KENNETH J. SNOW, P.E., LSP

12 Graystone Way
Southborough, MA 01772
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May 11, 2006

Mr. Peter McMurray, Chair
Ashby Board of Selectmen
Town Hall
895 Main Street
Ashby, MA 01431

RE: Public Involvement Activities Notification Per MCP 310 CMR 40.1400
Response Action Outcome Statement
First Congregational Charron Property
873 Main Street
Ashby, MA 01540
DEP Release Tracking Number 2-13975 & 2-14021

Dear City Official:

A release of petroleum constituents has occurred at the above-referenced location, and cleanup activities and other response actions have been completed per M.G.L. c. 21E and the Department of Environmental Protection's Massachusetts Contingency Plan (310 CMR 40.0000).

It is the opinion of Kenneth J. Snow, Licensed Site Professional (LSP), that a level of No Significant Risk and a Class A Response Action Outcome have been achieved, and that no further actions are required.

Parties interested in reviewing the RAO Statement and supporting information should send a written request to **DEP Northeast Regional Office, Bureau of Waste Site Cleanup, One Winter Street, Ninth Floor, Boston, MA 02108** or call DEP's office at **(617) 654-6500**.

Sincerely,

Kenneth J. Snow, P.E., LSP

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Mary Krapf, Chair
Ashby Board of Health
Town Hall
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RESPONSE ACTION OUTCOME STATEMENT

Charron Property
873 Main Street
Ashby, Massachusetts 01540

RTN 2-13975 & 2-14021

Prepared By:

Kenneth J. Snow, P.E., LSP
12 Graystone Way
Southborough, MA 01772

May 11, 2006

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Charron Property
873 Main Street
Ashby, Massachusetts 01540

RTN 2-13975 & 2-14021

1.0 GENERAL

1.1 Identification of Parties

Party Assuming Responsibility for the Release and Property Owner:

Charron Property
873 Main Street
Ashby, Massachusetts 01540

Contact: Ms. Joan Charron
875 John Fitch Hwy, Unit 51
Fitchburg, MA 01420
978-343-9998

Licensed Site Professional:

Kenneth J. Snow, P.E., LSP
12 Graystone Way
Southborough, Massachusetts 01772
LSP No. 3266

Phone: 508-370-0272

1.2 Introduction and Background

This Response Action Outcome (RAO) and supporting documentation has been prepared by Kenneth J. Snow, P.E., and Licensed Site Professional (LSP). During a subsurface investigation related to the potential sale of the Charron Property located at 873 Main Street, Ashby, MA (Site), a release of petroleum was identified. The release was likely gasoline that occurred as a result of leaking underground storage tanks at a former service station located

on the property. Release Tracking Nos. 2-13975 & 2-14021 were assigned. The following is a summary of activities conducted by others:

1. May 14, 2001 – A subsurface investigation by AJS Environmental, Inc. (AJS) for property transaction identified soil and groundwater was impacted by petroleum. Charron obtained knowledge of the release on May 28, 2001.
2. August 27, 2001 – A Release Notification Form (RTN 2-13975) and Release Abatement Measure Plan was submitted by AJS to the DEP.
3. October 2, 2001 – A new release (RTN 2-14021) associated with a gasoline UST discovered during RAM activities being conducted by AJS was reported to DEP.
4. April 27, 2004 – Letter sent to DEP by AJS linking RTNs.
5. October 18, 2004 – A Phase I & Tier Classification, IRA Status Report, and a RAM Completion Report were submitted by AJS to the DEP.
6. February 2005 – The site designated as a Public Involvement Plan site.
7. Various dates – LA Associates (LAA) became the consultant on the project. LAA collected groundwater samples during several sampling events.

Kenneth J. Snow, P.E., LSP (Snow) was retained by Charron in March 2006 to complete response actions because sufficient progress was not occurring in accordance with the Massachusetts Contingency Plan (MCP). Snow's activities included review of documents and submittals prepared by AJS and laboratory data obtained from ground water sampling and analysis conducted by LAA. Snow conducted additional ground water sampling and analysis, retained LaGoy Risk Analysis, Inc. to prepare a Method 3 Risk Characterization, and prepared this Response Action Outcome (RAO) submittal.

Figure 1 displays the regional location of the site. **Figures 2,** Site Plan, indicates the pertinent site features, area of excavation, and RAO area for RTN 2-13975 & 2-14021.

Response actions for the release of petroleum comprised of UST removal and soil excavation, and subsurface investigations have been conducted by the responsible party culminating in the achievement of a condition of no significant risk of harm to health, public welfare, safety, and the environment (No Significant Risk). This RAO Statement is being submitted in accordance with the Massachusetts Contingency Plan (MCP or 310 CMR 40.0000). A copy of the DEP Transmittal Form BWSC-104 is included in **Appendix A.**

The RAO is supported by a Method 3 Risk Characterization conducted by LaGoy Risk Analysis, Inc and is presented in **Appendix B.** The purpose of the risk characterization is to

evaluate and characterize the potential risk of harm to human health, public welfare, safety, and the environment which may be posed by contaminants detected at the site. This risk characterization was conducted in accordance with the requirements outlined in the MCP, 310 CMR 40.0900, and is based on both current and reasonably foreseeable site use and conditions.

Accordingly, it is the opinion of the LSP that no further response actions (associated with RTN 2-13975 & 2-14021) are necessary at the site. Based on the response actions conducted to date and the current site conditions, it is the opinion of the LSP that the requirements of a **Class A-2 RAO** have been met. This Risk Characterization and RAO apply to the entire disposal site identified as DEP RTN 2-13975 & 2-14021 and as shown in **Figure 2**.

2.0 SITE DESCRIPTION AND CHARACTERISTICS

2.1 Property Description

The site is located at 873 Main Street, Ashby, Massachusetts (property or site), which is the Charron Property. Please refer to **Figure 1** for a locus map of the property. The property houses a 2-story wood building currently occupied by an insurance agency with asphalt paved parking covering the Site and extending around the building. The approximate UTM coordinates for this Site are 47 28 905N/26 87 91E. The Charron Property slopes from Main Street down to the north. Please refer to **Figure 2** for a depiction of the layout of the property at the location of the release.

The disposal site is within the property boundaries of 873 Main Street. The leaching area for the Charron Property's subsurface disposal system is assumed to be to the east of the building based on the location of the septic system manhole cover.

The nearest surface water body is an unnamed tributary of Trapfall Brook. This tributary starts at a pond west of the site on Main Street, flows in an easterly direction south of the site, before turning north and passing east of the site to join with another tributary and then to flow east to Trapfall Brook. The brook is approximately 700 feet west of the site, 1000 feet south of the site, and 1000 feet east of the site.

2.2 Description of Release and Notification

As part of preparation for sale of the property, Charron retained an excavation company to remove underground storage tanks (USTs) located in the southern porting of the property between the building and Main Street. The tanks were reported to have been removed in 1987. In May 2001, Charron retained the services of AJS Environmental, Inc. (AJS) to conduct a subsurface investigation consisting of soil boring installation and monitoring wells. Borings AJS-1 through AJS-4 were installed and converted to monitoring wells. **Figure 2** identifies the location of the monitoring wells. Soil and ground water samples identified concentrations of petroleum constituents found in gasoline in excess of Reportable Concentrations. Details and data are presented in the previously submitted Phase I Report prepared by AJS dated October 18, 2004.

2.3 Surrounding Properties

The surrounding properties are residential and institutional. Single family residences are located to the south of the site across Main Street. Also to the south are the Ashby Market, a Verizon office and the Ashby Public Library. To the west of the property are the Ashby Town Offices and Police Department beyond which is the Ashby Elementary School. To the east of the Sited is the United States Postal Service office. To the north of the property is an undeveloped lot owned by the Town.

2.4 Identification of Applicable Soil and Groundwater Categories

A description of soil and groundwater categories is included in the following Table 1.

TABLE

Description of Soil and Groundwater Categories

Media	Category	Description
Soil	S-1	• Accessible with high frequency use by children or low frequency and high intensity use by children • Accessible with high frequency and high intensity use by adults • Potentially accessible with high frequency and high intensity use by children • Where current or reasonably foreseeable use is for growing fruits and vegetables for human consumption
Soil	S-2	• Accessible with low frequency and low intensity use by children • Accessible with high frequency and low intensity use by adults or accessible with low frequency and high intensity use by adults • Potentially accessible with high frequency and low intensity or low frequency and high intensity use by children • Potentially accessible with high frequency and high intensity use by adults
Soil	S-3	• Accessible with low frequency and low intensity use by adults • Potentially accessible with no children present and low frequency or intensity use by adults • Potentially accessible with child frequency and intensity low • Isolated regardless of use

Groundwater	GW-1	• If one or the following criteria apply to groundwater: a) within a Current Drinking Water Source Area; • within the Zone II for a public water supply • within an Interim Wellhead Protection Area • within a Potentially Productive Aquifer • within Zone A of a Class A Surface Water Body • within 500 feet of a private water supply well currently in use or, b) within a Potential Drinking Water Source Area. • located 500 feet or more from a public water distribution pipeline • within an area designated by municipality for protection of groundwater supply • within a potentially productive aquifer that has not been excluded a Non-Potential Drinking Water Source Area
Groundwater	GW-2	• Groundwater is located within 30 feet of an occupied building and the average depth to groundwater is 15 feet or less
Groundwater	GW-3	• Groundwater is a potential source of discharge to surface water

Under the provisions of the Massachusetts Contingency Plan (MCP), soil is classified as category S-1, S-2, or S-3. The on site soils are classified as S-1 because it is potentially accessible and a child's frequency of use is considered to be high.

Groundwater flow is to the northeast. The site is not located in an Area of Critical Environmental Concern, estimated habitat for rare species, in a priority habitat for rare species, near a vernal pool, or near protected open space. Please refer to **Figure 3** DEP BWSC Site Scoring Map. The site is not located in a drinking water source area for a public water supply but is in a groundwater area designated as GW-1 because the building derives its potable water from an on-site well. Ground water was generally encountered at approximately 9-11 feet below ground surface (bgs) in the front (south) of the building, and at 5-6 feet bgs in the rear (north) of the building. Pursuant to 310 CMR 40.0932(6), groundwater category GW-2 is applicable to those portions of the site within 30 feet of occupied buildings because the depth to groundwater is 15 feet or less. All groundwater beneath the site is also classified at a minimum as GW-3 because it is considered a potential source of discharge to surface water. Therefore, the groundwater at the site is classified as GW-1, GW-2, and GW-3.

3.0 RESPONSE ACTIONS

3.1 Response Actions Conducted

AJS implemented a Release Abatement Measure (RAM) consisting of contaminated soil excavation. During the excavation, a 2,000 gallon UST was found and during its removal, elevated headspace readings triggered a 72-hour notification to the DEP who assigned RTN 2-14202 to this specific release notification. This release required that Immediate Response Actions (IRA) be conducted. The RAM and IRA activities resulted in removal of 294.66 tons of contaminated soil and 880 gallons of gasoline/water mixture. Following RAM and IRA activities, air samples were collected from indoor air and soil gas. Further, AJS installed borings and converted them to monitoring wells AJS-A through AJS-D. Soil and ground water samples were collected to assess conditions following the RAM and IRA activities. Details and data are presented in the previously submitted Phase I Report prepared by AJS dated October 18, 2004.

3.2 Analytical Results

The most recent groundwater analytical results are presented in **Tables 1 & 2**. The samples were collected by LA Associates on April 1, 2005 and November 30, 2005. Kenneth J. Snow P.E., LSP collected the last round of ground water samples on March 13, 2006. The results indicate that C9-C10 and C11-C22 had exceeded the Method 1, GW-1 standards. A copy of the April 1, 2005, November 30, 2005, and the March 13, 2006 laboratory reports are presented in **Appendix C**. Laboratory reports for soil and groundwater samples collected by AJS have been submitted with the Phase I Report prepared by AJS.

Soil analytical results, copied from the Phase I Report prepared by AJS dated October 18, 2004, are presented in **Tables 3 & 4**. Post excavation soil samples were collected by AJS on October 3, 2001 following excavation activities. After the excavation was backfilled, AJS installed soil boring and converted the boring to monitoring wells (AJS-A through AJS-D) to further evaluate soil and groundwater. None of the soil sampling results exceeded applicable Method 1 standards.

Air samples were collected from indoor air and soil gas and analyzed using the Air-Phase Hydrocarbon (APH) methodology. Only C5-C8 aliphatics (14,000 ug/m^3), toluene (48 ug/m^3), and xylene (55 ug/m^3) were detected in soil gas and all are at levels that MADEP considers unlikely to result in measurable indoor air impacts (<111,000 ug/m^3 for the C5-C8 aliphatics; <36,000 ug/m^3 for toluene; <94,000 ug/m^3 for xylenes). For indoor air only the

C5-C8 aliphatics (53 ug/m^3) and toluene (3.8 ug/m^3), were detected and again, both are at levels that MADEP considers consistent with background indoor air levels impacts (85 ug/m^3 for the C5-C8 aliphatics; 29 ug/m^3 for toluene). Based on these findings, constituents in soil gas and indoor air are not considered further in the assessment.

Because the groundwater results exceeded Method 1 standards, a Method 3 Risk Characterization was conducted and is presented later in this report.

3.3 Remediation Waste

According to the AJS Phase I Report, a total of 294.66 tons of contaminated soil were disposed of at the ESMI facility under a Bill of Lading. Approximately 880 gallons of gasoline/water mixture was evacuated from the UST and the excavation by AJS. The contaminated water was transported to United Oil Recovery, Inc., Meriden, CT under a Hazardous Waste Manifest on October 18, 2001 for disposal. The UST removed by AJS was transported to the William Reisner Corporation, Clinton, MA for disposal.

4.0 HAZARD IDENTIFICATION

4.1 Identification of Source and Extent of Release

The release of petroleum to the soil and ground water is believed to be from USTs use to store gasoline at a service station previously located on the property. The USTs have been removed. Remedial activities included soil excavation and removal of some groundwater from the site. The extent of the release is confined to the immediate area of the UST based on soil and groundwater sampling and analysis.

Additional detail is presented in **Appendix B** Method 3 Risk Characterization.

4.2 Critical Exposure Pathways and Substantial Release Migration

Pursuant to Section 310 CMR 40.0006, critical exposure pathways (CEP) are those routes by which oil and/or hazardous material(s) (OHM) released at the disposal site are transported, or are likely to be transported, to human receptors via vapor phase emissions into a living and/or working space of a pre-school, daycare, school, or occupied dwelling; or ingestion, dermal absorption or inhalation of measurable concentrations of OHM from drinking water supply wells located at or servicing a preschool, daycare, school, or occupied dwelling. No significant vapor phase emissions were transported into the occupied building on the Charron Property based on air sampling conducted by AJS as previously discussed.

As defined in 310 CMR 40.0006, a Condition of Substantial Release Migration does not exist at the Site. This is based on the results of subsurface investigations, the extent of the release, location of surface waters which are not in the vicinity of the Site, and the sampling and analysis of the on-site drinking water wells, indoor air, and soil gas conducted by AJS.

5.0 RISK CHARACTERIZATION

5.1 Selection of Risk Characterization Method

Two basic approaches to characterize risk are provided in the MCP: 1) a chemical specific approach, which compares exposure point concentrations to promulgated standards in soil and groundwater; and 2) a cumulative risk approach, which compares calculated site risks to DEP Cumulative Risk Limits and site-specific conditions to promulgated health, safety, public welfare and environmental standards.

According to the MCP, the method used to characterize risk is determined based on the availability of promulgated soil and groundwater standards, the media impacted, the presence of environmental receptors, the potential for migration to other media, the predominant exposure media for humans, and the bioaccumulation potential of contaminants detected in samples taken from the site. Method 1 may only be used if: 1) a standard is available for each site contaminant; 2) site contamination is limited to soil and/or groundwater or the predominant human exposures are limited to soil and groundwater; and 3) if an environmental receptor has been identified, no OHM known to bioaccumulate are present within 2 feet of the ground surface. Method 2 may be used to supplement the use of MCP Method 1 Standards using site specific information, but cannot be used to evaluate risks in media other than soil or groundwater. Method 3, which relies on detailed site-specific information regarding potential exposure scenarios, may be used to evaluate risks at any site and may be used in conjunction with Methods 1 and 2. A Method 3 Risk Characterization was completed for the disposal site and is presented in **Appendix B**.

A condition of no significant risk of harm to human health exists or has been achieved if no standards are exceeded and cumulative cancer and non-cancer risks are below state target levels (310 CMR 40.993(7)). No standards exist for soils and available groundwater standards are not exceeded. For both current and potential future use scenarios, the calculated Non-cancer Risks do not exceed the Cumulative Receptor Non-cancer Risk Limit of an HI of 1 and the calculated Cumulative Cancer Risk does not exceed the Target Cancer Risk Level of a 10^{-5} risk for all of the quantified exposure scenarios. Therefore, a condition of No Significant Risk of Harm to Human Health has been achieved at the site.

A Stage 1 Environmental Screening was conducted to evaluate risks to ecological receptors at the site. For soils, the small area of the site and the depth of the release should limit the potential for adverse effects to terrestrial organisms. Concentrations of constituents in groundwater were compared with surface water quality criteria modified to account for dilution and attenuation associated with migration and all site concentrations were lower than these criteria. Therefore, the chemicals and the site are considered unlikely to pose a risk to ecological receptors, and, a level of No Significant Risk to the Environment exists at the site for current and for future conditions.

Risks to public welfare and safety were evaluated separately. The residual constituents in soil and groundwater are considered unlikely to pose a nuisance risk to workers or residents and are below upper concentration limits (UCLs). Therefore, a Condition of No Significant Risk to Public Welfare is considered to exist at the site for current and for future conditions. Finally, consideration of chemical characteristics and behavior indicate that the residual chemicals will not pose a risk to safety and a Condition of No Significant Risk to Safety exists at the site.

6.0 SUMMARY OPINION

6.1 Source Elimination

It is Mr. Snow's opinion that the source has been eliminated. The source of the release was from gasoline USTs which have been removed. Soil with sufficient contamination to be considered a source has been removed and disposed of during RAM and IRA activities conducted by AJS. No free product or non-aqueous phase liquid remains on site.

6.2 Feasibility of Reaching Background Conditions:

In accordance with 310 CMR 40.1020 (1) "At any disposal site or portion of a disposal site where one or more remedial actions are undertaken to achieve a Permanent Solution, those remedial actions shall include, where feasible, one or more measures designed to reduce to the extent possible the concentrations of oil and hazardous material to levels that would exist in the absence of the disposal site of concern. Such measures shall, to the extent feasible, achieve or approach background levels of oil and hazardous material in the environment as defined under 310 CMR 40.0006."

It is the opinion of Kenneth J. Snow, LSP that concentrations of petroleum contaminants have not been reduced to background conditions. However, the remaining soil and groundwater contaminant concentrations are very low and present a condition of no significant risk. Additional excavation to remove the remaining impacted soil and implementation of groundwater treatment is considered to be infeasible because the cost of additional remediation outweigh the negligible environmental benefits of reducing the remaining contamination by a minimal degree.

6.3 Public Notification:

A Public Notification letter, as required under the MCP 310 CMR 40.1400, is included in **Appendix D.**

7.0 CLASS OF RAO AND AREA OF APPLICABILITY

A Class A-2 Response Action Outcome Statement is being filed for this site pursuant to 310 CMR 40.1036(2) because:

- A Permanent Solution has been attained through remedial measures;
- The level of oil and hazardous material in the environment has not been reduced to background;
- One or more Activity and Use Limitations are not required to maintain a condition of No Significant Risk; and
- Remedial measures have been undertaken such that levels of oil and hazardous materials have been reduced to conditions approaching background.

The specific area to which this RAO applies is shown on **Figure 2.**

TABLES

FIGURES

APPENDIX A

Transmittal Form BWSC – 104
Response Action Outcome Statement

ATTACHMENT

To Form BWSC-104 Response Action Outcome Statement
(Response Actions subject to DEP verbal IRA approval)

RTN 2-13975

The response actions conducted at the site were approved by the DEP under a Release Abatement Measure Plan and an Immediate Response Action.

APPENDIX B

Method 3 Risk Characterization

APPENDIX C

Laboratory Analytical Reports

APPENDIX D

Public Notification Letters