



**REVISED**

**CLEANUP PLAN &  
REMEDIAL ALTERNATIVES ANALYSIS**

Former Neuweiler Brewery  
401-451 North Front Street, City of Allentown  
Lehigh County, Pennsylvania

October 26, 2011

*(This document has been revised from the September 10, 2010 version with respect to site ownership only; no technical changes were made)*

**Prepared for:**

Lehigh Valley Economic Development Corporation  
2158 Avenue C, Suite 200  
Bethlehem, PA 18017



**Prepared by:**

Elizabeth K.T. Schamberger, P.G.  
Moonstone Environmental, LLC  
1150 Glenlivet Drive, Suite C-31  
Allentown, PA 18106

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Appendix A	Figures and Site Photographs
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## A. INTRODUCTION

This Cleanup Plan & Remedial Alternatives Analysis (the Cleanup Plan) has been prepared by Moonstone Environmental, LLC (Moonstone) on behalf of the Lehigh Valley Economic Development Corporation (LVEDC). The Cleanup Plan has been prepared to satisfy the USEPA requirements regarding the use of Revolving Loan Funds to remediate the former Neuweiler Brewery (the Site), located at 401-451 North Front Street in the City of Allentown, Lehigh County, Pennsylvania.

This Cleanup Plan presents a description of the current Site status, and a proposed approach for cleanup of the Site. The Cleanup Plan also includes a Remedial Alternatives Analysis to demonstrate why the proposed Cleanup Plan is considered the best remedial option for this Site. A Quality Assurance Project Plan (QAPP) has also been prepared for the project under separate cover.

Moonstone recently completed a Phase I environmental Site Assessment for the Site, dated July 9, 2010. This Cleanup Plan is based on information Moonstone obtained during the Phase I assessment process, including site inspections, interviews, and reviews of previous environmental reports and publicly available files for the Site.

The Site currently (as of October 26, 2011) owned by the Redevelopment Authority of the City of Allentown (RACA). However, RACA has scheduled a closing for the end of October 2011 to transfer the property to the Allentown Commercial and Industrial Development Authority (ACIDA). Future use of the Site is unspecified at this time, but ACIDA would like to sell the property for redevelopment. To date, private interest in redeveloping the Site has been limited by the prohibitive cost of cleaning it up and concerns about environmental conditions, both real and perceived.

## B. SITE BACKGROUND

### B1. Site Description

The former Neuweiler Brewery (the Site) is an abandoned beer brewery located at 401-451 North Front Street in the City of Allentown, Lehigh County, Pennsylvania. The Site parcel is approximately 2.3 acres and contains six contiguous brick buildings and one separate brick building (the bottling plant), all associated with the former brewery operations. Figures and photographs of the Site are presented in Appendix A.

The Site is currently vacant. The Site is enclosed by a chain-link fence with a locked gate, and the doors and first floor windows are boarded up. Despite these efforts to secure the Site, the buildings are frequently broken into and have historically been the site of waste disposal and vandalism.

The area near the Site hosts a wide variety of land uses including commercial, retail, residential, and recreational. Public streets border the Site on three sides. Several residential dwellings, a commercial business, a brick-paved alley, and small brick-paved parking area are located to the rear of the Site. A former railroad siding enters the Site from the east and terminates between the brew house and stock/wash warehouses.

### B2. Site History

The Site buildings were originally constructed in the early 1900s. By 1911, according to Sanborn fire insurance maps, the brewery consisted of four interconnected buildings – an office, a brewery house, a machine house, and a boiler house – and a separate warehouse building located just north of the brewery buildings, along North Front Street. By 1932, the brewery buildings and the warehouse building were joined as one structure, and the former machine warehouse became an independent electric plant (I.E.P.) with an ammonia tank and ice machine. A pump warehouse had been added onto the northwest corner of the former stock warehouse, and a two-story bottling plant with a basement was located to the north of the other buildings. By 1950, the bottling plant was extended to the corner of North Front Street and Liberty Street, the stock warehouse was extended toward North Front Street, and a tile ash hopper was located behind the boiler house.

Brewery operations ceased in the late 1960s. The bottling house was leased to Ignatios Hadjiloukas until from 1992 to 1998. Mr. Hadjiloukas operated a pesticide, herbicide and detergent re-manufacturing business under the company names of J.L. Hoffman Company and Trading, Inc. for a period of approximately ten years. The Site was abandoned in the fall of 1998.

In early September 1999, the property owner (Hanna Industrial Properties, Inc.) contacted the Pennsylvania Department of Environmental Protection (PADEP) concerning materials left in the building by Mr. Hadjiloukas. PADEP's Northeast Regional Emergency Response Program conducted a preliminary inspection of the building. On September 16, 1999, Weston Managers, Designers/Consultants prepared a Site inventory report under an EPA contract. The inventory revealed the presence of approximately two thousand (2,000) 55-gallon drums; numerous small (one pint to five-gallon) containers; five (5) laboratories containing unidentified chemicals; various process mixing vats; numerous bags of chemicals; and one cubic yard containers containing plastic-like flakes and pellets. Materials, including drums, were stacked two and three rows high. Many of these stacks were leaning precariously and in danger of collapse. Chemicals identified as incompatible were stored in close proximity to each other. Many drums later proved to contain regulated materials under the Resource Conservation and Recovery Act (RCRA) and Comprehensive Environmental Response Compensation and Liability Act (CERCLA).

PADEP prepared an *Analysis of Alternatives and Proposed Response*. PADEP selected the alternative for removal of hazardous substances to an approved offsite treatment/storage/disposal facility as the prompt interim response action for the Bottle House site. WRS Infrastructure & Environmental, Inc. was contracted and developed the *Work Plan, Bottle House Site*, dated September 21, 1999. The Work Plan outlined Site material characterization, consolidation, containerization, and off-site treatment and disposal. Site work by WRS started on September 28, 1999 beginning with Site preparation activities and outside drum stabilization and assessment. These activities continued through April 28, 2000.

WRS prepared a *Final End-of-Project Report for the Bottle House Site*, dated June 20, 2000. The report documented site assessment and sampling, container and building stabilization, material consolidation, analytical analysis, transportation/disposal/recycling, and waste disposal

quantities and locations. Supporting report documentation included large numbers of files and binders that included manifests, certificates of disposal, drum and container inventory logs, manufacturing specification data sheets for each drum/container, and pictures of each drum/container.

### B3. Current Environmental Conditions

Moonstone recently completed a Phase I Environmental Site Assessment for the Site, dated July 9, 2010. A copy of the Phase I (excluding appendices) is included in Appendix B. The Phase I identified the following recognized environmental conditions at the Site:

- **Hazardous Substances:** The Site has numerous containers of unidentified and potentially hazardous materials, and piles of roofing materials that may contain asbestos. In addition, there are large quantities of fluorescent light tubes located at the Site.
- **Subsurface Conditions:** Information obtained from the City of Allentown indicates that the Site's water supply is tainted with coal tar (or a similar material). In addition, there are reports that the Site is built on a lakebed. There was no evidence of a water body at the Site in the historical records reviewed by Moonstone. The combination of a reported lakebed and poor water quality raises the question of whether the area was used to accumulate some type of process water, or whether the groundwater contamination is unrelated to the lakebed and results from an off-site source.
- **Floor Drains:** The outfall point for the floor drains identified in the basements is not known. Regulated materials may have been discharged to the drains historically, resulting in potential impacts to the subsurface.
- **Coal/Ash:** Coal storage and ash piles at the Site may have impacted soil quality.

In addition, Moonstone identified the following business environmental risk at the Site:

- **Building Debris, Trash, and Rubble:** The trash and debris observed at the Site is primarily solid waste that may be disposed of at a municipal waste landfill. The trash

and debris may be masking additional environmental issues (e.g., floor drains, staining, hazardous materials).

Additional assessment is needed to address some of the environmental conditions at the Site, such as potential impacts to soil and groundwater. However, immediate action may be taken to remove waste materials from the Site and therefore mitigate the potential for environmental degradation at the Site.

Although asbestos was not surveyed as part of the Phase I assessment and is specifically excluded from the ASTM standard for Phase I assessments, Moonstone noted extensive amounts of presumed asbestos-containing thermal system insulation (TSI, primarily in the form of pipe insulation) in the basement of the Boiler house and Machine house. The observed TSI was in severely damaged, friable condition and should be removed as part of the Site cleanup.

## C. CLEANUP PLAN FOR THE NEUWEILER BREWERY

The following steps are proposed for cleanup of the former Neuweiler Brewery:

- Abatement of asbestos-containing thermal system insulation (TSI);
- Removal and disposal of hazardous, non-hazardous, and universal waste;
- Removal of coal and/or coal ash piles;
- Securing the Site to prevent future accumulation of waste.

Each of these cleanup steps is detailed below. Section C5 indicates how the cleanup will be conducted to utilize as much of the available funding as possible while still securing the Site. A final remediation action closure report will be prepared documenting all cleanup activities.

### C1. ABATEMENT OF ASBESTOS-CONTAINING THERMAL SYSTEM INSULATION

The majority of asbestos-containing thermal system insulation (TSI) observed at the Site is friable and in severely damaged condition. Prior to any other cleanup activities, TSI will be removed from the Site and disposed of off-site by a properly licensed asbestos abatement contractor. The abatement of TSI will include pipe wrap and other types of friable thermal system insulation (such as boiler insulation) identified at the Site. Prior to abatement, a limited asbestos survey will be conducted to identify the areas of TSI to be removed from the Site. The goal is not to complete a comprehensive asbestos abatement of the Site (which is not possible given the current site conditions) but rather to remove the asbestos-containing materials (ACMs) that are friable and pose an immediate threat to human health and the environment in their current condition. Abatement of the TSI will be conducted in accordance with applicable local, state and federal regulations. Documentation of proper disposal of the asbestos-containing TSI (e.g., manifests) will be provided at the completion of the project.

### C2. REMOVAL AND DISPOSAL OF WASTE

Containers of unidentified and potentially hazardous materials were observed throughout the Site, as were piles of roofing materials that may contain non-friable asbestos. In addition, there are large quantities of fluorescent light tubes located at the Site, along with small quantities of other universal waste. Vast quantities of trash and debris are present at the Site. Although the trash and debris are not likely to generate a release of regulated substances, they may be

masking additional environmental issues of concern (e.g., floor drains, staining, additional hazardous materials). Pigeon excreta was not mentioned in the Phase I ESA, but is also present in large quantities, particularly on the upper floors of the Brewery/Mill house.

All loose waste and debris (including pigeon excreta) will be removed from the Site as part of the Cleanup Plan to ensure that all hazardous and/or potentially hazardous materials have been removed (with the exception of in situ building materials such as lead-based paint, non-friable asbestos-containing materials, etc.) Potentially hazardous wastes will be characterized to determine whether they are hazardous and will be removed for proper disposal as indicated by the findings. Universal waste will be properly packaged and sent off-site for disposal at an appropriate disposal and/or recycling facility. Solid waste that is deemed neither hazardous nor universal will be transported off-site for disposal and/or recycling at an appropriate facility. Documentation of proper disposal of the universal waste and non-hazardous waste (e.g., manifests, bills of lading) will be provided at the completion of the project.

The cleanup will not include the removal, alteration, or demolition of any in situ, attached fixtures or building materials at the Site, nor of any potentially historic items that may be found in the waste piles (e.g., equipment, documents, photographs) unless authorized by the Allentown Commercial and Industrial Development Authority (ACIDA).

### C3. REMOVAL OF COAL AND/OR COAL ASH PILES

Moonstone observed no piles of coal or coal ash outside the site buildings during the 2010 site inspections completed as part of the Phase I assessment (see Section B.3). However, a previous Phase I report<sup>1</sup> completed in 2004 identified the following:

- A pile of ash at a clean out door at the base of the smoke stack, extending onto the bare ground adjacent to the door.

At the time of Moonstone's site inspections in 2010, this pile may have been obscured by building debris and/or trash. If ash is observed in this area during the cleanup process, it will be excavated, characterized (if necessary) and transported off-site for disposal.

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<sup>1</sup> *Phase I Environmental Site Assessment, Former Bottling House and Brewery Site*, dated 1 December 2004, prepared by Langan Engineering & Environmental Services, Inc.

Moonstone did observe the following coal and ash identified in the 2004 report:

- Residual coal in the coal cellar below the Machine House and Boiler House.
- Ash in the furnaces of the Boiler House.

These piles of coal and ash are considered part of the debris that must be removed from inside the buildings and will be removed along with other materials identified in Section C2.

#### C4. SECURING THE SITE

After the cleanup has been completed, the Site will be secured to prevent the future accumulation of waste. The security measures will be more robust than those currently in place, and will be designed to prevent trespassers from entering the Site. The Site perimeter will remain fenced, and the doorways, windows, and openings of the buildings will be covered with boards or other barriers secured in a way that discourages casual or rapid entry.

#### C5. CLEANUP SCHEDULE

The estimated cost to perform the cleanup is \$900,000 - 950,000, which is based on very conservative estimates of waste volumes and asbestos abatement costs. The available budget to complete the cleanup is approximately \$560,000. The cleanup work will be sent out for competitive bid, and the actual cost to cleanup the site is expected to be lower than the estimate. How much lower the winning bid will be is difficult to estimate due to the expansive scope of work, the number of unknowns involved with the waste removal, and the state of the economy (which will affect how competitive the bids are).

To reconcile the difference between the estimate cost to complete the cleanup and the actual funds available, Moonstone proposes a phased approach to the cleanup. This approach will maximize use of the available funds while ensuring that areas of the site that have been cleaned up are also secured. Moonstone met with representatives from the City to discuss the best approach for phasing the cleanup, and all parties agreed that the best approach would be to complete the cleanup one area at a time, as follows:

- 1) Perform complete cleanup (sections C1-C4, above) for the following buildings along Front Street:
  - a. **Brewery/Mill House** (6-story, iconic section of the Brewery)
  - b. **Office** (small area off the Brewery/Mill House)
  - c. **Stock Warehouse and Pump House** (4-story building attached to the Brewery)
  - d. **Wash House** (1.5-story building with large overhang, connected to the Stock Warehouse)  
(ESTIMATED COST: \$550,000)
  
- 2) If funding permits, proceed sequentially with complete cleanup of the following:
  - a. **Machine House** (connected to the east side of the Brewery/Mill House)  
(ESTIMATED COST: \$175,000)
  - b. **Boiler House** (connected to the east side of the Machine House)  
(ESTIMATED COST: \$175,000)
  - c. **Bottling Plant** (stand-alone building north of the others, along Front Street)  
(ESTIMATED COST: \$25,000)

This sequence was selected based on its ability to satisfy three main criteria:

- Cleaning up the most heavily affected and potentially hazardous areas first (based on both presence of hazardous materials and predicted exposure levels);
- Securing areas that have already been cleaned up to prevent future contamination/waste deposition and future access by transient populations; and
- Prioritizing cleanup in areas that are most likely to be visited by invited guests (e.g. granting agencies, environmental agencies, municipal officials, and prospective developers), thereby reducing risk of exposure to site visitors.

All three criteria are meant to be protective of human health and the environment to the greatest extent possible utilizing the funds available.

## D. REMEDIAL ALTERNATIVES ANALYSIS

The Cleanup Plan presented in Section C was prepared after consideration of various remedial alternatives had been completed. The five remedial alternatives considered were: 1) no action; 2) removal of hazardous waste only; 3) removal of all waste materials; 4) removal of all waste materials and abatement of all building materials; and 5) complete remediation including environmental media. The cost estimate for each alternative was based on budgetary numbers provided by a waste transportation and disposal contractor, and on Moonstone's familiarity with similar projects recently completed in the region. An evaluation of the remedial alternatives indicated that removal of all waste materials (Alternative 3) provided the best balance of financial feasibility, safety, and timeliness.

### D1. ALTERNATIVE 1: NO ACTION

Leaving the building in its current condition poses a threat to the environment and to human health. The Site contains several hazardous and potentially hazardous conditions: the presence of asbestos and unidentified waste, huge quantities of solid waste, structural failure of parts of the Site (e.g. roof and floor collapse), pigeon excreta, mold, etc. The "No Action" alternative was rejected based on its failure to remedy existing and potential environmental conditions at the Site.

*ESTIMATED COST: \$0*

### D2. ALTERNATIVE 2: REMOVAL OF HAZARDOUS WASTE ONLY

The removal of only hazardous waste (including containerized materials as well as friable asbestos) would not significantly improve the safety of the Site or mitigate the potential for environmental impacts to occur. The removal of only hazardous waste would not address safety issues created by the presence of solid waste piles, nor would it address the possibility that additional hazardous waste may be present under the solid waste piles. This alternative was rejected as being insufficiently aggressive in improving environmental conditions and safety at the Site.

*ESTIMATED COST: \$200,000-250,000*

#### D3. ALTERNATIVE 3: REMOVAL OF ALL WASTE

The removal of all waste will accomplish two main goals: 1) remove the overt safety hazards associated with solid waste piles and identified hazardous/potentially hazardous waste, and 2) remove the uncertainty around whether all hazardous and/or potentially hazardous materials have been removed. This alternative addresses the health threat posed by the presence of friable asbestos, containerized waste, and pigeon excreta, as well as the physical hazards associated with the piles of solid waste and the structural failures that may be masked by the piles (e.g., imminent floor collapse). This alternative is considered protective of human health and the environment, while being feasible within the time and budgetary constraints of the project. This alternative was selected as the most effective cleanup plan for the Site at this time.

*ESTIMATED COST: \$900,000-950,000*

#### D4. ALTERNATIVE 4: REMOVAL OF ALL WASTE & ABATEMENT OF BUILDING MATERIALS

The abatement of hazardous and/or potentially hazardous building materials such as lead-based paint and non-friable asbestos, performed in addition to removing all waste, would provide an additional measure of protection for human health and the environment. However, such abatement may involve damaging the building structures, potentially violating historic preservation mandates. In addition, the abatement of building materials can be better evaluated and managed once the final reuse for the Site is established (e.g., residential, non-residential, demolition). A comprehensive abatement of building materials is premature at this stage of redevelopment and was therefore rejected as a remedial alternative.

*ESTIMATED COST: \$1,200,000-1,400,000*

#### D5. ALTERNATIVE 5: COMPLETE REMEDIATION INCLUDING ENVIRONMENTAL MEDIA

Complete remediation of the Site is not appropriate at this time. Abatement of building materials is premature, as discussed above, and the remediation of environmental media such as soil and groundwater cannot be completed until further assessment has been performed to determine where remediation is required (if anywhere). The remediation of soil and groundwater can be better evaluated and managed once the final reuse for the Site is established (e.g., residential,

non-residential, demolition). The “Complete Remediation” option (including removal of all waste, abatement of all hazardous and/or potentially hazardous building materials, and remediation of environmental media) was rejected based on being premature at this stage of site assessment and redevelopment.

*ESTIMATED COST: \$1,500,000+*