*On this day, August XX, 2004,*
the U.S. Environmental Protection Agency
*Determines that the*

# *Arlington Blending & Packaging Superfund Site Is Ready for Recreational Reuse*

*Director, Waste Management Division*
*U.S. EPA Region 4*

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This Ready for Reuse (RfR) determination is for the 2.3-acre Arlington Blending & Packaging Superfund Site ("Site"). This RfR determination provides information that the U.S. Environmental Protection Agency (U.S. EPA) has made a technical determination that the Site, located in Arlington, Shelby County, TN, is ready for recreational use and the Site's remedy will remain protective of human health and the environment, subject to operation and maintenance of the remedy and the limitations as specified in the Record of Decision (ROD), the Explanation of Significant Differences (ESD), the ROD Amendment, and the Five-Year Review, which have been summarized in the attached report, Ready for Reuse determination, Arlington Blending and Packaging Superfund Site, August XX 2004. This RfR determination remains valid only as long as the requirements and use limitations specified in the ROD, ESD, ROD Amendment, and Five-Year Review are met.

Limitations on Site uses identified in the Five-Year Review include the following: institutional controls (in this instance, in the form of county regulations) preclude human exposure to the contaminated groundwater (for drinking purposes) at any point between the Site and the Loosahatchie River. All threats at the Site have been addressed through source control and implementation of institutional controls. The components of the remedy requiring ongoing operation and maintenance are: general maintenance of the Site (vegetative cover, monitoring wells, fence, etc.), mowing as needed (generally 4 to 6 times per year), annual fertilization, annual sampling of 11 groundwater monitoring wells screened within the surficial aquifer, semi-annual sampling of three surface water sampling locations in the Loosahatchie River, quarterly Site inspections, annual survey of new wells constructed in the vicinity of the Site, and annual reporting to U.S. EPA submitted in March of each year. Velsicol Chemical Corporation is responsible for the continuing operation and maintenance of the remedy at the Site.

This Ready for Reuse determination is an environmental status report and does not have any legally binding effect, nor does it expressly or implicitly create, expand, or limit any legal rights, obligations, responsibilities, expectations, or benefits of any party. U.S. EPA assumes no responsibility for reuse activities or for any possible or potential harm that might result from reuse activities. U.S. EPA retains any and all rights and authorities it has, including but not limited to legal, equitable, or administrative rights. U.S. EPA specifically retains any and all rights and authorities it has to conduct, direct, oversee, and/or require environmental response actions in connection with the Site, including instances when new or additional information has been discovered regarding the contamination or conditions at the Site that indicate that the remedy and/or the conditions at the Site are no longer protective of human health or the environment for the uses identified in the Ready for Reuse determination. Velsicol Chemical Corporation is responsible for ensuring that any limitations specified in the ROD, ESD, ROD Amendment, and the Five-Year Review that might be affected by a particular recreational use are complied with during the activity. The types of uses identified as protective in this RfR determination remain subject to (i) applicable federal, state, and local regulation, including, but not limited to, zoning ordinances and building codes, and to (ii) title documents, including, but not limited to, easements, restrictions, and institutional controls.

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## I. Executive Summary

*Property Description*

This Ready for Reuse determination (RfR determination) is for the Arlington Blending and Packaging ("ABAP") Superfund site ("Site") located in Arlington, Shelby County, Tennessee. The Site comprises tax parcels A014200331 and A014200332. The Site covers approximately 2.3 acres of the land area within these tax parcels.

*Purpose*

The conditions summarized in this RfR determination are based on limitations and requirements established in U.S. EPA decision documents for the Site including the Record of Decision (ROD), Explanation of Significant Differences (ESD), ROD Amendment, and Five-Year Review. U.S. EPA has made a technical determination that the Site, located in Arlington, Tennessee, is ready for recreational use and that the Site's remedy will remain protective of human health and the environment, subject to operation and maintenance of the remedy and the limitations identified below, as specified in the ROD, ESD, ROD Amendment, and Five-Year Review:

1. The Site is presently ready for recreational use, including recreational fields, playgrounds, off-leash dog areas, walking and biking trails (not to be used by motorized vehicles), an archery range, nature area/interpretive walking areas, a picnic area, and special events like concerts or festivals, subject to the conditions below. U.S. EPA remediated the soils in place at the site to residential standards.

2. Presently and for the foreseeable future, the Site's remedy will remain protective for the uses mentioned above. As stipulated in the Record of Decision and Five-Year Review, institutional controls (in this instance, in the form of county regulations) preclude human exposure to the contaminated groundwater (for drinking purposes) at any point between the Site and the Loosahatchie River, per the Rules and Regulations of Wells in Shelby County, Section 4.01 C (this Shelby County regulation is included, in full, in Appendix D of this RfR determination):

   > A water well cannot be sited or placed in service within a half-mile of the designated boundaries of a listed federal or State Superfund site or Resource Conservation and Recovery Act corrective action site, unless the well owner can make a demonstration that the well *will not* enhance the movement of contaminated groundwater or materials into the shallow or deep aquifer.

   All threats at the Site have been addressed through source control and implementation of institutional controls.

3. The components of the remedy requiring ongoing operation and maintenance are: general

maintenance of the Site (vegetative cover, monitoring wells, fence, etc.), mowing as needed (generally 4 to 6 times per year), annual fertilization, annual sampling of 11 groundwater monitoring wells screened within the surficial aquifer, semi-annual sampling of three surface water sampling locations in the Loosahatchie River, quarterly Site inspections, annual survey of new wells constructed in the vicinity of the Site, and annual reporting to U.S. EPA submitted in March of each year. Velsicol Chemical Corporation assumed management responsibilities for the Site and will be conducting the ongoing operation and maintenance activities to ensure that the Site remains protective of human health and the environment.

This RfR determination remains valid only as long as the requirements and use limitations specified in the ROD, ESD, ROD Amendment, and Five-Year Review continue to be met.

*Site Summary*

From 1971 to 1978 the ABAP operated as a pesticide formulation and packaging facility. ABAP blended technical grade pesticides with solvents and emulsifiers and packaged the products for client companies. During the company's operation, spills and leakage of products occurred, resulting in soil, ditch sediment, and groundwater contamination involving benzene; chlorodane; 1,1–dichloroethene (1,1–DCE); endrin; heptachlor epoxide; pentachlorophenol (PCP); toluene; and xylenes in the groundwater and chlordane, heptachlor, endrin, arsenic, heptachlor epoxide, and PCP in the soils. The areal extent of pesticide-contaminated soils with contaminants posing risks to human health and the environment is found primarily around the exterior and underneath the concrete flooring of the process buildings at a depth up to 12 feet.

U.S. EPA assessed the risks to human health and the environment resulting from contamination at the Site in the 1990 baseline risk assessment. During U.S. EPA's investigation of the Site in November 1990, an assessment was conducted of the human and environmental risks associated with: 1) children living on site and 2) future on-site workers. The potential risks that were identified were direct exposure to contaminated surface soils and ingestion of contaminated drinking water. The sum of the cancer risks posed by contaminants of concern to future on-site adult workers in areas found to contain "hot spots" (concentrated areas of soil contamination) was 1.1 X $10^{-4}$ (1.1 in 10,000), and the sum of cancer risks to children residing and playing on site was 1.1 X$10^{-3}$ (1.1 in 1,000). U.S. EPA set a cleanup level of 1 X $10^{-4}$ for areas within hot spots. The sum of non-cancer risks to children was 46. U.S. EPA considers any non-cancer risk greater than one to be unacceptable. Areas that were not hot spots exceeded cancer (1 X $10^{-6}$) and non-cancer risk levels.

U.S. EPA's Five-Year Review confirms the successful implementation of the remedy at the Arlington Blending & Packaging Site. Because the current remedy remains protective of human health and the environment, U.S. EPA asserts that all threats at the Site noted above have been addressed through source control and implementation of institutional controls.

As a result, U.S. EPA has determined that the unacceptable levels of risk to current and future

users of the Site have been abated. The Site is ready for recreational use and the Site's remedy will remain protective of human health and the environment, subject to operation and maintenance of the remedy and limitations as specified in the ROD, ESD, ROD Amendment, and Five-Year Review.

*Relevant Documents*

Documents pertaining to the ABAP Site and the RfR determination are part of the Administrative Record for the Site, which is available for review at the following address:

U.S. Environmental Protection Agency, Region 4
Sam Nunn Atlanta Federal Center
61 Forsyth Street, SW
Atlanta, GA 30303-3104

Additional information can be obtained from Derek Matory, the Site's Remedial Project Manager (RPM), who can be reached at (404) 562-8800 or matory.derek@epa.gov.

*Disclaimer*

The attached RfR determination is a technical document and an environmental status report that does not have any legally binding effect, nor does it expressly or implicitly create, expand, or limit any legal rights, obligations, responsibilities, expectations, or benefits of any party. U.S. EPA assumes no responsibility for reuse activities or for any possible or potential harm that might result from reuse activities. U.S. EPA retains any and all rights and authorities it has, including but not limited to legal, equitable, or administrative rights. U.S. EPA specifically retains any and all rights and authorities it has to conduct, direct, oversee, and/or require environmental response actions in connection with the Site, including instances when new or additional information has been discovered regarding the contamination or conditions at the Site that indicate that the remedy and/or the conditions at the Site are no longer protective of human health or the environment for the uses identified in the RfR determination. This RfR Determination remains valid only as long as the requirements and limitations specified in the ROD, ESD, ROD Amendment and Five-Year Review are met.

*Effective Date*

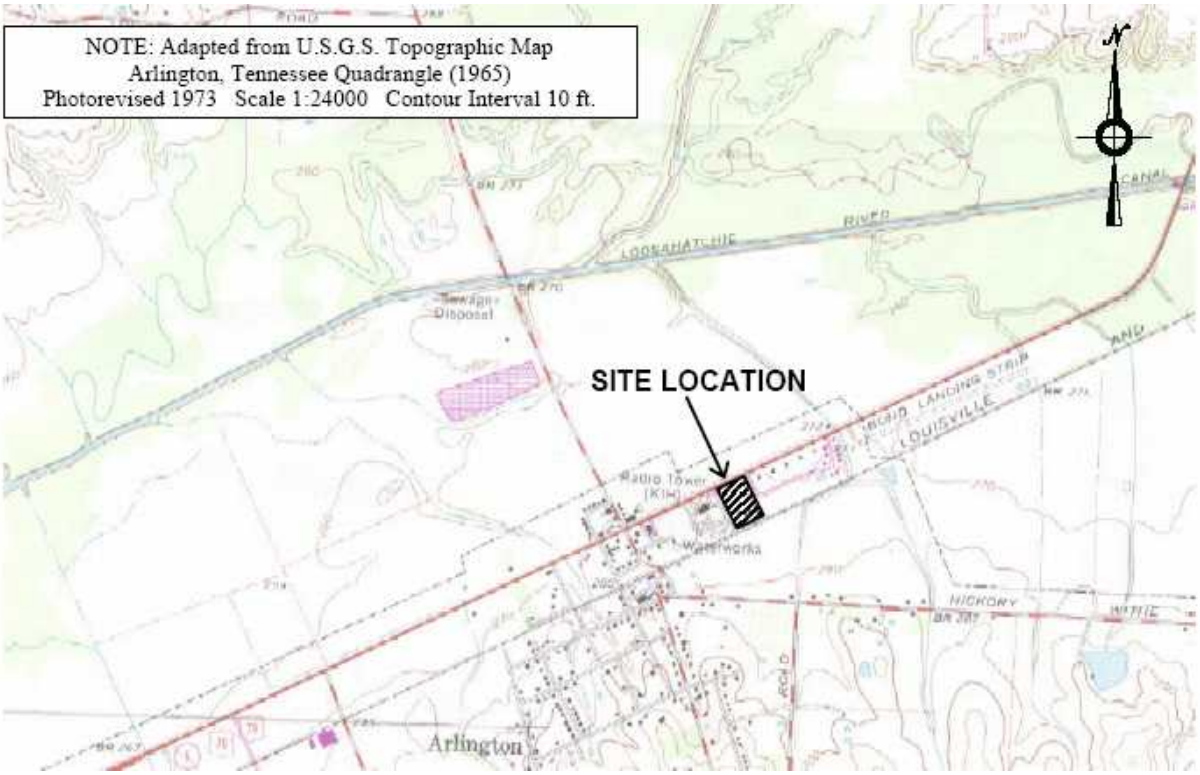
U.S. EPA Region 4 issued this Ready for Reuse determination, effective August XX, 2004.

By: _____
Winston A. Smith, Director
Waste Management Division

## II. Site and Parcel Location

The following text provides a geographical description of the Arlington and Blending Packaging Site in Arlington, Tennessee. Arlington is located 23 miles northeast from Memphis, Tennessee. The Site is bounded to the east by a residential housing subdivision, to the west by a Tennessee Department of Transportation (TDOT) maintenance facility, to the south by a CSX Transportation railroad, and to the north by U.S. Highway 70. The Loosahatchie River flows in a southwesterly direction approximately 3,000 feet due north of the Site. A turf farm is located between the Loosahatchie River and Highway 70. Former cropland, which is now transitioning to residential use, lies south of the CSX railroad. The Site encompasses 2.3 acres and the terrain across the Site is relatively flat.

**Exhibit 1.** Topographic Map of the Arlington Blending & Packing Site

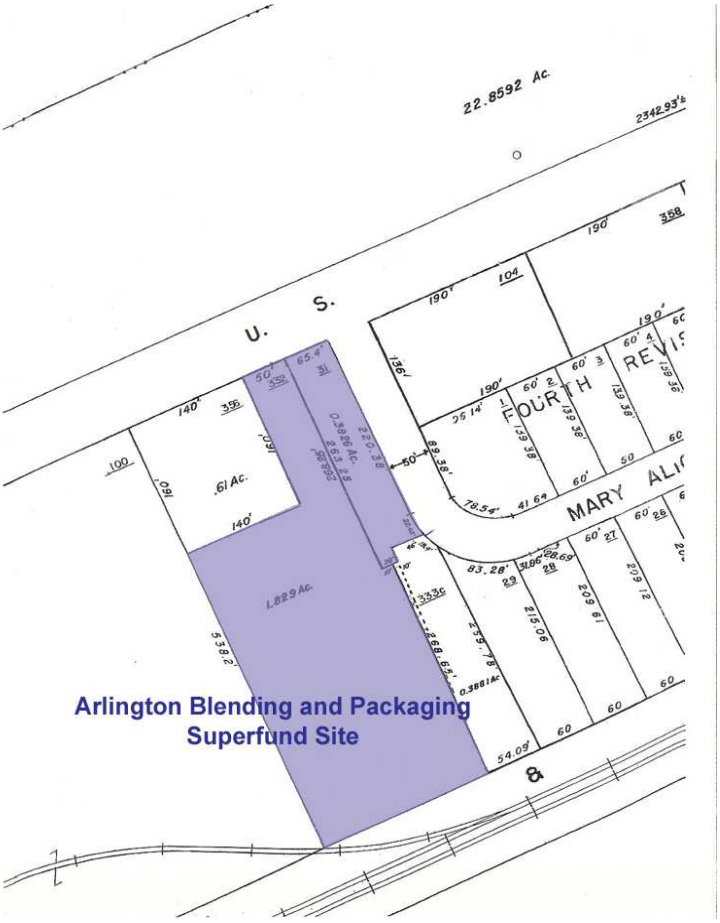



The topographic map presented in Exhibit 1 and the aerial photograph in Exhibit 2 show the location of the Site in relation to surrounding landmarks. The map was adapted from the Five-Year Review and was originally created by Memphis Environmental Center, Inc. The aerial photograph was adapted from a photograph provided by the Town of Arlington.

**Exhibit 2.** Aerial Photograph with Site Overlay


As shown in Exhibit 3, the Site comprises 2.3 acres of tax parcels A014200331 and A014200332, which are owned by Bell-Glover Properties. The parcel map in Exhibit 3 was adapted from a map provided by the Shelby County Assessor's Office.

**Exhibit 3.** Tax Parcel Map with Site Overlay




## III. Site Summary

*Site and Contaminant History*

From 1971 to 1978 the Arlington Blending & Packaging Company (ABAP) operated as a pesticide formulation and packaging facility. ABAP blended technical grade pesticides with solvents and emulsifiers and packaged the products for client companies. During the company's operation, spills and leakage of products occurred, resulting in soil, ditch sediment, and groundwater contamination.

The ROD identified several contaminants of concern (COCs) at the Site for both soil and ground

water derived from the creation of pesticides. The ground water is contaminated with benzene; chlorodane; 1,1–dichloroethene (1,1–DCE); endrin; heptachlor epoxide; pentachlorophenol (PCP); toluene; and xylenes. The soil COCs included chlordane, heptachlor, endrin, arsenic, heptachlor epoxide, and PCP. The areal extent of pesticide-contaminated soils with contaminants posing risks to human health and the environment is found primarily around the exterior and underneath the concrete flooring of the process buildings at a depth up to 12 feet.
Areas with the heaviest concentrations of contaminants are referred to as "hot spots."

The Mary Alice Drive subdivision is located adjacent to and due east of the Site property line. Approximately 44 families reside within the subdivision. The subdivision is not located within the path of the ground water that was contaminated from the activities at the Site. Potable water is provided to the subdivision by the City of Memphis water department.

Tax parcel A014200331 is currently zoned residential. Tax parcel A014200332 is currently zoned industrial.

**Exhibit 4.** Photographs of Site Showing Adjacent Land Uses

1) View of site looking south from U.S. 70

2) View of site looking south from front gate

*Description of Risks*

The health risks posed by the Site are primarily from direct exposure to surface soil and the ingestion of ground water beneath the Site. The major soil contaminants are not uniformly distributed over the site, but exist in hot spots of varying concentrations. The contaminants of concern found at the Site resulted from the creation of herbicides and pesticides, and include five pesticides, two solvents, and three inorganic contaminants – arsenic, chromium, and selenium. However, the chromium and selenium were determined to not be Site-related. Contaminants addressed by U.S. EPA, which include the five pesticides, two solvents, and arsenic, were evaluated under exposure pathways for both child residents and future adult workers.

The sum of cancer risks posed by contaminants of concern to future on-site adult workers in areas found to contain hot spots was 1.1 X $10^{-4}$ (1.1 in 10,000), and the sum of cancer risks to child residents were 1.1 X$10^{-3}$ (1.1 in 1,000). U.S. EPA set a cleanup level of 1 X $10^{-4}$ for areas within hot spots.

The sum of non-cancer risks to children was 46. U.S. EPA considers any non-cancer risk greater than one to be unacceptable.

Areas that were not hot spots exceeded cancer (1 X $10^{-6}$) and non-cancer risk levels.

Exhibit 5 shows the media, exposure pathways, and contaminants of concern for the Site under baseline conditions. Risks presented under baseline conditions are for the Site before it is remediated. Remedies are chosen to clean up sites to the levels tested under the exposure pathways. In the case of the Arlington Blending & Packaging, the exposure pathways are for residential use of the Site. Thus, the selected remedy requires that the site be cleaned to residential standards.

**Exhibit 5.** Possible Exposure Pathways Evaluated by the Risk Assessment for Human Health

| Media | Exposure Pathway | Contaminants Posing Unacceptable Risks in the 1994 BLRA |
|---|---|---|
| Air | None | None |
| Surface Soil | Dermal absorption of chemicals in surface soil; incidental ingestion of chemicals in surface soil | Chlordane, heptachlor, arsenic, and pentachlorophenol |
| Surface Water | Dermal absorption of chemicals in surface water; incidental ingestion of chemicals in surface water; ingestion of fish contaminated with chemicals from surface water | None |
| Sediment | Dermal absorption of chemicals in sediment; incidental ingestion of chemicals in sediment | Chlordane |
| Groundwater | Ingestion of contaminated groundwater | Benzene, chlordane, 1,1 – dichloroethene (1,1- DCE), endrin, heptachlor epoxide, pentachlorophenol (PCP), chromium, and selenium |

*Summary of Cleanup Activities*

Exhibit 6 shows a time line of U.S. EPA activities performed to date at the Arlington Blending & Packaging Superfund site.

**Exhibit 6.** Time Line of Regulatory Activities Performed to Date at the Arlington Blending & Packaging Site

| Date | Description of Activity |
|---|---|
| 1971-1978 | Arlington Blending and Packaging Site operated as a pesticide formulation facility |
| 05/1979 | U.S. EPA and Tennessee Department of Public Health (TDPH) Sample Site |
| 09/1980 | Site owner, William Bell, agrees in letter to TDPH to clean up site |
| 08/1983 | - New fence with lockable gate installed to protect site<br>- Adjacent lot to east of Site re-sodded<br>- Drainage ditches rerouted away from residential areas<br>- A vegetable garden located between Site and Mary Alice Drive was plowed under, the garden and surrounding areas were re-sodded |
| 10/1983 | U.S. EPA conducted an immediate removal activity by completely removing and disposing of all equipment, waste, and chemicals on site and much of the contaminated soil that remained. Excavation of soil was conducted to the point where only reasonably safe levels of pesticides remained. The area was backfilled with clean soil. The railroad spur leading onto the property was removed, the containment basins were drained and cleaned out and the site buildings were decontaminated. |
| 07/1987 | Site placed on National Priorities List (NPL) |
| 11/1990 | Remedial Investigation (RI) completed by U.S. EPA |
| 01/1991 | Feasibility Study (FS) completed by U.S. EPA |
| 06/1991 | Record of Decision (ROD) executed by U.S. EPA |
| 11/1994 | Explanation of Significant Differences approved by U.S. EPA |
| 01/1995 | Soil Remedial Design Report submitted to U.S. EPA |
| 07/1997 | Modified ROD signed by U.S. EPA. Groundwater remedy modified from pump and treat to monitored natural attenuation |
| 09/1997 | Remedial action report approved by U.S. EPA |
| 06/1998 | Long-Term Monitoring and Maintenance Plan approved by U.S. EPA |
| 09/2002 | Five-Year Review completed by U.S. EPA |

Removal Activities

In October 1983, U.S. EPA conducted a removal action in which 1,920 cubic yards of

contaminated soil were excavated from three locations: (1) south of Buildings E and G (both buildings since demolished) along the area of a former railroad spur located along the southern portion of the Site to a depth of four feet, (2) along the fence line separating the TDOT and the Site to a depth of 18 inches, and (3) the southern third of the garden area to a depth of one foot. Additionally, 112 drums of stored chemical wastes and approximately six inches of soil were removed from the entire Site.

In 1990, U.S. EPA conducted further removal activities in which approximately 70 cubic yards of soil were removed from the residential property located east of the Site. The soil removed was stockpiled in building H and treated along with other contaminated Site soils during the remedial action. In 1993, all Site buildings were demolished and removed except Building H, which was later removed as part of the Site Remedial Action in 1996.

Remedial Activities

The following cleanup activities were performed for the remediation of the Site.

1. The soil remedial action consisted of excavation, stockpiling, treatment, and backfilling of over 41,000 tons of contaminated soil. Contaminated soils were treated using an onsite low temperature thermal desorption system. A total of 88 pounds of contaminants were left in place near the south side of the site and 172 pounds of contaminants were left in place near the railroad. The contaminants were left in place due to excavation difficulties associated with the water table and a mandatory 1:1 slope required near railroads, respectively. These excavations removed more than 91.4 percent of contamination identified in Site soils and were undertaken, primarily, to protect ground water from leaching source soils.
2. U.S. EPA modified the groundwater remedy from pump and treat technology required in the ROD to monitored natural attenuation. The modification was formalized in an Amended ROD completed in July 1997. The decision to evaluate natural attenuation was primarily based on observed decreasing contaminant trends and the recent removal of over 90 percent of the source contamination.
3. Institutional controls (in this instance, in the form of county regulations) preclude human exposure to the contaminated ground water (for drinking purposes) at any point between the Site and the Loosahatchie River, per the Rules and Regulations of Wells in Shelby County, Section 4.01 C. Current monitoring data indicate the remedy is functioning as required to achieve groundwater cleanup goals within the next 25 years.

The Arlington Blending Site Group (ABSG), a group formed by the Site's potentially responsible parties (PRPs) to remediate the Site, initiated remedial actions relating to the soil remedy in July 1995. The soil remedial action was completed with the approval of the Remedial Action Report (RAR) on September 29, 1997. After the completion of the soil remedial action, the ABSG dissolved. Through various settlement agreements, Velsicol Chemical Corporation (Velsicol) assumed management responsibilities for the Site.

All threats at the Site have been addressed through source control and implementation of institutional controls.

*Redevelopment/Reuse History*

The Site is currently not in use. Most of the Site has been idle since the closing of the pesticide formulation facility.

## IV. U.S. EPA's Basis for Ready for Reuse Determination (RfR Determination)

The Arlington Blending & Packaging Superfund Site RfR determination is based on U.S. EPA documents produced during the course of the Site's remedial activities. These documents provide evidence that the Site is ready for recreational use and that the Site's remedy will remain protective of human health and the environment, subject to operation and maintenance of the remedy and limitations as specified in the ROD, ROD Amendment, ESD, and Five-Year Review. The RfR determination is based primarily on the Five-Year Review completed in September of 2002. Additional documents providing information about the Site's remedy, operation and maintenance requirements, and limitations include: the Record of Decision, Explanation of Significant Differences, Record of Decision Amendment, and Remedial Action Report. These reports can be found in the Site's Administrative Record, which is available for review at the Region 4 administrative library in Atlanta Georgia. The Five-Year Review can be found in Appendix C of this RfR determination.

The objectives for the remedial action were as follows:

1. Reduce the risks associated with long-term exposure to contaminated on-site and off-site soils;
2. Prevent future ingestion of potentially contaminated groundwater;
3. Reduce migration of contaminants between site soils and groundwater;
4. Restore groundwater in the Unit 2 aquifer to drinking water quality; and
5. Reduce off-site contaminant migration through the groundwater pathway.

The baseline risk assessment analyzed the risks associated with direct exposure to contaminated surface soils and ingestion of contaminated drinking water by children and adults in a residential setting. U.S. EPA's Five-Year Review confirms the successful implementation of the remedy at the Arlington Blending & Packaging Site. In the Five-Year Review report, U.S. EPA asserts that:

> "...the current remedy remains protective of human health and the environment. The remedy is expected to be protective of human health and the environment upon attainment of the groundwater cleanup goals via natural attenuation, which is expected to require 25 years to achieve. Previous remedial actions at the Site have removed the majority of the source through excavation and treatment using low-temperature thermal desorption. The surficial aquifer has been determined to be hydraulically isolated from the Memphis Sand Aquifer located below it. No measurable impact to the Loosahatchie River has been

observed. Contaminant concentrations demonstrate a decreasing trend over time and PCP attenuation rates are progressing at a greater rate than model-predicted rates. Institutional controls (in this instance, in the form of county regulations) preclude human exposure to the contaminated groundwater (for drinking purposes) at any point between the Site and the Loosahatchie River. All threats at the Site have been addressed through source control and implementation of institutional controls."

## V. Ongoing Limitations and Responsibilities Previously Established by U.S. EPA

*Engineering and Institutional Controls*

The ROD for the Site requires that institutional controls be provided and maintained to restrict access to those portions of the aquifer which remain above health-based levels. According to the Five-Year Review, institutional controls (in this instance, in the form of county regulations) preclude human exposure to the contaminated groundwater (for drinking purposes) at any point between the Site and the Loosahatchie River. Rules and Regulations of Wells in Shelby County, Section 4.01 C stipulates that:

> A water well cannot be sited or placed in service within a half-mile of the designated boundaries of a listed federal or State Superfund site or Resource Conservation and Recovery Act corrective action site, unless the well owner can make a demonstration that the well *will not* enhance the movement of contaminated groundwater or materials into the shallow or deep aquifer.

This Shelby County regulation is included, in full, in Appendix D of this RfR determination.

*Operation and Maintenance Requirements*

Operation and maintenance activities are designed to ensure that the remedy is operating and continues to operate properly. The components of the remedy requiring ongoing operation and maintenance are the vegetative cover, monitoring wells, and fence.

At the time of the Five-Year Review, four years of Site operation and maintenance (O&M) activities were complete (i.e., 1998, 1999, 2000, and 2001). According to the Five-Year Review, the O&M activities at the Site are being conducted in accordance with the approved Long-Term Monitoring and Maintenance Plan (LTMM). The activities being conducted are summarized as follows:

- General maintenance of the Site (vegetative cover, monitoring wells, fence, etc.)
- Mowing as needed – generally 4 to 6 times per year
- Fertilize annually
- Annual sampling of 11 groundwater monitoring wells screened within the surficial aquifer
- Semi-annual sampling of three surface water sampling locations in the Loosahatchie River
- Quarterly Site inspections

- Initial annual sampling of municipal supply well, discontinued in 2000 when wells no longer used by City of Arlington
- Annual survey of new wells constructed in the vicinity of the Site
- Annual reporting to U.S. EPA submitted in March of each year

Velsicol Chemical Corporation is responsible for continuing operation and maintenance of the remedy at the Site. Specific information relating to ongoing operation and maintenance activities can be found in the annual reports.

Reviews will be performed at the Site every five years to ensure that the remedy remains protective of human health and the environment. The first report was conducted in July 2002 and issued in September 2002. U.S. EPA will conduct the next Five-Year Review in July 2007.

## VI. Provisos

This RfR determination is an environmental status report and does not have any legally binding effect, nor does it expressly or implicitly create, expand, or limit any legal rights, obligations, responsibilities, expectations, or benefits of any party. U.S. EPA assumes no responsibility for reuse activities or for any possible or potential harm that might result from reuse activities. U.S. EPA retains any and all rights and authorities it has, including but not limited to legal, equitable, or administrative rights. U.S. EPA specifically retains any and all rights and authorities it has to conduct, direct, oversee, and/or require environmental response actions in connection with the Site, including instances when new or additional information has been discovered regarding the contamination or conditions at the Site that indicate that the remedy and/or the conditions at the Site are no longer protective of human health or the environment for the uses identified in the RfR determination.

This RfR determination remains valid only as long as the requirements and limitations specified in the ROD, ESD, ROD Amendment and Five-Year Review are met.

The types of uses identified as protective in this RfR determination remain subject to (i) applicable federal, state, and local regulation, including, but not limited to, zoning ordinances and building codes, and to (ii) title documents, including, but not limited to, easements, restrictions, and institutional controls.

**APPENDIX A**

# ABBREVIATIONS AND ACRONYMS

**ABAP -** Arlington Blending and Packaging
**ABSG -** Arlington Blending Site Group
**AR**- Administrative Record
**BLRA/BRA -** Baseline Risk Assessment
**CC** - Construction Completion
**CERCLA** - Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (Superfund)
**CERCLIS** - Comprehensive Environmental Response, Compensation, and Liability Information System
**COC -** Contaminant of Concern
**DCE** - 1-1-Dichloroethene
**ELCR** - Excess Lifetime Cancer Risks
**ESD** - Explanation of Significant Differences
**ESI -** Expanded Site Inspection
**FCOR -** Final Close Out Report
**GIS** - Geographic Information System
**HRS** - Hazard Ranking System
**LTMM -** Long-Term Monitoring and Maintenance Plan
**NOID** - Notice of Intent to Delete
**NOD** - Notice of Deletion
**NPL** - (N)ational (P)riorities (L)ist of Superfund Hazardous Waste Sites
**O&M** - Operations and Maintenance
**OSRTI** - Office of Superfund Remediation and Technological Innovation
**OU** - Operable Unit
**OSWER** - Office of Solid Waste and Emergency Response
**PA -** Preliminary Assessment
**PCOR -** Preliminary Close Out Report
**PCP -** Pentachlorophenol
**PHA** - Public Health Assessment
**PRP** - Potentially Responsible Party
**RA** - Remedial Action
**RAR** - Remedial Action Report
**RD -** Remedial Design
**RfR** - Ready for Reuse determination
**RI/FS** - Remedial Investigation/Feasibility Study
**ROD** - Record of Decision
**RPM** - Remedial Project Manager
**SARA** - Superfund Amendments and Reauthorization Act of 1986
**SI -** Site Inspection
**SRI** - Superfund Redevelopment Initiative
**TDOT -** Tennessee Department of Transportation
**TDPH** - Tennessee Department of Public Health
**TSDF** - Treatment, Storage, and Disposal Facility
**U.S. EPA** - United States Environmental Protection Agency

## APPENDIX B

# GLOSSARY

Baseline Risk Assessment (BLRA): A qualitative and quantitative evaluation of the risk posed to human health and/or the environment by the actual or potential presence and/or use of specific pollutants. A risk assessment characterizes the current or potential threat to public health and the environment that may be posed by chemicals originating at or migrating from a contaminated site.

Carcinogenic: A carcinogenic chemical is one which is believed to be capable of causing cancer.

Close Out report: A report submitted by the Remedial Program Manager (RPM) verifying that the conditions of the site comply with the Record of Decision (ROD) findings and design specifications and that activities performed at the site are sufficient to achieve protection of public health and the environment. This is a Remedial Action (RA) or ROD sub-event.

Construction Completion (CC): The Construction Completion List is a compilation of sites presently or formerly on the NPL. Sites qualify for the Construction Completion List when: any necessary physical construction is complete; U.S. EPA has determined that the response action should be limited to measures that do not involve construction; or the site qualifies for deletion from the NPL.

Deed restrictions: Restrictions placed within a deed that control the use of the property. Restrictions travel with the deed, and cannot generally be removed by new owners.

Dermal absorption: Absorption through the skin.

Discovery: The process by which a potential hazardous waste site is brought to the attention of the U.S. EPA. The process can occur through the use of several mechanisms such as a phone call or referral by another government agency.

Ecological risk assessment: Assessment of the risks posed by the site to ecological receptors.

Engineering controls: Engineering controls eliminate or reduce exposure to a chemical or physical hazard through the use or substitution of engineered machinery or equipment. An example of an engineering control is a protective cover over waste left on site.

Expanded Site Inspection (ESI): Functions performed to collect additional data, beyond that required for Hazard Ranking System scoring, in order to expedite the Remedial Investigation/Feasibility Study (RI/FS) project planning phase for National Priorities List (NPL) sites. The site inspection focus on pathways and receptors has been expanded to include site and source characterization. The information facilitates the development of RI/FS workplan, and sampling and analysis plan.

Explanation of Significant Differences (ESD): A significant change to a Record of Decision (ROD) that does not fundamentally alter the remedy. An ESD may be initiated by U.S. EPA.

Exposure pathways: Exposure pathways are means by which contaminants can reach populations of people, plants, or animals. Exposure pathways include groundwater, surface water, soil, and air.

Feasibility Study (FS): A study of a hazardous waste site intended to (1) evaluate alternative remedial actions from technical, environmental, and cost-effectiveness perspectives; (2) recommend the cost-effective remedial action; and (3) prepare a conceptual design, a cost estimate for budgetary purposes, and a preliminary construction

schedule.

Fugitive landfill gas: Gas is formed in landfills that could reasonably pass through a stack, chimney, vent, or other functionally equivalent opening.

Hazard Index (HI): The sum of hazard quotients for substances that affect the same target organ or organ system. Because different pollutants may cause similar adverse health effects, it is often appropriate to combine hazard quotients associated with different substances. As with the hazard quotient, aggregate exposures below a HI of 1.0 will likely not result in adverse non-cancer health effects over a lifetime of exposure.

Hazard Ranking System (HRS) Scoring: The HRS is a screening mechanism used to place sites on the NPL. In order for a site to be listed, it must have: 1) contaminants listed on U.S. EPA's Target Compound List of sufficient concentration to warrant concern; 2) a sensitive receptor population that would be negatively affected by the contaminants; and 3) pathways of exposure that would introduce the contaminant into the sensitive receptor population. Theoretically, a site meeting these conditions would score 28.5 or higher on the HRS, the threshold for placement on the NPL. The report detailing the findings of the scoring is referred to as the *HRS Scoring Package*.

Institutional controls: Institutional controls (ICs) are non-engineered instruments, such as administrative and/or legal controls, that help minimize the potential for human exposure to contamination and/or protect the integrity of a remedy by limiting land or resource use.

National Priorities List (NPL): Sites are listed on the National Priorities List (NPL) upon completion of Hazard Ranking System (HRS) screening, public solicitation of comments about the proposed site, and consideration of all comments. The NPL primarily serves as an information and management tool. The identification of a site for the NPL is intended primarily to guide U.S. EPA in: determining which sites warrant further investigation to assess the nature and extent of the human health and environmental risks associated with a site; identifying what CERCLA-financed remedial actions may be appropriate; notifying the public of sites U.S. EPA believes warrant further investigation; and serving notice to potentially responsible parties that U.S. EPA may initiate CERCLA-financed remedial action.

Notice of Deletion (NOD): Notification of a site's deletion from the National Priorities List, published in the *Federal Register.*

Notice of Intent to Delete (NOID): Notification of EPA's intention to delete a site from the National Priorities List (NPL), published in both the *Federal Register* and a newspaper of record.

NPL site deletions: With state concurrence, the U.S. EPA determines when no further response is required at a site to protect human health or the environment. U.S. EPA approves a close out report verifying that response actions have been taken or that no action is required. U.S. EPA then publishes a deletion notice in the *Federal Register*.

NPL site listing process: The NPL is a list of the most serious sites identified for possible long-term remediation. A proposed NPL site is listed when U.S. EPA issues a final rule in the *Federal Register*, which enables U.S. EPA to use federal monies to pay for long-term remedial actions. U.S. EPA issues a proposed rule in the *Federal Register* to solicit comments on proposed NPL sites. U.S. EPA responds to comments and adds sites to the NPL that continue to meet requirements for listing.

Operation and Maintenance (O&M): O&M activities are conducted after remedial actions are complete in order to ensure that remedies are operational and effective.

Potentially Responsible Parties (PRPs): The Superfund law (CERCLA) allows U.S. EPA to respond to releases or threatened releases of hazardous substances into the environment. Under CERCLA, potentially responsible parties (PRPs) are expected to conduct or pay for the cleanup. The Superfund enforcement program identifies the PRPs at

the site; negotiates with PRPs to do the cleanup; and recovers from PRPs the costs spent by U.S. EPA at Superfund cleanups.

Preliminary Assessment (PA): Preliminary assessments are investigations of site conditions to ascertain the source, nature, extent, and magnitude of the contamination.

Preliminary Close Out Report (PCOR): A precursor to the Final Close Out Report, it is a report submitted by the Remedial Project Manager (RPM) verifying that the conditions of the site comply with the Record of Decision (ROD) findings and design specifications and that activities performed at the site are sufficient to achieve protection of public health and the environment.

Remedial Action (RA): The implementation of a permanent resolution to address a release or potential release of a hazardous substance from a site.

Remedial Design (RD): The process of fully detailing and specifying the selected remedy identified in the Record of Decision.

Remedial Investigation (RI): An investigation intended to gather the data necessary to: (1) determine the nature and extent of problems at the site; ( 2) establish cleanup criteria for the site; (3) identify preliminary alternative remedial actions; and (4) support the technical and cost analyses of the alternatives.

Record of Decision (ROD): The ROD documents the cleanup alternatives that will be used at NPL sites, and the supporting analyses.

Restrictive covenants: Restrictive covenants are deed restrictions that apply to a specific real estate parcel.

Site Inspection (SI): The process of collecting site data and samples to characterize the severity of the hazard for the hazard ranking score and/or enforcement support.

**APPENDIX C**

# *FIVE-YEAR REVIEW FOR THE ARLINGTON BLENDING AND PACKAGING SITE*

**APPENDIX D**

# *RULES AND REGULATIONS OF WELLS IN SHELBY COUNTY*