



**STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION**



Connecticut Department of Environmental Protection
RCRA Corrective Action Program



RDMS DocID

108406

**STATEMENT OF BASIS
FOR A
CORRECTIVE ACTION COMPLETION DETERMINATION
FOR
ARCH CHEMICALS INC.
350 KNOTTER DRIVE
CHESHIRE, CT 06410**

EPA ID No. CTD980916779

Based upon investigation activities conducted at Arch Chemicals, Inc., located at 350 Knotter Drive in Cheshire, CT, the Connecticut Department of Protection (DEP) is announcing a Completion Determination remedy proposal that Corrective Action obligations under the Hazardous and Solid Waste Amendments of the Resource Conservation and Recovery Act are "complete without controls", and that no activities exist that require a hazardous waste management permit under the Resource Conservation and Recovery Act (RCRA), no waste management unit closure obligations remain or exist, and no remediation is needed.

INTRODUCTION

DEP is announcing its Completion Determination remedy proposal under the Hazardous and Solid Waste Amendments of the Resource Conservation and Recovery Act¹. This proposal states that Corrective Action obligations at Arch Chemicals Inc., located at 350 Knotter Drive in Cheshire, Connecticut [hereafter, "facility" or "site"] are complete. Investigation activities performed at the facility demonstrate that releases of hazardous constituents do not pose a threat to human health or the environment for the proposed risk exposure and current and future land use assumptions. DEP's proposed Completion Determination is based on the results of the investigation, closure, and reporting activities performed by the facility under the oversight of the DEP and Licensed Environmental Professional (LEP) Lawrence Hogan.

This document summarizes the regulatory status of the facility, the results of various investigations performed at the facility and reasons for proposing that a Completion without Controls determination is appropriate and protective of human health and the environment. DEP is publishing this document to provide the opportunity for public review and comment of this proposal. DEP will consider public comments as part of its decision making progress.

¹ "Completion Determination" is a regulatory phrase that refers to a final disposition of a facility subject to Corrective Action obligations under the Resource Conservation and Recovery Act. In this case, the Completion Determination proposed for the facility is one that is "complete without controls". More information on this category of Completion Determination can be found in the Federal Register notice entitled, Final Guidance on Completion of Corrective Action Activities at RCRA Facilities, 68 Fed. Reg. 8757 [Proposed Rule: Tuesday February 25, 2003]. This proposed rule is summarized on EPA's website at http://www.epa.gov/swefrfr/documents/guidance_on_completion_rcra.htm.

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This Statement of Basis is intended to:

- Explain the opportunities for public participation, including how the public may comment on this proposed Completion Determination and tentative permit application termination and where the public can find more detailed information;
- Provide a brief description and history of the facility;
- Present the principal findings of investigations and activities performed to date; and
- Present DEP's rationale for proposing that Corrective Action obligations under the Hazardous and Solid Waste Amendments of the Resource Conservation and Recovery Act are Complete without Controls for the proposed current and future land use of the site; and
- Present DEP's rationale for terminating the permit applications for the facility.

**THE PUBLIC'S ROLE IN EVALUATING THIS CORRECTIVE ACTION
PROPOSAL/RECOMMENDATION**

All interested parties are invited to express their views on this proposal. Public comment on all potential Corrective Action proposals or measures, and supporting information, is an important contribution to DEP's decision making/remedy selection process.

Public Comment Period

Written comments on this proposal will be accepted throughout a 45-day public comment period. The public comment period will last forty-five days [45] days from July 7, 2010 in order to provide an opportunity for public comment and involvement during the evaluation of this proposal. During this Public Comment period the public is invited to review this Statement of Basis and supporting information and to offer comments to DEP.

A final decision regarding this proposed completion determination will not be made until the public comment period has closed and all comments received by DEP have been evaluated and addressed. Based on any new information or comments from the public, DEP may modify its proposal.

Written Comments

If, after reviewing the information on the facility, you would like to comment in writing on this proposal, or on any other issues related to this proposal, you should mail your written comments [postmarked no later than August 20, 2010] to:

Sandy Brunelli
Remediation Division
Connecticut Department of Environmental Protection
79 Elm Street
Hartford, CT 06106-5127

Please be sure to clearly indicate that you are commenting on this proposal.

Questions may also be directed to Sandy Brunelli at (860) 424-3300 or sandy.brunelli@ct.gov.

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Response to Public Comments/Decision Making Process

Following a review of public comments, the Commissioner of DEP will decide whether to make the tentative determination a final determination. If the Commissioner makes a final determination that a hazardous waste management permit is not necessary for the facility because hazardous waste management activities have ceased and remediation is complete, then the facility is considered to have completed its requirements related to RCRA Closure, RCRA Corrective Action. The permit application, which has been withdrawn, will be considered terminated. The facility's interim status will then be terminated. Any future waste management activities at the facility are subject to applicable local, state, and federal requirements.

Likewise, DEP will not make a final decision regarding the proposed completion determination until the public comment period has closed and all received comments have been evaluated and addressed. Based on any new information or comments from the public, DEP may modify its proposal. A brief decision-making document (Decision Document) that responds to comments will be prepared by DEP in order to address all significant public comments received during the public comment period. If the comments are such that significant changes are made to the proposal, DEP will seek additional public comments on a revised proposal. If no comments are received that result in significant changes to this proposal, then because the facility is not requesting a permit or a modification to an existing permit, but is seeking to terminate all of its regulated activities that would ordinarily require a permit, DEP's final decision will be issued in a brief letter to the facility.

Additional Public Information

This Statement of Basis provides only a summary description of the investigation and activities performed at the facility. Therefore, the public is encouraged to consult the Administrative Record. As explained in more detail below, the Administrative Record is that collection of information [including data, reports, etc] that DEP relied upon for its proposed remedy decision. In this case, the Administrative Record contains this Statement of Basis, site assessments describing the facility's release and operational history, the results of the site investigation activities conducted under State regulation, and other facility documents which provide additional information regarding the work conducted at the facility.

The Administrative Record is available for review at the following locations:

Connecticut Department of Environmental Protection
79 Elm Street
Hartford, CT 06106-5127

The hours of the DEP record center are:

Tuesday - Thursday
9:00 AM to 11:45 AM
and
1:00 PM to 2:45 PM

And

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The Cheshire Public Library 104 Main Street, Cheshire, CT 06410
(203) 272-2245

The hours of the Cheshire Public Library are:
Monday-Thursday 9:30 a.m. - 9 p.m.
Friday-Saturday 9:30 a.m. - 5 p.m.
Closed Saturdays July through Labor Day

Internet Access: For convenience, this Statement of Basis may also be accessed on the DEP website at www.ct.gov/dep under the facility's name, Arch Chemicals Inc. or at the U.S. Environmental Protection's (EPA) Arch Chemical webpage: www.epa.gov/ne/rcra/arch.

BACKGROUND

The following information among other factors has been used as a basis for this Completion Determination remedy proposal and may be found in the Administrative Record at the locations listed above:

1. March 10, 1987 Initial RCRA hazardous waste notification for the facility;
2. March 10, 1987 Initial Part A of hazardous waste permit application;
3. November 8, 1988 Part B of permit application;
4. October 1999 Hazardous Waste Storage Area Closure Plan;
5. May 23, 2000 Property Transfer Act filing - Form III;
6. May 16, 2000 Environmental Condition Assessment Form;
7. July 31, 2000 Environmental Condition Assessment Form response;
8. March 2004 Verification Report;
9. Documentation related to the audit for LEP verification;
10. May 13, 2005 RCRA Closure Submittal;
11. September 28, 2005 letter from DEP releasing Arch from financial assurance for closure of the container storage area;
12. April 2007 Ecological Risk Assessment Work Plan;
13. August 10, 2007 Well Survey Addendum;
14. January 21, 2008 letter Re: Preliminary Response to EPA Comments on Ecological Risk Assessment;
15. July 1, 2008 Ecological Risk Assessment Work Plan;
16. November 5, 2008 letter Re: Comments on Ecological Risk Assessment Work Plan;
17. February 27, 2009 Ecological Risk Assessment Letter and Quality Assurance Project Plan;
18. March 20, 2009 Memorandum Re: Detention Basin Inspection;
19. May 8, 2009 CTDEP letter Re: Ecological Risk Assessment;
20. June 19, 2009 Form CA750 Environmental Indicator Determination, Migration of Contaminated Groundwater Under Control;
21. March 9, 2010 Ecological Risk Assessment Report;
22. March 22, 2010 letter Re: Corrective Action Requirements and Achievement of Interim Goals and RCRA Corrective Action Environmental Indicator Form CA725 Current Human Exposures Under Control.

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23. May 26, 2010 CTDEP letter Re: Comments on Ecological Risk Assessment, March 2010; and
24. June 21, 2010 Ecological Risk Assessment Report - Final.

FACILITY HISTORY

The facility, Arch Chemicals, Inc. (Arch) is located at 350 Knotter Drive in Cheshire, Connecticut (Figure 1, Site Locus). The site contains one building (Figure 2, Site Plan). The remainder of the site is paved, landscaped or undeveloped wetlands, woods and ponds. Groundwater flow direction at the site flows approximately south-southeasterly towards the Ten Mile River.

History of Ownership and Description of Operation

In accordance with the Resource Conservation and Recovery Act (RCRA), Arch submitted Part A of its hazardous waste permit application to operate a greater than 90-day hazardous storage area on March 10, 1987. On November 18, 1988 Arch submitted a Part B Permit Application to the EPA and DEP.

Prior to 1957, the Site and surrounding area was under agricultural use. The current site building was constructed in 1957. From 1957 to 1983 the facility property was owned by Siemens, a medical equipment manufacturing company. Arch/Olin Chemicals, Inc. (Olin) has used the facility as a research and development (R&D) laboratory facility since they acquired the facility in 1983. Arch was created in February 1999 as a separate entity comprising the former pool chemicals division of Olin. R&D work conducted by Arch/Olin concentrated on swimming pool chemicals, surfactants, liquid toners, urethane compounds, and biocide compounds. Project-specific specialty chemicals (e.g. propellants for explosives) have also been the subjects of R&D at the facility. Further information regarding site operations can be found in the March 2004 Verification Report.

The facility formerly contained an Interim Waste Storage (IWS) Unit. Arch operated this regulated unit under "interim status" as provided by 22a-449(c)-105 of the Regulations of Connecticut State Agencies and Section 3005 of RCRA. The IWS Unit was housed in a 575-square foot concrete and metal building with an eight-foot wide double door. The IWS Unit is on the eastern portion of the property. Wastes stored in the IWS Unit consisted of flammable liquids, acids, alkalis, mercury, and hazardous and non-hazardous solid wastes and liquids. The building is still present; however, it was decontaminated and was documented as a clean closure with no release to the environment identified.

Summary of Release History

A site wide evaluation of the facility was required under the Connecticut Transfer Act when the facility was divested from Olin Chemical to Arch Chemical in February of 1999 and a second Transfer Act requirement was triggered when the facility was sold to Winstanley Enterprises (Winstanley) on July 21, 2000. The Transfer Act assessment involved the collection of soil and groundwater samples from areas of concern (AOCs) located throughout the site to evaluate whether the site was in compliance with the Connecticut Remediation Standard Regulations (RSR) or if remediation to achieve RSR compliance

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would be required. The investigations completed indicated that the site met all applicable RSR soil and groundwater criteria with no restrictions to land use and no remediation was necessary.

On March 30, 2004, ENSR submitted a Verification Report to the DEP as required by the Connecticut Transfer Act to bring the investigation and demonstration of compliance with the RSRs of the facility to regulatory closure. The Verification Report was audited by DEP and on August 16, 2004 DEP issued a letter indicating that the Verification was acceptable. Further information regarding soil and groundwater conditions at the site can be found in the March 2004 Verification Report.

Abutting Land Uses

Abutting land use surrounding the site is Industrial. The Arch property is bounded to the north by the Atlantic Inertial Systems (AIS), to the northwest by the Pratt and Whitney Cheshire Engine Center, to the west and south by the Macy's/Bloomingtondale's catalog/storage facility, and to the southeast and east by the Ten Mile River. The Site is located in an area where groundwater is classified as GB, indicating that it is considered degraded and is not suitable for human consumption without treatment. The site and the surrounding industrial area are served by municipal water supplied by the Chesprocott Health District.

NATURE AND EXTENT OF CONTAMINATION

As described in the Verification Report (ENSR, 2004), groundwater and soil data collected between 1999 and 2003 show compliance with all applicable RSR criteria for the site. The total metals concentrations were compared to 20 times the GB Pollutant Mobility Criteria (GB PMC) in order to see if the concentrations detected could potentially exceed these criteria. Based on this comparison it was observed that lead and chromium could potentially exceed their respective GB PMCs. As a result, soil samples with levels of lead and chromium in excess of 20 times the GB PMC were submitted for synthetic precipitation leaching procedure (SPLP) extraction and analysis. The results for these samples were below detection limits for both metals. Therefore the Verification Report (ENSR, 2004) concluded that compliance with the GB PMC has been demonstrated for all metals detected at the site.

In groundwater, 1,1-dichloroethene and chloroform are the only volatile organic compounds (VOCs) that have ever shown an exceedance of an RSR criteria at the site. Both of these compounds exceeded the residential volatilization criteria (RVC) in the October 1999 sampling round in only one AOC but were below the industrial/commercial volatilization criteria (I/C VC). In all subsequent sampling rounds neither of these compounds exceeded the RVC. Lead and cadmium exceeded the Surface Water Protection Criteria (SWPC) in sampling rounds conducted by Goldberg Zoino Associates (GZA). The GZA samples were collected using bailers, which produce a silty sample. Four subsequent rounds collected by low flow techniques did not detect either metal. Cadmium exceeded the SWPC in February 2002 in a monitoring well located downgradient from the former swimming pool chemical test pools (GZ-7). This metal had not been detected previously in this well in the five prior rounds of sampling. Since there is a monitoring well downgradient of GZ-7 in which cadmium has not been detected in four sampling rounds the site data demonstrated that a cadmium plume that could reach surface water did not exist at the site; therefore, the SWPC does not apply to the GZ-7 cadmium data from February 2002. The Verification Report (ENSR, 2004) concluded that compliance with RSR criteria for groundwater at the site had been demonstrated and that remediation was not necessary. Site investigations have not identified evidence of VOCs in groundwater or soil that would be expected to be found in air. In addition,

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investigations have not identified a mobile plume that could impact surface water or sediment. Therefore, concentrations of soil, groundwater, surface soil and air are expected to be below appropriately protective risk-based "levels" for human health exposure that are provided in the RSR.

Ecological Risk Assessment

The EPA defines ecological risk assessment (ERA) as "A process that evaluates the likelihood that adverse ecological effects may occur or are occurring as a result of exposure to one or more stressors". The goal of this assessment is to determine if there may be a potential for an adverse ecological impact posed by past or present conditions at or surrounding the Arch facility.

On-site Habitat Description

Approximately 45 of the 75 total acres (60% of the property) are occupied by the building footprint, lawns, parking lot and service roads. The balance of the property, approximately 30 acres, is occupied by undeveloped wetlands, ponds, and wooded areas.

Potential ecological habitats located at or adjacent to the Arch Chemical property include: (1) maintained lawn areas, (2) adjacent upland wooded areas, (3) the Ten Mile River corridor, and (4) two large man-made impoundments located on-site. The surrounding ecological habitats appear to be in good condition and providing appropriate ecological functions. Further information on the ecological habitats and associated receptors is provided in the June 2010 Ecological Risk Assessment.

Off-site Habitat Description

The Arch facility is bordered on three sides by other industrial/commercial properties within the Cheshire Industrial Park and Knotter Drive. The general layout of the surrounding industrial park and flat elevation indicates that many of the facilities are located on historically-filled wetlands, with poor drainage, and residual wetland areas existing in the periphery of the developed areas. The general pattern of natural drainage is west to east, with several water channels arising in hills to the west and eventually flowing to the Ten Mile River.

Sensitive Species Review

A review of the CTDEP State and Federal Listed Species and Significant Natural Communities Map for the town of Cheshire indicated that the facility is approximately ½ mile upstream of a Natural Diversity Data Base (NDDB) Area of Concern. The NDDB indicated that four State Species of Special Concern may occur in the vicinity of the facility: eastern box turtle (*Terrapene carolina*), wood turtle (*Glyptemys insculpta*), eastern ribbon snake (*Thamnophis sauritus*), and hognose snake (*Heterodon platirhinos*). Additional habitat information was provided by a CTDEP wildlife biologist on May 11, 2007. It is possible that these species could be found within the wooded areas and riparian zones near the facility. However, no observations of these turtles or snakes have been noted.

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Potential Exposure Pathways

The exposure pathway is the link between the contamination and an ecological receptor. Thus, potential exposure pathways typically consist of contaminated media (surface soil, surface water, sediment, air) to which ecological receptors might be exposed during feeding, burrowing, or nesting.

The potentially complete exposure pathways at the site include the direct exposure of terrestrial receptors to surface soils and direct exposure of aquatic receptors to surface water. Since the historic soil data were collected from relatively deep horizons for compliance with the requirements of the Connecticut Transfer Act Site Investigation, Verification and RCRA Clean Closure they were not appropriate for use in the SLERA. Therefore, surface soil samples were collected in November 2009 from the 0 to 2 foot horizon at 11 site and 3 background locations.

There is no evidence of direct surface water discharges from the site to the detention basins or Ten Mile River. There is also no evidence of a mobile groundwater plume on-site that would discharge to a surface waterbody or wetland. The only historic surface water discharge was via the drainage swale which discharged into a wooded area behind the Arch facility. Once surface water discharged into the wooded area, it could infiltrate into groundwater and be discharged into a downgradient waterbody or wetland. In the absence of a direct surface water connection, historic on-site groundwater data were used to evaluate potential impacts to aquatic receptors. A dilution attenuation factor (DAF) was applied to the available groundwater data to represent surface water concentrations.

Previous investigations completed at the site did not identify a mobile plume that could impact surface water (see March 2004 Verification Report) and the EI for groundwater indicated that compliance with CT Remediation Standard Regulations (RSRs) for groundwater at the site had been demonstrated and that remediation was not necessary. Previous reports compared the groundwater data against the RSR Surface Water Protection Criteria (SWPC), which are criteria intended to protect the quality of a surface water body, wetland area, or intermittent stream to which a groundwater plume discharges (if present).

Ecological Risk Evaluation Conclusion

A screening level ecological risk assessment (SLERA) conducted at the site included evaluation of surface soil and groundwater. The SLERA was conducted to provide a conservative evaluation of potential ecological risks posed by site-related constituents as part of the site-wide RCRA Closure process. The results of the SLERA and subsequent refinement step indicate that exposure to site-related constituents in surface soil and surface water at the facility does not appear to pose a potential for significant risk to terrestrial invertebrates, plants or aquatic receptors. Based on this evaluation no further evaluation of potential ecological risks is warranted as part of the site-wide RCRA Closure process.

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DEP'S PROPOSAL

Based on the above information, DEP is proposing a Completion without Controls Determination for the facility. In accordance with the EPA guidance on Completion Determinations, DEP believes a Completion without Controls Determination is appropriate because:

1. There are no ongoing treatment, storage, or disposal activities at the site that require a permit,
2. All closure and post-closure requirements applicable at the previously identified regulated units have been fulfilled; and
3. All corrective action obligations, including implementation of long-term monitoring procedures, have been met.

Notwithstanding this Completion Determination, EPA or DEP may conclude additional cleanup is needed if, subsequent to this Completion Determination, EPA or DEP discovers evidence of unreported or misrepresented releases, *See* Corrective Action Completion Guidance I at 50197: Corrective Action Completion Guidance 2 at 9177 n156.

In summary, DEP, in coordination with EPA, and using all available information, is announcing its Corrective Action "Completion without Controls" Completion Determination proposal. Because investigations performed at the facility demonstrate that releases of hazardous constituents have naturally attenuated and do not pose a threat to human health or the environment and because the facility has attained all media protection and human health and environmental standards promulgated by the State of Connecticut for protection of human health, the public and the ecosystems, a Complete without Controls Determination is reasonable and appropriate.