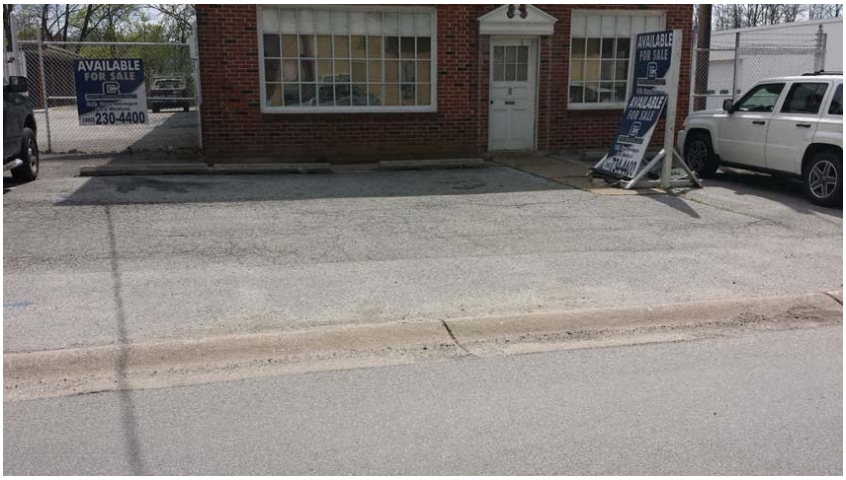
PROPOSED PLAN OF REMEDIAL ACTION

Liquid Alchemy Site
Wilmington, Delaware
DNREC Project No. DE-1605



March 2016

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

March 17, 2016
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 Liquid Alchemy Site?

The Liquid Alchemy Site consists of one approximately 0.46-acre parcel (New Castle County Tax Parcel No. 07-043.20-022) located at 28 Brookside Drive within a small industrial park on the southwest side of the City of Wilmington, New Castle County, Delaware (Figure 1). The Property has been improved with an approximately 4,260 square-foot building with a concrete slab-on-grade foundation and block-masonry exterior walls. The remainder of the Site surrounding the building is asphalt-paved parking area. Public water, public sewer, and road access are all present at the property.

The Site is located in a small industrial park, with surrounding properties generally in commercial/light-industrial use. Nearby industrial park operations include a roofing contractor, equipment rental, a former machine shop, and a heating and air conditioning contractor. Areas surrounding the industrial park are similarly in commercial / light industrial use, in addition to single- and multi-family residential development.

What happened at the Liquid Alchemy Site?

The industrial park where the Liquid Alchemy Site was filled extensively by the mid-1950's. Prior to 1968, the Site was used to repair RCA televisions. Since 1968, the Site has been operated as part of Hurlock Roofing.

What is the environmental problem at the Liquid Alchemy Site?

The Brownfield Investigation (BFI) was performed in May and June 2015. The BFI consisted of the drilling of 10 Geoprobe™ soil borings from which ten surface soil samples and ten subsurface soil samples were collected, and the installation and sampling of three shallow groundwater monitoring wells. Six soil samples and three soil gas samples were collected from shallow soil vapor borings. Three surface water samples and three sediment samples were collected from Little Mill Creek adjacent to the Site. A Geophysical Survey was conducted to search for underground piping and USTs, followed by a June 19, 2015 removal of a previously unknown 1,000- gallon fuel oil tank that had been out of service since at least 1989.

Contaminants of potential concern (COPC) detected in the soil samples, at concentrations above DNREC's soil screening levels, consisted of three semi-volatile organic Polynuclear Aromatic Hydrocarbon (PAH) compounds and six metals (antimony, arsenic, copper, lead, iron, and thallium). Groundwater contaminants of potential concern (COPC) reported at concentrations above DNREC's groundwater screening levels for use as drinking water included aluminum, arsenic, barium, chromium, cobalt, iron, manganese and lead in filtered (dissolved metals) samples: mercury and vanadium were reported in one unfiltered (total metals) sample. No VOCs, SVOCs, pesticides or PCBs were reported in groundwater samples at COPC concentrations. It should be noted that although three (3) monitoring wells were installed, only one (1) produced any measurable water due to the absence of shallow groundwater in the historic fill. Despite historical records of onsite UST/LUST cases, neither soil nor groundwater samples contained elevated levels of VOC gasoline constituents; however, VOCs were detected in the soil gas samples at COPC concentrations. Groundwater was determined to flow in a southerly direction in the onsite fill unit, parallel with the flow in the adjacent Little Mill Creek. Metals were detected at COPC concentrations in Little Mill Creek surface water samples; metals and SVOCs were reported in the sediment samples.

The future use planned for the Site by the Delaware Mead Company LLC is for production and distribution of mead or other beverages under a commercial / industrial land use scenario. The existing Site conditions of encapsulation by concrete, pavement, and building cover prevent onsite workers (if any were present) from contact with site soil. However, it is possible that future redevelopment could expose soil areas such that future users could potentially have direct contact exposures to soil contaminants via inhalation, ingestion, or dermal absorption which could hypothetically expose them to health risks. The potential future soil exposure risks were quantified for future Site users using the RAIS risk calculator. Calculated potential levels of future soil risk exceeded DNREC's allowable risk levels for possible future residential use of the Site, but were acceptable for future commercial / industrial use scenarios and construction / excavation workers.

Site groundwater is not currently used for drinking water, nor will it be used for drinking water in the future. The Site lies within a DNREC South Wilmington Groundwater Management Zone where potable wells are prohibited. However, the hypothetical risks from future consumption of Site groundwater as tap water were quantified with RAIS using maximum detected groundwater contaminant concentrations for risk management purposes. Groundwater ingestion risks were unacceptable under future residential and commercial indoor worker scenarios. Most risk derived from the maximum detected concentration of arsenic and manganese. A Vapor Intrusion Screening Level analysis concluded that volatile organic compounds present at Site maximum soil vapor concentrations could potentially migrate to indoor air inside of onsite buildings. Potential risk levels were unacceptable under a future residential Site use scenario but were marginally acceptable (although above 1E-06) under a future commercial / industrial exposure scenario.

What clean-up actions have been taken at the Liquid Alchemy Site?

Several underground storage tanks (USTs) have been removed from the Liquid Alchemy Site. In 1992, a 1,000 gallon gasoline tank was removed and in 2014, a 2,000 gasoline tank was

removed. Both of these tank removals were issued No Further Action (NFA) by the DNREC Tank Management Section. In 2015, a 1,000 gallon heating fuel tank was discovered during a geophysical investigation and subsequently removed. DNREC-TMS issued a Conditional NFA due to limited residual contamination that would be managed as part of the redevelopment.

Due to the detection of volatile organic compounds that could create unacceptable indoor air conditions, an interim action was completed to install a sub-slab perforated piping/vapor mitigation system was installed beneath a portion of a newly constructed cement slab floor to eliminate this potential unacceptable risk. The vapor mitigation system was installed as a DNREC approved Interim Action in December 2015.

What does the owner want to do at the Liquid Alchemy Site?

The current owners are planning on producing mead, or other beverages under a commercial/industrial land-use scenario at the Liquid Alchemy Site.

What additional clean-up actions are needed at the Liquid Alchemy Site?

DNREC proposes the following remedial actions for the Site, which need to be completed before a Certificate of Completion of Remedy (COCR) can be issued.

1. A proposed Environmental Covenant must be submitted to DNREC for approval within 60 days of the issuance of the Final Plan of Remedial Action.

2. An Environmental Covenant, consistent with Delaware's Uniform Environmental Covenants Act (7 Del.C. Chapter 79, Subchapter II) must be recorded in the Office of the [County] Recorder of Deeds within 60 days of the issuance of the Final Plan of Remedial Action. The Environmental Covenant must include the following activity and/or use restrictions:

    [a.] Use Restriction. Use of the Property shall be restricted solely to those non-residential type uses permitted within Commercial, Manufacturing, or Industrial Districts;

    [b.] Limitation of Groundwater Withdrawal. No groundwater wells shall be installed and no groundwater shall be withdrawn from any well on the Property without the prior written approval of DNREC-SIRS and DNREC Division of Water;

    [c.] Compliance with the Long Term Stewardship Plan. All work required by the Long Term Stewardship Plan must be performed to DNREC's satisfaction in accordance with the Plan; and

[d.] Compliance with Contaminated Materials Management Plan. All work required by the Contaminated Materials Management Plan must be performed to DNREC's satisfaction in accordance with the Plan.

3. A Contaminated Materials Management Plan (CMMP) must be submitted to DNREC within 60 days of the issuance of the Final Plan of Remedial Action. The CMMP will provide guidance to enable construction workers to safely handle any potential contaminated soil and groundwater at the Site.

4. The CMMP will be implemented upon its approval by DNREC.

5. A request for a Certification of Completion of Remedy (COCR) must be submitted to DNREC within 60 days of issuance of the Final Plan of Remedial Action.

6. A Long Term Stewardship Plan must be submitted to DNREC within 60 days of the issuance of the Final Plan of Remedial Action. The LTS Plan will ensure the integrity of the remedy, specifically the performance of the sub-slab vapor mitigation system.

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

The Site use will be restricted to non-residential (commercial/industrial) purposes by recording the environmental covenant. The CMMP will be completed and available for the Site.

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

The complete file on the Site including the Brownfield Investigation 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 March 20, 2016 and ends at close of business (4:30 pm) on April 8, 2016. Please send written comments to the DNREC office at 391 Lukens Drive, New Castle, DE 19720 to Kristen Thornton, Project Officer or Robert Newsome, Public Information Officer.

Figure 1: Site Location
Figure 2: Site Vicinity
Figure 3: Sample Locations

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Glossary of Terms Used in this Proposed Plan

Brownfield Development Agreement (BDA)	This legal agreement is between a potential developer of a Delaware-certified Brownfields Site and the DNREC. The developer agrees to investigate and cleanup a Brownfields property under the oversight of the Department in exchange for liability protection.
Brownfield Investigation (BFI)	Thorough environmental study of a site which includes 1) sampling of site environmental media and/or wastes on the property and 2) conducting a preliminary risk assessment using the data collected to determine the risk posed to human health and the environment.
Certified Brownfield	A Brownfield that DNREC has determined is eligible for partial funding through the Delaware Brownfields Program
Certification of Completion of Remedy (COCR)	A formal determination by the Secretary of DNREC that remedial activities required by the Final Plan of Remedial Action have been completed.
Contaminant of Concern (COC)	Potentially harmful substances at concentrations above acceptable levels.
Contaminated Materials Management Plan	A written plan specifying how potentially contaminated material at a Site will be sampled, evaluated, staged, transported and disposed of properly.
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 adopted plan for cleaning up a hazardous site.
Groundwater Management Zone	A geographical area where DNREC restricts drilling for ground water because it is contaminated
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.
Risk	Likelihood or probability of injury, disease, or death.
Risk Assessment Guidance for Superfund (RAGS)	An EPA guidance document for superfund sites
Restricted Use	Commercial or Industrial setting
SIRS	Site Investigation Restoration Section of DNREC, which oversees cleanup of sites that were contaminated as a result of past use, from dry cleaners to chemical companies
US EPA	United States Environmental Protection Agency