants. BioMed Realty maintains one office building and one laboratory building which have temporarily ceased operations on the Site. Croda will continue to work with DNREC for the remediation of the Site under the HSCA Voluntary Cleanup Program.

What clean-up actions have been taken at the Atlas Point Site?

In September 2012, DNREC approved remedial actions for 84 "areas of concern" (AOCs) where a potential release may have occurred to the soil or sediment by plant operations or spills. All but one of those AOCs have been addressed and completed. The exception is Area "AN" which is a drainage area located on property which belongs to Croda. Croda anticipates that the remediation of AOC AN will be implemented in 2014.

What additional clean-up actions are needed for contaminated groundwater at the former Atlas Point Site?

DNREC proposes that the contaminated groundwater shall be remediated with a combination of pump-and-treat methodology and monitored natural attenuation. The purpose of the remedial action is to initially reduce the mass of contamination in the groundwater and eventually eliminate the need for treatment of BCEE at the Artesian Water Company well in Collins Park.

1. For BCEE contamination in the deeper portion of the Columbia aquifer that contains higher BCEE concentrations, four extraction wells will be placed at depths of approximately 60 to 75 feet below the ground surface on the western portion of the Site. Initially the extraction wells will be pumped at a combined rate of approximately 140 gallons per minute. The approximate locations of the four deep Columbia wells are shown on Figure 1. The purpose of these wells is to extract the BCEE contamination before it reaches the Potomac aquifer.

2. For BCEE contamination that has already reached the Potomac, an extraction well will be operated in the location shown on Figure 1 as "DW-10." Initially the pump rate for DW-10 shall be approximately 70 gallons per minute.

3. Pumping of the Collins Park well will most likely continue at the rate of about 400 gpm while the new pump-and-treat system gains control over the BCEE plume, anticipated to be about 5 to 10 years.

4. Water collected by the new extraction wells shall be treated by means of granular

activated charcoal (GAC) and/or advanced oxidation and discharged to an existing regulated outfall.

5. For contamination in the shallower portions of the Columbia aquifer that contain lower BCEE concentrations, the remedy will be monitored attenuation.

6. Croda shall submit for DNREC approval a Longterm Monitoring Plan (LTS) for both components of the remedial action—monitored attenuation and active pump-and-treat. The LTS Plan shall include system performance evaluation criteria for extraction and treatment, updates to a numeric groundwater model prepared for the Site, and contingency plans developed in consultation with Artesian Water.

What are the long term plans for the Atlas Point Site after the cleanup?

Croda Inc. and FujiFilm plan to continue to operate their respective production facilities on the Site. Arch Chemicals has ceased operations and BioMed Realty will continue to maintain an office complex. No land use change is anticipated.

DNREC anticipates that the Collins Park well will continue to supply Artesian Water during and after the groundwater remediation. The existing regime of testing and evaluation of water supplied to customers will continue.

How can I find additional information or comment on the Proposed Plan?

The complete file on the Site including the Remedial Investigation Report and the various reports are available at the DNREC office, 391 Lukens Drive in New Castle, 19720. Most documents are also found on: http://www.nav.dnrec.delaware.gov/DEN3/

The 20-day public comment period begins on February 16, 2014 and ends at close of business (4:30 pm) on March 10, 2014. Please send written comments to the DNREC office at 391 Lukens Drive, New Castle, DE 19720 to Stephen F. Johnson, Project Officer or Robert Newsome, Public Information Officer.

Figure 1: Study Area Location Map

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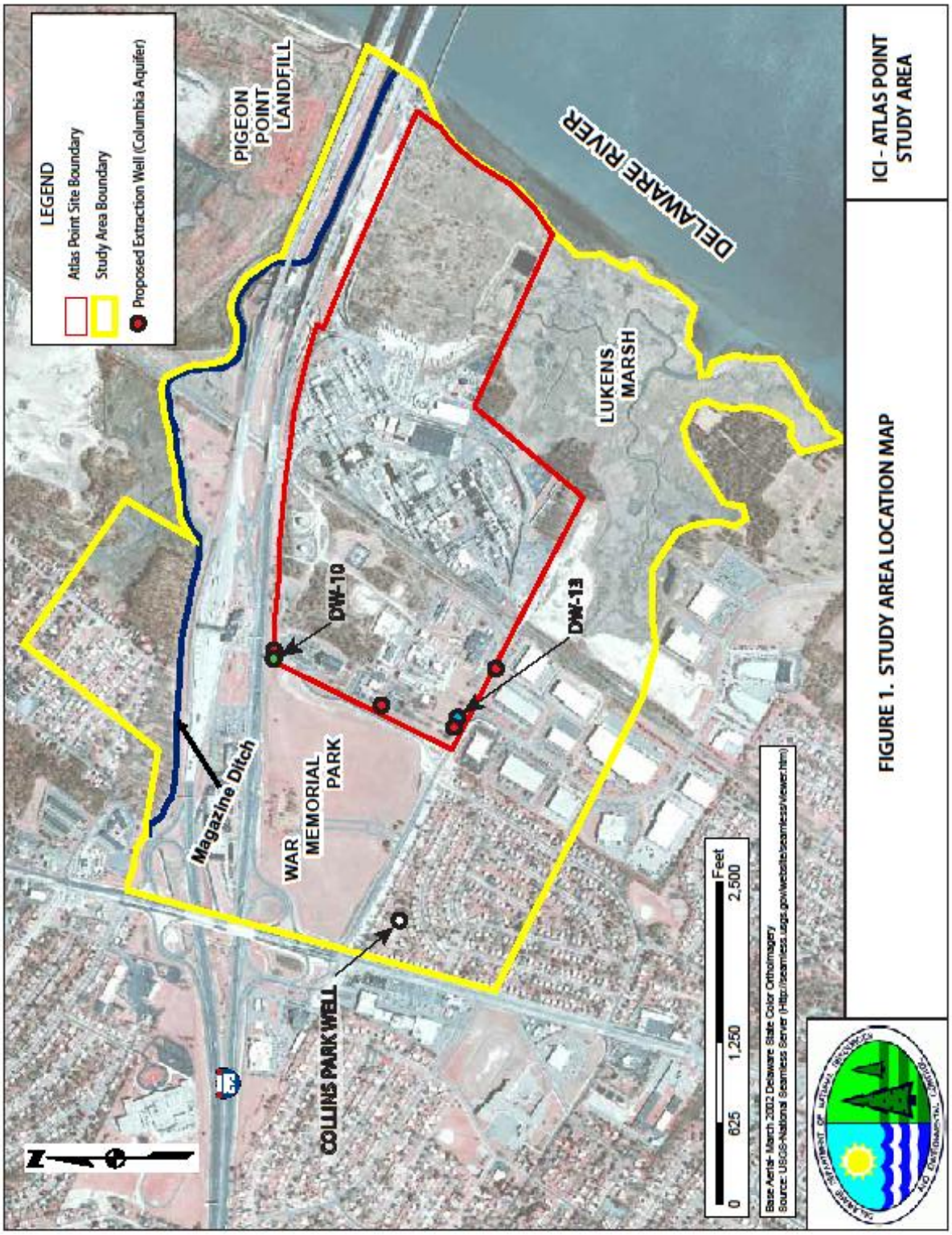
LEGEND
Atlas Point Site Boundary
Study Area Boundary
Proposed Extraction Well (Columbia Aquifer)
PIGEON POINT LANDFILL
DELAWARE RIVER
LUKENS MARSH
DW-10
DW-13
Magazine Ditch
WAR MEMORIAL PARK
COLLINS PARK WELL
N
0 625 1,250 2,500 Feet
Base Aerial- March 2002 Delaware State Color Orthoimagery
Source: USGS-National Seamless Server (http://seamless.usgs.gov/website/seamless/viewer.htm)
FIGURE 1. STUDY AREA LOCATION MAP
ICI - ATLAS POINT STUDY AREA

Figure 1

Glossary of Terms
Used in this Proposed Plan

Area of Concern (AOC)	A discrete section of the Site representing the local bounds of contamination in soil or ground water.
Bis (2-choroethyl)ether (BCEE)	Bis(2-chloroethyl) ether is mainly used as a chemical intermediate to make pesticides, but some of it is used as a solvent and cleaner. It is irritating to the skin, eyes, nose, throat, and lungs. Bis(2-chloroethyl) ether has been found at 821 of the 1,518 National Priorities List sites identified by the Environmental Protection Agency. (Definition from the US Center for Disease Control: http://www.atsdr.cdc.gov/toxfaqs/tf.asp?id=816&tid=159)
Contaminant of Concern (COC)	Potentially harmful substances at concentrations above acceptable levels.
Exposure	Contact with a substance through inhalation, ingestion, or direct contact with the skin. Exposure may be short term (acute) or long term (chronic).
Final Plan of Remedial Action	DNREC's proposal for cleaning up a hazardous site after it has been reviewed by the public and finalized.
Hazardous Substance Cleanup Act (HSCA)	Delaware Code Title 7, Chapter 91. The law that enables DNREC to identify parties responsible for hazardous substances releases and requires cleanup with oversight of the Department.
Human Health Risk Assessment (HHRA)	An assessment done to characterize the potential human health risk associated with exposure* to site related chemicals.
Proposed Plan of Remedial Action	A plan for cleaning up a hazardous site developed by DNREC and subject to public comments.
Risk	Likelihood or probability of injury, disease, or death.