

**SITE MANAGEMENT PLAN  
THE ENSIGN-BICKFORD COMPANY  
SPANISH FORK, UTAH**

**Prepared for:**

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Spanish Fork, Utah  
And  
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## **EXECUTIVE SUMMARY**

This Site Management Plan (SMP) describes site management controls that will be implemented for Controlled Areas (areas subject to certain Activity and Use Limitations) to achieve final Resource Conservation and Recovery Act (RCRA) corrective action under state and federal law at The Ensign-Bickford Company (EBCo) facility in Spanish Fork, Utah (the Site). The SMP is divided into short-term actions and long-term site management controls.

### **Short-Term Actions**

EBCo will complete these short-term actions before issuing a certificate of completion for the SMP:

- Backfilling excavations, as necessary;
- Surface stabilization (re-vegetation or gravel cover), as necessary;
- Installing survey monuments or other markers identifying areas subject to site management controls; and,
- Preparing and recording one or more Environmental Covenants for the Site, including legal descriptions of land areas subject to Activity and Use Limitations.

### **Long-Term Site Management Controls**

Long-term site management controls addressed in this SMP include:

- On-site ground water monitoring well sampling and analysis;
- Operating, maintaining and monitoring ground water recovery well R-1 and related treatment systems until such time as the Division of Solid and Hazardous Waste (DSHW) authorizes discontinuation of such systems;
- Area-specific Activity and Use Limitations for the Site;
- Making required notifications and reports related to the present and future implementation of the SMP; and,

- Managing and enforcing Activity and Use Limitations in accordance with the Environmental Covenants and SMP.

Current and future property owners must comply with this SMP and associated Environmental Covenants with respect to Activity and Use Limitations at the site.

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## ACRONYMS

AUL	Activity and Use Limitation
CAMU	Corrective Action Management Unit
CAP	Corrective Action Plan
CEMs	Constituents of Energetic Materials
Charter Oak	Charter Oak Environmental Services, Inc.
CMI	Corrective Measures Implementation
CMS	Corrective Measures Study
COPC	Constituent of Potential Concern
DEQ	Utah Department of Environmental Quality
DSHW	Utah Division of Solid and Hazardous Waste
DWQ	Utah Division of Water Quality
EBCo	The Ensign-Bickford Company
GAC	Granulated Activated Carbon
MTRA	Migration To Regional Aquifer
NFA	No Further Action
O & M	Operations & Management
OSHA	Occupational Safety and Health Administration
PAH	Polycyclic Aromatic Hydrocarbon
QAPP	Quality Assurance Project Plan
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
SAM	Soil Attenuation Model
SDI	SDI Environmental Services, Inc.
SMP	Site Management Plan
SVOC	Semi-Volatile Organic Compound
SWMU	Solid Waste Management Unit
UPDES	Utah Pollution Discharge Elimination System
U.S. EPA	United State Environmental Protection Agency
VOC	Volatile Organic Compound

## **DEFINITIONS**

The terms used in this document are intended to be consistent with generally applied local zoning terms and are not meant to replace them. Activity and Use Limitations (as herein defined) for any Controlled Area are intended to be applied within the applicable zoning for that land. In no case do the Activity and Use Limitations impart flexibility for land use that is not otherwise allowed by the local zoning for that land. In some cases, however, the Activity and Use Limitations further restrict land use within the Controlled Area above and beyond local zoning rules. For instance, local zoning may be silent on the topic of irrigation, while irrigation may not be allowed under the Controlled Area Activity and Use Limitation. While residential use is very simply defined in the SMP, local zoning may elaborate in detail as to what type of specific uses are allowed under specific zoning designations. In each case (Activity and Use Limitation / local zoning designation), the more detailed or prohibitive requirements prevail.

Definitions, terms and prohibitions contained in the SMP are for purposes of this document alone and are not intended to be applied more broadly to zoning designations or rules.

**Activity and Use Limitation:** Restriction or special condition placed on a Controlled Area as described in this Site Management Plan and in the Environmental Covenants.

**Commercial or Industrial Use:** Commercial and/or industrial is use other than residential, as allowed by local zoning under commercial or industrial designations. If local zoning allows for mixed commercial and residential use, this Site Management Plan does not further restrict the allowable uses, unless specifically restricted for a Controlled Area.

**Construction Limitation:** Specific Activity and Use Limitation placing controls on the construction of buildings, utilities or other features such as storm water management structures or water features.

**Controlled Area:** Area of the Site specifically identified as subject to one or more Activity and Use Limitations.

**Disturbance Limitation:** Specific Activity and Use Limitation pertaining to soils within a Controlled Area, typically prohibiting digging or disturbing the described soils unless specific conditions are met.

**Edible Plants:** Home grown produce, including but not limited to fruits and vegetables grown for consumption.

**Environmental Covenant:** A legal document filed on the land records that identifies the areas subject to the associated Activity and Use Limitations.

**Executive Secretary:** The Executive Secretary of the Utah Solid and Hazardous Waste Control Board. This individual is also the Director of the Utah Division of Solid and Hazardous Waste.

**Ground Water Use Limitation:** Specific Activity and Use Limitation pertaining to ground water within a Controlled Area, prohibiting use without appropriate treatment, unless approved by the Executive Secretary.

**Irrigation:** Any anthropogenic application of water to the land. Irrigation does not include natural precipitation or precipitation run-on.

**Limited Residential Use:** Limited residential use is allowance of single- or multi-family dwellings on land that is otherwise or also commercially developed land. The planting and maintaining (including irrigation) of public (community) or private vegetable gardens

or edible fruit trees is prohibited in areas designated for limited residential use. Hospitals, schools and daycare facilities are also specifically prohibited in areas designated for limited residential use.

**Metes and Bounds:** A surveyor's description of a parcel of real property, using carefully measured distances, angles, and directions, which results in what is called a "legal description" of the land, as distinguished from merely a street address or parcel number. For the purposes of this document a Metes and Bounds description is considered to be the same as a Legal Description.

**No Further Action:** A RCRA corrective action term indicating that the risk levels are below those defined as acceptable for unrestricted use. The requirements for No Further Action (NFA) are specified in Utah Administrative Code R315-101-6(c)(1).

**Public Recreation Use:** Public recreation use is use of areas where access by the public is not restricted, such as areas for hiking trails or riding trails and ballparks. Public Recreational Use is considered separately from Residential, Limited Residential and Commercial/Industrial uses because Site conditions are within the acceptable risk levels for these public recreational uses. There are no restrictions on public recreational use for any area of the Site.

**Residential Use:** Residential use is allowance of single- or multi-family dwellings on land that is not commercially-developed land. The planting and maintaining (including irrigation) of vegetable gardens or edible fruit trees is also considered residential use (whether on individual private properties or in community gardens).

**Site:** For purposes of this document, the Site is the entire property currently owned by The Ensign-Bickford Company, comprised of approximately 480 acres. Even if the property is subdivided and portions are transferred to other owners, the Site will continue to mean the entire original approximately 480 acres. Controlled Areas within the Site are defined separately.

**Water metering:** For purposes of this document, water metering means the accurate measurement of water used. In the case of more or less continuous water use through a temporary or permanent pipeline, a conventional water meter could be used. For delivered water (such as by tanker truck), counting trucks (or portions thereof) at the gallon capacity of the water tank also qualifies.

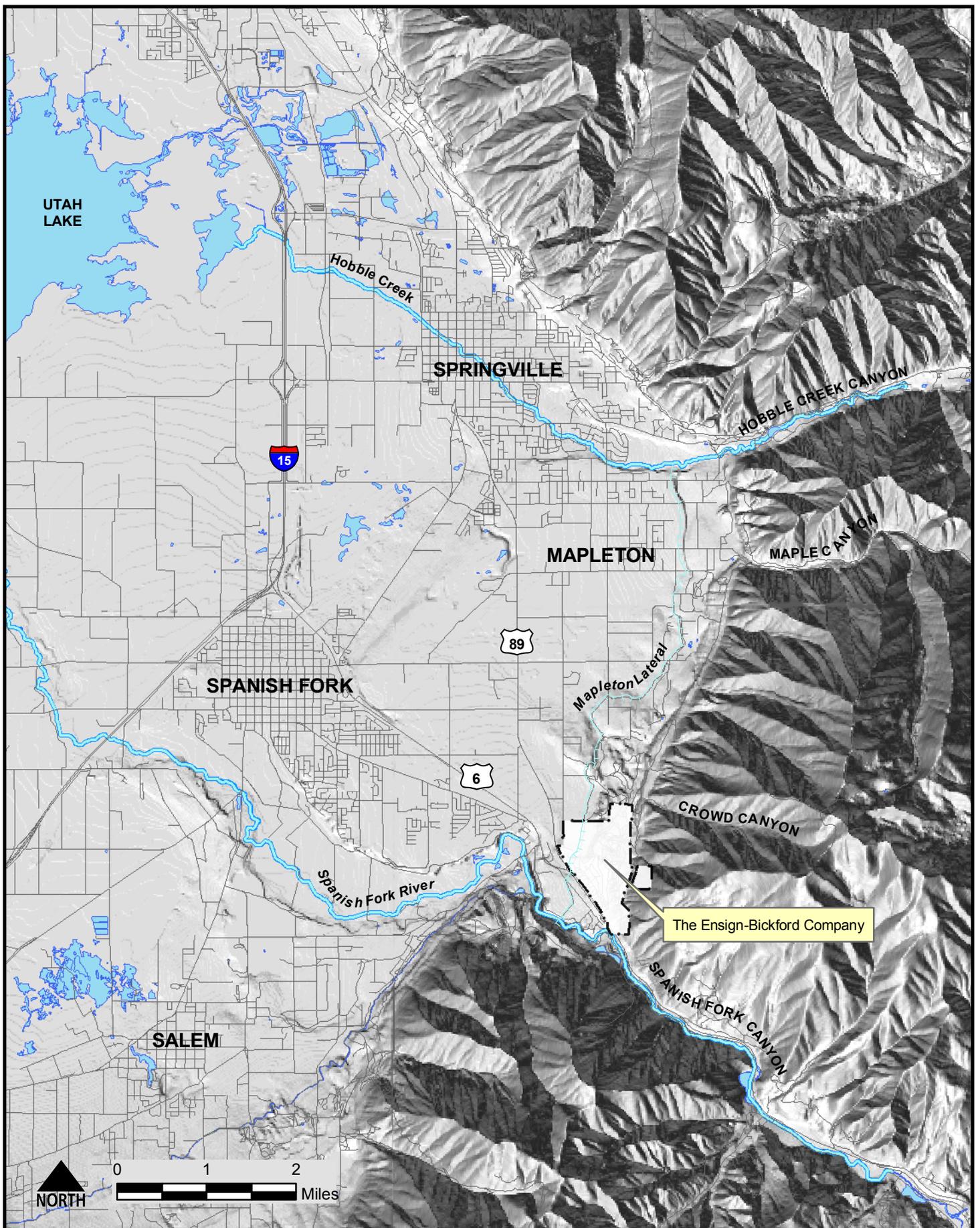
## 1.0 INTRODUCTION

### 1.1 The Site and Applicability of the Site Management Plan

The Ensign-Bickford Company (EBCo) owns approximately 480 acres located at the mouth of Spanish Fork Canyon, in Spanish Fork, Utah (the Site). Figure 1-1 illustrates the location of the Site. The Site is subject to the requirements of the Resource Conservation and Recovery Act (RCRA) Corrective Action program. Forty-four solid waste management units (SWMUs) have been identified at the Site, and extensive site investigation, interim measures and corrective actions have been performed. Appendix A presents a concise summary of background information regarding these investigation and corrective action activities, including the identification of key supporting documents where more detailed information can be found. These supporting documents are available for review at the Utah Division of Solid and Hazardous Waste (DSHW).

EBCo has implemented a ground water recovery program, beginning in 1998, to address conditions in the regional aquifer. The Corrective Action Plan (CAP) (Charter Oak, 2002), approved by the Utah Department of Environmental Quality (DEQ), Division of Water Quality (DWQ), includes the operation, maintenance and monitoring of both on- and off-site ground water recovery and treatment facilities. Applicable elements of the ground water corrective action program located on the Site, including operation and monitoring of recovery well R-1 and associated treatment systems, are addressed in this Site Management Plan (SMP).

This SMP applies only to SWMUs or portions thereof, and ground water underlying portions of the Site, that do not meet No Further Action (NFA) criteria as defined by Utah Administrative Code R315-101-6(c)(1). These areas, hereafter called “Controlled Areas”, are subject to the Activity and Use Limitations (AUL) described within this SMP and the Environmental Covenants for the Site. This SMP also applies to certain features (e.g. recovery wells, pipelines, monitoring wells, etc.) supporting on-site corrective action activities that have been implemented. Within areas of the Site where there are no



imposed Activity and Use Limitations, there are no restrictions on allowable land use other than those imposed by local, state or federal regulations.

If EBCo, or subsequent users of the property, intend to develop any Controlled Areas in a manner inconsistent with the applicable Activity and Use Limitations, the owner and the user shall, prior to the developing the use, demonstrate to the Executive Secretary's satisfaction that the potential human exposures to chemicals will not exceed criteria specified in UAC R315-101-6.

The requirements of this SMP apply to the current property owner.

Any proposed changes to the SMP require approval by the Executive Secretary.

## **1.2 Purpose of the Site Management Plan**

This SMP describes site management controls that will be implemented to achieve final RCRA corrective action under state and federal law at the Site. The SMP is divided into short-term actions and long-term site management controls. The purpose of the SMP is to:

### **Short-Term Actions**

- Identify and describe short-term actions necessary to ensure that, coupled with site management controls (e.g. Activity and Use Limitations), risk-based objectives are met. These short-term actions include:
  - Backfilling excavations, as necessary;
  - Surface stabilization (re-vegetation or gravel cover), as necessary;
  - Installing survey monuments or other markers identifying areas subject to Activity and Use Limitations; and,
  - Preparing and recording one or more Environmental Covenants for the Site.

## **Long-Term Site Management Controls**

- Identify and describe long-term site management controls that ensure protection of human health and the environment. This SMP accomplishes the following:
  - Provides current contact information related to the implementation of the SMP;
  - Identifies site management controls for the operation, maintenance, and monitoring of ground water recovery well R-1, related treatment systems, and on-site ground water monitoring; and,
  - Provides detailed descriptions of Activity and Use Limitations for the Site, both generally and specifically for each Controlled Area.

Each Controlled Area may require a combination of measures that may vary based on the constituent levels, if any, remaining. After the imposition of site management controls, the risk-based objectives for the Site will be achieved. One or more Environmental Covenants for the Site will be prepared and recorded in accordance with the Uniform Environmental Covenants Act (Title 57 Chapter 25 of the Utah Code).

EBCo, its successors or assigns, will have an obligation to operate and maintain applicable on-site ground water recovery, treatment and monitoring systems until such time that the Executive Secretary of the Utah Solid and Hazardous Waste Control Board and the Executive Secretary of the Utah Water Quality Board authorize the discontinuation of their use.

Implementation of this SMP will protect human health and the environment.

### **1.3 Document Organization**

The SMP considers both short-term actions and long-term site management controls. Contact information related to the long-term implementation of the SMP and Environmental Covenants is presented in Section 2. Section 3 describes the short-term actions. Section 4 describes the Activity and Use Limitations. Section 5 describes the

long-term site management controls related to the operation of recovery well R-1 and related on-site ground water monitoring. Section 6 summarizes the planned use and recording of Environmental Covenants. Section 7 summarizes activities requiring the notification of the Executive Secretary. Section 8 addresses certification of completion of short-term actions. Section 9 presents a schedule for completion of short-term actions, and Section 10 provides a list of references. An “Activity and Use Limitation Summary,” found immediately after the text, presents tabular summaries describing the Activity and Use Limitations for each Controlled Area identified in this SMP.

#### **1.4 Site Management Plan Review and Public Comment**

Prior to approval of the final Site Management Plan by DSHW, the public has the opportunity for comment. Public comments will be solicited and considered prior to the Executive Secretary’s approval of this SMP.

#### **1.5 Executive Secretary Site Access**

For the purpose of determining compliance with this Site Management Plan and the Environmental Covenants, the Executive Secretary, or his representatives, has the authority to access, at reasonable times, all areas subject to the Activity and Use Limitations. To the extent that such access requires assistance from the land owner (e.g. unlocking a door or a gate), such access will be granted to the Executive Secretary following reasonable notice.

## 2.0 SITE MANAGEMENT PLAN CONTACTS

The SMP and the Environmental Covenants contain certain requirements for reporting and notification of activities in Controlled Areas, and/or related to ground water monitoring and the operation, maintenance, and monitoring of ground water recovery well R-1 and associated treatment systems. Approvals from DSHW may be necessary for certain activities performed within Controlled Areas or related to the operation of recovery well R-1. This section identifies contact information related to the implementation, enforcement and monitoring of this SMP and associated Environmental Covenants. Compliance with obligations of this SMP does not relieve the property owner from complying with other federal, state and local obligations.

A change in Site ownership, or ownership of any Controlled Area (in the event the Site is subdivided), or ownership or operator status of recovery well R-1 and related treatment and monitoring systems requires that the existing owner and/or operator provide written notification of this change to the Executive Secretary (prior to or at the time of transfer).

### 2.1 Current Property Owner

The current owner of the Site is The Ensign-Bickford Company. All correspondence should be directed to:

President / General Manager  
The Ensign-Bickford Company  
8305 South Highway 6  
Spanish Fork, UT 84660

With a copy to:

Corporate Secretary  
The Ensign-Bickford Company  
125 Powder Forest Drive  
P.O. Box 7  
Simsbury, CT 06070-0007

## 2.2 Utah Division of Solid and Hazardous Waste

All written correspondence related to this SMP requiring notification to or approval from DSHW shall be addressed to the Executive Secretary of the Utah Solid and Hazardous Waste Control Board (the Executive Secretary). The Director of the Utah Division of Solid and Hazardous Waste is the Executive Secretary of the Board.

Executive Secretary  
Utah Solid and Hazardous Waste Control Board  
P.O. Box 144880  
Salt Lake City, UT 84114-4880

Office Location:  
Utah Division of Solid and Hazardous Waste  
195 North 1950 West  
2nd Floor  
Salt Lake City, Utah  
Tel: (801) 536-0200  
Fax: (801) 536-0222  
Web: [www.hazardouswaste.utah.gov](http://www.hazardouswaste.utah.gov)

## 2.3 Future Property Owner(s)

The Environmental Covenants (which will reference the SMP) will be recorded on the land records, providing notice of the obligations described herein to future property owners.

### **3.0 SHORT-TERM ACTIONS**

This section describes general activities and processes related to the completion of final corrective actions for soils at the Site.

#### **3.1 Excavation Backfill**

Backfilling of excavation areas has been initiated but is not complete. Backfilling that has been completed as of the date of this SMP is documented in the CMI Report. Remaining backfill activities will be completed in accordance with this SMP and documented prior to submittal of the Certification of Completion. Table 3-1 summarizes the current status of Controlled Areas requiring additional backfill activities and identifies requisite remaining backfill activities to be completed.

**Table 3-1: Remaining Backfill Activities Summary**

Controlled Area ID	Status of Excavation	Short Term Task(s)		
		Place Backfill	Place Silty Soil Cover	Revegetate
1	Backfill and silty soil cover required.	X	X	X
2	Backfill and silty soil cover required.	X	X	X
3	Backfilled. Silty soil cover required.		X	X
4	Backfill and silty soil cover required.	X	X	X
5	Backfilled. Silty soil cover required.		X	X
6	Backfill and silty soil cover required.	X	X	X
7	Backfill and silty soil cover required.	X	X	X
8	Backfill and silty soil cover required.	X	X	X
9	Backfill and silty soil cover required.	X	X	X
10	Backfill and silty soil cover required.	X	X	X
11	Backfilled. Backfill meets silty soil requirement.			X
12	Backfill and silty soil cover required.	X	X	X
13	Backfilled and revegetated.			
14	Backfill and silty soil cover required.	X	X	X
15	Backfilled.			X
16	Backfilled and revegetated			
17	Backfilled.			X
18	Backfill and silty soil cover required.	X	X	X
19	Backfilled. Silty soil cover required.		X	X
20	Backfilled. Silty soil cover required in CAMU area only.		X	X
21	Backfill and silty soil cover required.	X	X	X
22	Backfill and silty soil cover required.	X	X	X
23	Backfilled. Silty soil cover required.		X	X

A variety of fill materials may be used to complete the backfilling activity, as described below. Characterization requirements for backfill materials are described in Section 3.1.2.

For SWMUs where final soil conditions meet target risk levels for NFA, no backfill requirements are specified for the purposes of corrective action. EBCo may backfill these areas at its discretion for the purposes of Site safety and aesthetics or to comply with excavation standards and rules outside of the RCRA corrective action program.

For Controlled Areas, backfilling will be performed as specified in the following sections.

### 3.1.1 Backfill Sources

#### *3.1.1.1 Treated Soil Stockpiles*

Two treated soil stockpiles were produced during the interim measures thermal treatment program. The non-detection stockpile consists of thermally treated soils where there were no detections of COPCs in post-treatment confirmation samples. The detection stockpile consisted of thermally treated soils that had detectable concentrations of COPCs after treatment, but that met the treatment goals specified in the Interim Measures Work Plan. Both stockpiles were evaluated in the human health risk assessment presented in the RCRA Facility Investigation Report (RFI Report). With written approval from DSHW, the entire detection stockpile was used to backfill the Wastewater Dispersion Area portion of SWMU 1. The remaining non-detection stockpile is suitable for use as backfill at any location on the Site and has no restrictions on its use or placement. This material also qualifies for use as silty soil required as the top two feet of cover in Controlled Areas and the Consolidation CAMU.

### 3.1.1.2 On-site Native Soils

Large portions of the Site are potential sources of backfill material. No fill material will be obtained from locations within SWMUs or within 50 feet of SWMU boundaries unless a human health risk assessment performed on characterization data from within the SWMU indicates that the soils meet target risk levels for an unrestricted residential land use scenario (cumulative cancer risk less than  $1 \times 10^{-6}$  and a hazard index less than or equal to 1). Soils from a SWMU may be consolidated within that same SWMU as long as applicable risk criteria are met and appropriate Activity and Use Limitations are applied, as necessary. This approach is consistent with the RCRA corrective action “Area of Contamination” policy.

### 3.1.1.3 Off-Site Sources

Backfill materials may also be obtained from off-site sources. These may include, among other sources, commercial suppliers of gravel and topsoil or fill materials from nearby construction projects. For example, EBCo obtained a large quantity of fill material from a construction site at the mouth of Crowd Canyon where a municipal water tank was constructed requiring the removal of tens of thousands of tons of material. These materials were characterized as described in Section 3.1.2. A portion of the Crowd Canyon Water Tank soils were used to backfill the Wastewater Dispersion Area (SWMU 01DA) and were placed concurrently with the detection stockpile. Off-site soils have also been accepted from a pasture located in Springville where a Charter School was constructed and soils excavated during the installation of the Central Utah Project pipeline in Spanish Fork Canyon.

## 3.1.2 Backfill Characterization

The non-detection soil stockpile does not require additional testing or characterization. Backfill materials from on-site sources, if not otherwise previously characterized (i.e. during the RFI), will be characterized by the collection of at least one sample from each distinct source area or visually distinct type of material. Each sample will be submitted

for analysis of CEMs, VOCs, SVOCs, PAHs, lead, and antimony using the methods listed in Section 6.0 of the CMI Work Plan. Backfill materials obtained from off-site native, non-commercial sources (e.g. the previously referenced location at the mouth of Crowd Canyon) will not normally be tested, but may be tested as described above, at the discretion of EBCo. Depending on the type of material (native or man-made) and specifications/data available for backfill material from off-site commercial sources, backfill characterization testing may be required to supplement available data. No contaminated backfill from an off-site source will be used without Executive Secretary approval. Backfill will be considered contaminated if it contains anthropogenic constituents over background conditions (if known) or residential and MTRA risk levels as determined for this Site.

### 3.1.3 Placement of Backfill in Controlled Areas

As indicated in the approved CMI Work Plan, unless otherwise specified, backfill will be placed in lifts with a maximum non-compacted thickness of approximately two-feet. Each lift will be roller or machine compacted by tracking repeatedly over the top of the lift. At the discretion of EBCo, for purposes beyond the scope of the corrective measures, backfill placed in areas of potential future development may require more thorough compaction procedures such as machine compaction, thinner lifts, and confirmation soil density tests.

Excavation areas will be backfilled to near original grade or so that excavation sidewalls do not have more than a 2:1 slope (horizontal to vertical). For excavations in Controlled Areas, a minimum of two-feet of predominantly silty soil will be placed in those excavations where silty soil was the soil type specified in the MTRA analysis. The non-detection stockpile meets the specification as a silty soil.

## 3.2 Surface Stabilization

For Controlled Areas, surface stabilization will be performed as specified in the following sections. For SWMUs where final soil conditions meet target risk levels for

NFA, no surface stabilization requirements are specified for the purposes of corrective action. EBCo may stabilize these NFA areas at its discretion for the purposes of Site safety and aesthetics or to comply with applicable standards and rules outside of the RCRA corrective action program.

### 3.2.1 Re-Vegetation

Areas to be re-vegetated will be topped with approximately 18 inches of predominantly silty soils to retain moisture and approximately 6 inches of soil sufficient to support plant growth (this approximately two foot layer could all be the same material). Soil amendments (manure, compost, fertilizers, etc.) may be used as necessary to increase soil nutrients and organic content. These areas will be seeded by methods specified by the seed producer using a seed blend of drought tolerant native grasses and/or wildflowers. To the extent feasible, preference will be given to plants that support local wildlife habitat. A representative seed blend is described in Appendix B. The final seed blend selected will be similar to this example. However, EBCo may exercise its discretion in selecting a seed mix based on its prior experience with on-site re-vegetation. Temporary supplemental irrigation to establish plant growth may be implemented in accordance with the limitations specified in Section 4.2.4.2.

### 3.2.2 Gravel

In some limited cases (e.g., locations of temporary or future roads) EBCo may elect to finish the backfilled surface by initially placing a minimum one-foot thickness of clean gravel or gravel mixtures, in lieu of re-vegetation. Placement of gravel will serve to stabilize the backfilled area from erosion, minimize the production of dust and prevent direct contact with underlying soils.

## 3.3 Installation of Survey Monuments and Land Survey of Controlled Areas

Controlled Areas will be surveyed by a Utah Licensed Land Surveyor who will prepare Metes and Bounds descriptions. Each Controlled Area will be enclosed in a polygon

consisting of four or more straight line segments (no curved boundaries). A permanent survey monument, an example of which is described in Appendix C, will be installed at the intersection of each line segment. The Metes and Bounds description will be part of the Environmental Covenants for the Site and recorded on applicable land records. Maps of each Controlled Area and the Metes and Bounds descriptions will be provided to the Executive Secretary prior to, or concurrent with, submission of the Environmental Covenants. Figure 4-2 presents a site-wide map depicting the locations of the Controlled Areas.

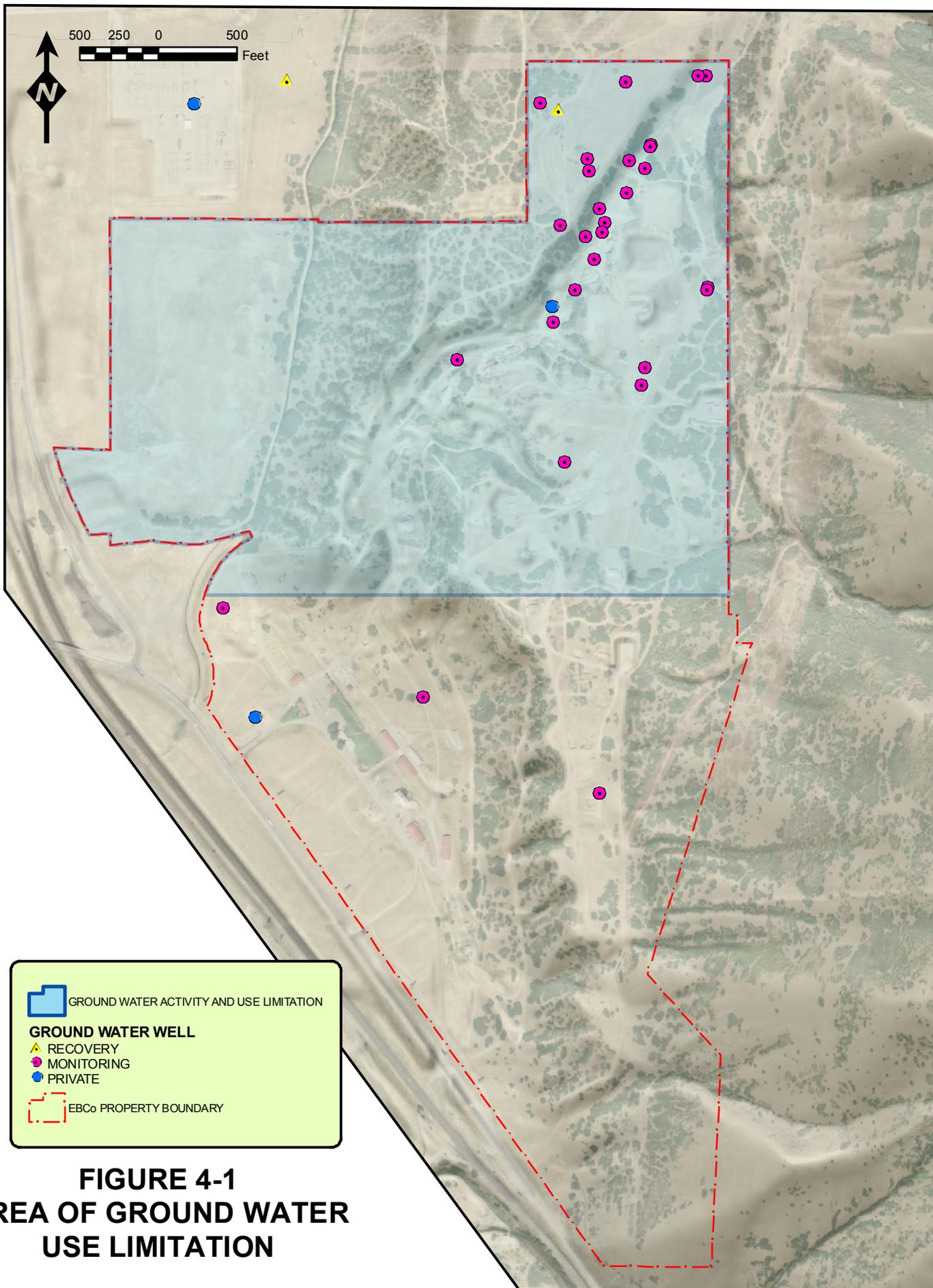
#### **4.0 LONG-TERM SITE MANAGEMENT CONTROLS – ACTIVITY AND USE LIMITATIONS**

Long-term site management controls are a complimentary part of the site-wide final corrective measures and fall into two categories: operation and maintenance (physical) and Activity and Use Limitations (institutional). Potential site management controls were described in the Revised Corrective Measures Study Report (CMS Report). The final site management controls are presented in this Site Management Plan and related Environmental Covenants to be prepared and recorded in accordance with the Uniform Environmental Covenants Act. Site characterization data and risk assessment supporting the final site management controls are found in the RFI Report and/or the CMI Report. There are no physical or institutional limitations in areas outside of the Controlled Areas.

Depending on potential future changes in supporting information (e.g. future physical actions such as soil removal or changes in the published toxicity values for certain COPCs), the property owner may petition the Executive Secretary to rescind, terminate, or modify some or all of the Site Management Controls specified in this SMP or the recorded Environmental Covenants.

##### **4.1 Ground Water Use Limitation**

An area of the Site, approximately bounded as depicted in Figure 4-1, is subject to a Ground Water Use Limitation. Except as specifically allowed in this SMP, no ground water may be extracted from the identified area and used for water supply purposes (e.g. municipal, domestic, irrigation, stock watering) until such time as the Executive Secretary approves the removal or modification of this limitation as filed on the land records. If a person or entity desires to install a private or public water supply well within this area, they must notify (see Table 7-1) and obtain approval from the Executive Secretary, and, as necessary, comply with the requirements of any other applicable agencies with regulatory authority pertaining to well construction (e.g. the Utah Division of Water Rights, the Utah Division of Drinking Water, municipalities, etc.).



**FIGURE 4-1  
AREA OF GROUND WATER  
USE LIMITATION**

This area of the Site is where the concentrations of CEMs in ground water may exceed applicable water quality criteria. This area is bounded by the EBCo property boundary at locations where off-site ground water contains COPCs at concentrations exceeding applicable ground water quality criteria and by on-site monitoring wells where ground water impacts above applicable water quality criteria have not been identified during routine ground water monitoring. A map of the Site depicting the location of this area is provided in Figure 4-1. A Legal Description of this area will be provided in the Environmental Covenants for the Site.

#### 4.1.1 Exceptions

Ground water is currently recovered for treatment and beneficial use from recovery well R-1. This is considered an approved use upon approval of this SMP. Refer to Section 5.0 of this document for additional details regarding the purpose and use of recovery well R-1.

An existing on-site water supply well (FW-2) is located within this area and is included in the existing ground water monitoring program managed by DWQ. Notwithstanding the previously described Ground Water Use Limitation, EBCo may continue to use this well in accordance with its water rights, subject to the following conditions:

- Use of the well is limited to non-potable applications. Acceptable uses include the provision of irrigation water, cooling water and process water.
- The well will be subject to on-going monitoring for nitrate/nitrite and constituents of energetic materials (CEMs) as established in the CAP or DWQ-approved amendments thereof. Analytical data shall be reported in Annual Reports submitted to DWQ and copied to DSHW.

- If CEMs are detected in well FW-2, EBCo shall notify the Executive Secretary (orally within 15 days of becoming aware of the detections and in writing within 30 days) and make recommendations for additional testing or other actions as may be appropriate for the continued use of this well.

## 4.2 General Descriptions of Land Use Limitations

Residential Use is permitted throughout the vast majority of the Site, but in certain areas limited restrictions are imposed where the final human health risk assessment performed on the soils data indicates cancer risk levels greater or equal to  $1 \times 10^{-6}$  and/or a hazard index greater than 1 for an unrestricted residential scenario. These limited restrictions (e.g. garden restrictions) are necessary to reduce potential risk to acceptable levels. Public Recreation Use is considered separately and is not restricted for any area of the Site (assuming allowed by the owner of the property). The Activity and Use Limitations summarized below are described individually; however, any Controlled Area may have one or more Activity and Use Limitation.

The soils data and human health risk assessment presented in CMI Report demonstrate that the final Activity and Use Limitations for each Controlled Area are protective of human health for potential, applicable exposure pathways. These data are the basis for the legal boundaries (Metes and Bounds) of the Controlled Areas.

### 4.2.1 Growing Edible Plants Prohibited

A prohibition on growing Edible Plants (including community gardens) will be placed on certain areas where the final human health risk assessment performed on the soils data, when consumption of fruits and garden vegetables is considered, indicates cancer risk levels greater or equal to  $1 \times 10^{-6}$  and/or a hazard index greater than one. A prohibition on growing Edible Plants pertaining to both fruits and vegetables will reduce potential risks to acceptable levels.

#### 4.2.2 Limited Residential Use Restriction

A Limited Residential Use Restriction will be placed on all areas where the human health risk assessment<sup>1</sup> performed on the final conditions soils data indicate cancer risk levels greater than or equal to  $1 \times 10^{-6}$  and/or a hazard index greater than 1 for a residential exposure scenario. Residential use is permitted in Controlled Areas subject to this limited restriction where:

- The land is in an otherwise commercially developed area; and,
- The Controlled Area is under buildings, pavement, sidewalks or ornamental landscaping.

A limited restriction on Residential Use includes a prohibition on growing Edible Plants (i.e. fruits and vegetables). The planting of a community garden or orchard is prohibited in these areas.

#### 4.2.3 Disturbance Limitations

Disturbance Limitations place conditions on excavation, grading or other similar activities that disturb soils within a Controlled Area. The Disturbance Limitations described in the following sections apply to those Controlled Areas identified in this SMP and the Environmental Covenants. The limitation does not apply to cutting vegetation (e.g., mowing grass or trimming shrubs) or placing mulch or other materials on top of existing soils. It also does not prohibit increasing the elevation of a Controlled Area by placing additional soils on top of existing soils.

<sup>1</sup>The placement of a prohibition on growing Edible Plants or limited residential use restriction based on the results of the human health risk assessment may be the result of one or more exposure pathways. In imposing such restrictions, EBCo (or future property owners) reserves the right to later seek the Executive Secretary's approval of more narrowly focused use limitations to address the specific exposure pathways requiring attention based on the risk assessment.

#### *4.2.3.1 Disturbance Limitations to the Ground Surface in a Controlled Area*

In certain cases (Section 4.3 and the Activity and Use Limitation Summary), Disturbance Limitations extend from the ground surface to any depth within a Controlled Area. Work performed in these areas is subject to the following conditions:

- The property owner shall provide written notification to the Executive Secretary at least 30 days prior to any excavation, re-grading or other work involving the disturbance of these soils. The notification must include a description of the proposed work and depths of excavation.
- The property owner shall provide verbal notification to the Executive Secretary at least 7 days prior to any excavation, re-grading or other work involving the disturbance of these soils.
- A written record of the work (summary description, names of contractors, disposition of disturbed soil, dates, etc.) will be submitted to the Executive Secretary within 30 days of completion of the work.
- Unless otherwise approved by the Executive Secretary, disturbed soils must remain within the Controlled Area from which they were derived or be taken to an appropriate off-site landfill for disposal. The property owner is responsible for complying with the acceptance requirements of the landfill, including potential characterization of the disturbed soil by laboratory analysis.
- Work in Controlled Areas may be subject to Occupational Safety and Health Administration (OSHA) standards.
- Work areas may be inspected at any reasonable time by the Executive Secretary or his/her agents, as outlined in Section 1.5.

#### *4.2.3.2 Emergency Excavations*

In the event of an emergency situation that requires excavation within an area subject to disturbance limitations, the work will be performed under the following conditions.

Examples of an emergency circumstance include, but are not limited to, damaged critical utilities (i.e. water supply or sewage conveyance pipes, natural gas lines or buried electric power lines and other private or public utilities) or establishing a fire break during a fire emergency. The following conditions apply to emergency work:

- Verbal notification of Executive Secretary within 24 hours.
- Follow-up written report within 15 days similar in scope as for planned work, only in hindsight. Additionally a statement of justification for the emergency work will be included, explaining why the work needed to be done on an emergency basis.
- Compliance with OSHA and other applicable requirements.
- No soils may be removed from the area, unless they are shipped to an appropriate off-site disposal location. Soils may be replaced in any excavation or in the immediate vicinity of the excavation, within the Controlled Area boundaries.
- Inspection by Executive Secretary at any time during or after the emergency work may be performed.

#### 4.2.3.3 Worker Safety and Health

Work performed within Controlled Areas during construction, maintenance or other activities may be subject to Occupational Safety and Health Administration (OSHA) regulations governing occupational safety and health standards for hazardous waste operations and emergency response as promulgated in 29 CFR 1910.120. The employer of workers involved in these activities is responsible for compliance with these standards.

#### 4.2.4 Irrigation Limitations

Certain Controlled Areas are subject to irrigation limitations as identified in Table 4-1 and as described in the following sections.

#### 4.2.4.1 Irrigation Prohibited

The application of any irrigation water to the ground surface via sprinkling, flood irrigation, manual (e.g. hose nozzle) or other delivery methods is prohibited, except as noted in Section 4.2.4.2.

#### 4.2.4.2 Temporary Irrigation Allowed

Notwithstanding the irrigation prohibitions or limitations described previously, temporary irrigation is permitted in Controlled Areas for a period of up to two years (two irrigation seasons) to facilitate the growth and stabilization of vegetation. Information from Utah State University, Utah Agricultural Experiment Station, 1994, *Consumptive Use of Irrigated Crops in Utah*, Research Report 145 provides irrigation requirements based on consumptive water use amounts (in addition to natural precipitation) of various crops. A quantity of 550,000 gallons per acre per year (applied during the irrigation season) should be sufficient to support pasture, turf or hay. This represents a reasonable upper limit for each of the two irrigation seasons during this temporary period. Water metering and record-keeping will be performed as a requirement to document the actual quantities of water applied. The property owner must notify the Executive Secretary in writing within 60 days of the start of this two year period. If irrigation is required beyond two years, either due to new Site disturbance or because the original plantings are not satisfactory for their intended purpose, the property owner must request and obtain written approval for this activity from the Executive Secretary.

#### 4.2.5 Water Features Prohibited

The construction of retention ponds, infiltration basins, dry wells or other structures of similar design or intent is prohibited in certain Controlled Areas. Similarly, designed water features such as, but not limited to, lakes, ponds, streams or constructed wetlands are prohibited in certain Controlled Areas.

The construction of water-tight enclosed-pipe conveyance systems for the delivery/management of sewerage, storm water, potable water or secondary irrigation water is not prohibited, subject to the other applicable Activity and Use Limitations described in this SMP.

#### 4.2.6 Construction Limitations

Certain Controlled Areas may have residual soil concentrations of volatile organic compounds (VOCs) which exceed target risk criteria for the inhalation exposure route via the indoor subsurface vapor intrusion pathway as evaluated using the Johnson and Ettinger screening level model and conservative model assumptions. These Controlled Areas are identified in Table 4-1, Activity and Use Limitations Summary by Area. Based upon ground water depths at the Site and analytical data presented in the RFI Report, ground water is not considered a potential source of vapors to indoor air. As recommended in *Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils*. (U. S. EPA 2002), existing or future buildings constructed within 100 feet of the VOC source area (as approximately demarcated in Figure 4-2) shall be evaluated for this potential pathway. A 2007 document prepared by the Interstate Technology and Regulatory Council entitled *Vapor Intrusion Pathway: A Practical Guideline*, is a suggested source of information related to the subject of subsurface vapor intrusion and potential mitigation strategies. *Indoor Air Vapor Intrusion Mitigation Approaches* (USEPA, EPA/600/R-08-115) provides useful information for mitigating vapor intrusion.

Construction of buildings in these Controlled Areas must satisfy one of the following conditions:

- Soils containing VOCs are removed until acceptable risk levels are obtained for this exposure pathway. Removal and testing of soils shall not be performed without work plan approval from the Executive Secretary. A risk assessment, performed in accordance with applicable sections of UAC R315-101 or other

methods acceptable to the Executive Secretary, demonstrating that target risk levels have been attained, must be approved by the Executive Secretary;

- Additional testing (e.g. subsurface vapor sampling) and/or modeling, performed in accordance with a work plan approved by the Executive Secretary, demonstrates that risks from this exposure pathway are below target risk levels; or,
- Appropriate engineering controls to mitigate exposure to subsurface vapors (e.g. passive or active vapor control systems), approved by the Executive Secretary, are designed and installed during building construction.

In addition to the above, building construction using Polysteel™ or equivalent building materials is prohibited in these Controlled Areas due to potential incompatibility with VOCs, unless implementation of one or more of the above conditions obviates the need for this prohibition.

Utility corridors (i.e. water, sewer, natural gas, etc.) installed through these Controlled Areas are subject to the following construction limitations if connected to a permanent structure located within 500 feet of the Controlled Area, as measured from the nearest edge of the Controlled Area along the length of the utility corridor to the permanent structure:

- Unless the Executive Secretary determines through the review of testing results or other supporting information provided by the property owner that potential vapor migration along utility corridors is not a concern, the utility corridor within the Controlled Area shall be sealed from surrounding soils to minimize the potential for vapor migration into the utility corridor. The property owner will submit design plans for the vapor seal to the Executive Secretary for approval. The Executive Secretary may require additional testing to confirm adequate control of vapors.

The property owner shall submit all work plans, testing results, risk assessments, reports and/or design plans associated with the above actions to the Executive Secretary. The Executive Secretary must approve these submittals before construction.

### 4.3 Activity and Use Limitations for Controlled Areas

For convenience, an abbreviated summary of Activity and Use Limitations for each Controlled Area is presented in Table 4-1. A site-wide map depicting the approximate locations of the Controlled Areas is presented as Figure 4-2. Appendix D of this SMP provides a set of summary sheets describing each Controlled Area. Exact Metes and Bounds descriptions of the Controlled Areas will be found in the recorded Environmental Covenants and land records upon approval of the CMI Report and this SMP.

**Table 4-1: Activity and Use Limitations Summary by Area**

Controlled Area ID	Activity and Use Limitations					
	Growing Edible Plants Prohibited	Limited Residential Use Restriction	Disturbance Limitation	Irrigation Limitation	Water Features Prohibited	Construction Limitation
1		•	•		•	
2		•	•		•	
3	•		•		•	
4	•		•		•	
5	•		•		•	
6	•		•		•	
7	•		•		•	
8	•		•		•	
9	•		•		•	
10	•		•		•	
11	•		•		•	
12	•		•		•	
13	•		•		•	
14	•		•		•	
15		•	•		•	
16	•		•		•	
17	•		•		•	
18	•		•		•	
19	•		•	•	•	
20	•		•	•	•	•
21	•		•		•	
22	•		•		•	
23	•		•	•	•	•

500 250 0  
NORTH Feet



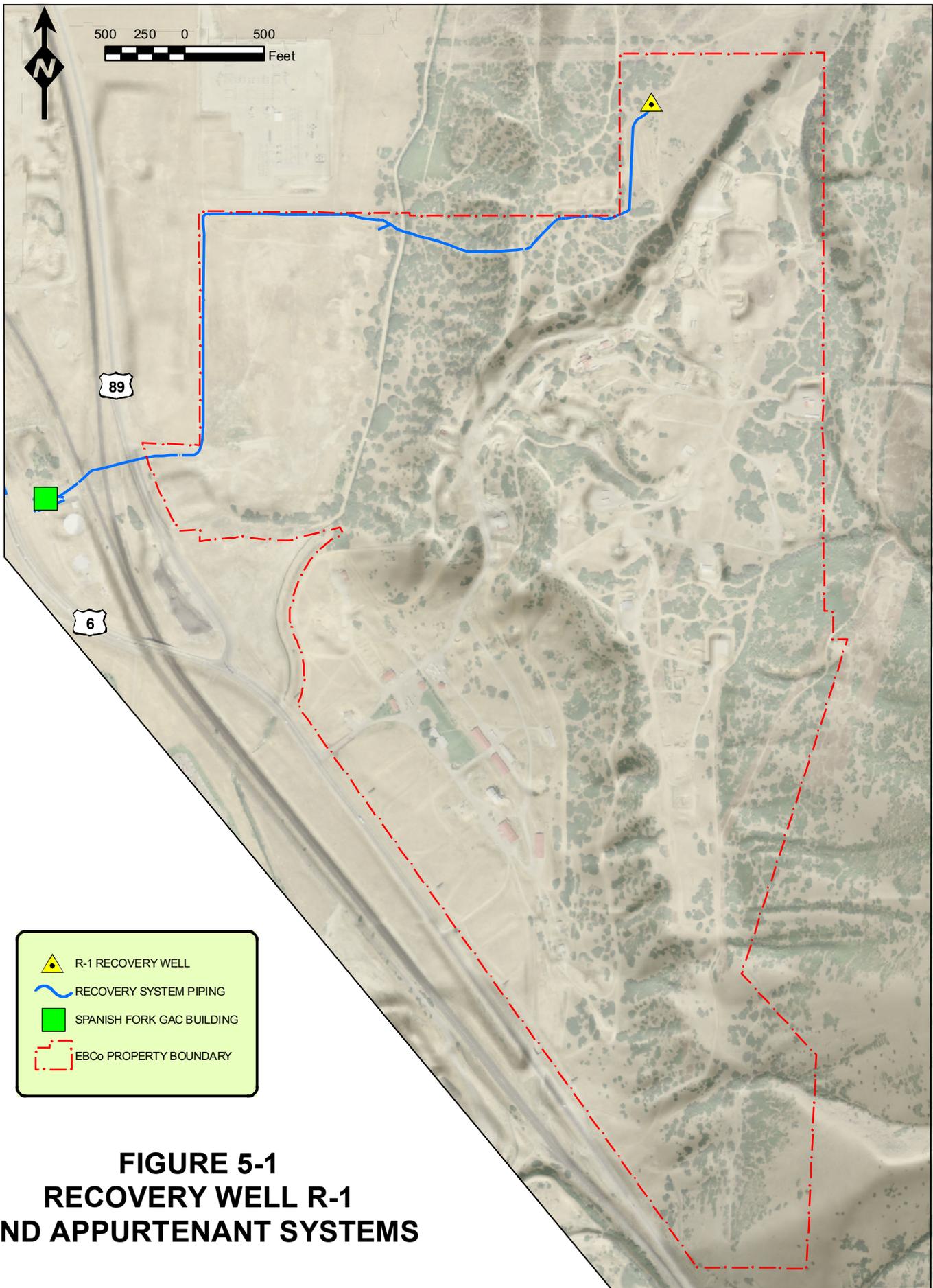
**EXPLANATION**

-  Controlled Area
-  EBCo Property Boundary

## 5.0 LONG-TERM SITE MANAGEMENT CONTROLS – OPERATIONS AND MAINTENANCE

EBCo has conducted ground water recovery and treatment both on and off the Site since 1998 as part of the corrective action program administered by the DWQ and as described in the approved CAP. The purpose of the ground water recovery and treatment program is to capture and contain ground water containing COPCs in excess of applicable ground water quality criteria and to restore the affected aquifer to beneficial use. In the northern portion of the Site, recovery well R-1 produces water that, following granular activated carbon (GAC) treatment, is used for secondary irrigation in Spanish Fork City or is discharged to the Spanish Fork River in accordance with a Utah Pollution Discharge Elimination System (UPDES) permit. The locations of recovery well R-1, the Spanish Fork GAC Treatment system and associated conveyance piping are shown in Figure 5-1. No additional corrective action implementation items are necessary at this time and ground water monitoring and operation of ground water recovery and treatment systems, including on-site recovery well R-1, will continue. Certain operations, maintenance, and monitoring requirements are addressed in this SMP.

As described in the approved CMS Report, intercepting ground water in the regional aquifer in the northeast portion of the Site is straightforward and consistent with the regional aquifer capture and treatment that was implemented in the CAP. Characteristics of the regional aquifer in the vicinity of recovery well R-1 are well known and the geologic environment is suitable for a capture program. Recovery well R-1 was installed and has operated in this area for a period of years to capture regional aquifer water for treatment. As described in the 2007 SDI Environmental (SDI) Report *Hydrologic Testing and Modeling Study to Support RCRA Corrective Action Efforts* included in the CMS Report, EBCo replaced and lowered the pump and motor in R-1 in 2007, increasing the sustainable pumping rate at R-1. SDI's modeling work demonstrated that an effective capture zone is created in this area by R-1 at flow rates ranging from 200 to 400 gpm and that the R-1 capture zone covers the area at the northeast portion of the Site.



**FIGURE 5-1  
RECOVERY WELL R-1  
AND APPURTENANT SYSTEMS**

## 5.1 Ground Water Recovery, Treatment and Monitoring

Ground water recovery, GAC treatment and monitoring systems, including those related to recovery well R-1, are in place and operated in accordance with the CAP as amended by subsequent changes approved by DWQ. Details regarding the operation, inspection, and monitoring of these systems are contained in the CAP, annual ground water reports, and the *Operations, Maintenance and Communications Manual, South End Recovery System and Spanish Fork GAC Treatment System* (Spanish Fork O&M Manual). Copies of these documents are on file at DSHW.

### 5.1.1 Recovery Well R-1 Flow Rate

Recovery well R-1 will be operated at maximum available capacity (currently approximately 400 gpm). Recovery well flow data are recorded automatically on an hourly frequency using a radio-telemetry system. These flow data are stored on a computer owned and maintained by Spanish Fork City and EBCo accesses this computer remotely to download the recorded data. Manual flow readings can also be taken directly from installed flow meters. EBCo will retain these flow records for a minimum of three years on a rolling basis.

Flow rates will vary over time in response to changing water level conditions and system pressures. A sustained drop in flow rate below 200 gpm for more than a 14-day period will require written notification to the Executive Secretary within 14 days of identifying this condition. Within 30-days of this notification, EBCo shall present a plan for evaluating this condition and potential corrective actions, as necessary. Assessment and repairs, if needed, will be completed in a timely fashion as limited by contractor and parts availability and ground surface conditions that may temporarily limit heavy equipment access to the well. Due to the slow rate of ground water movement, a shutdown of several months duration will have no consequential effect on ground water capture.

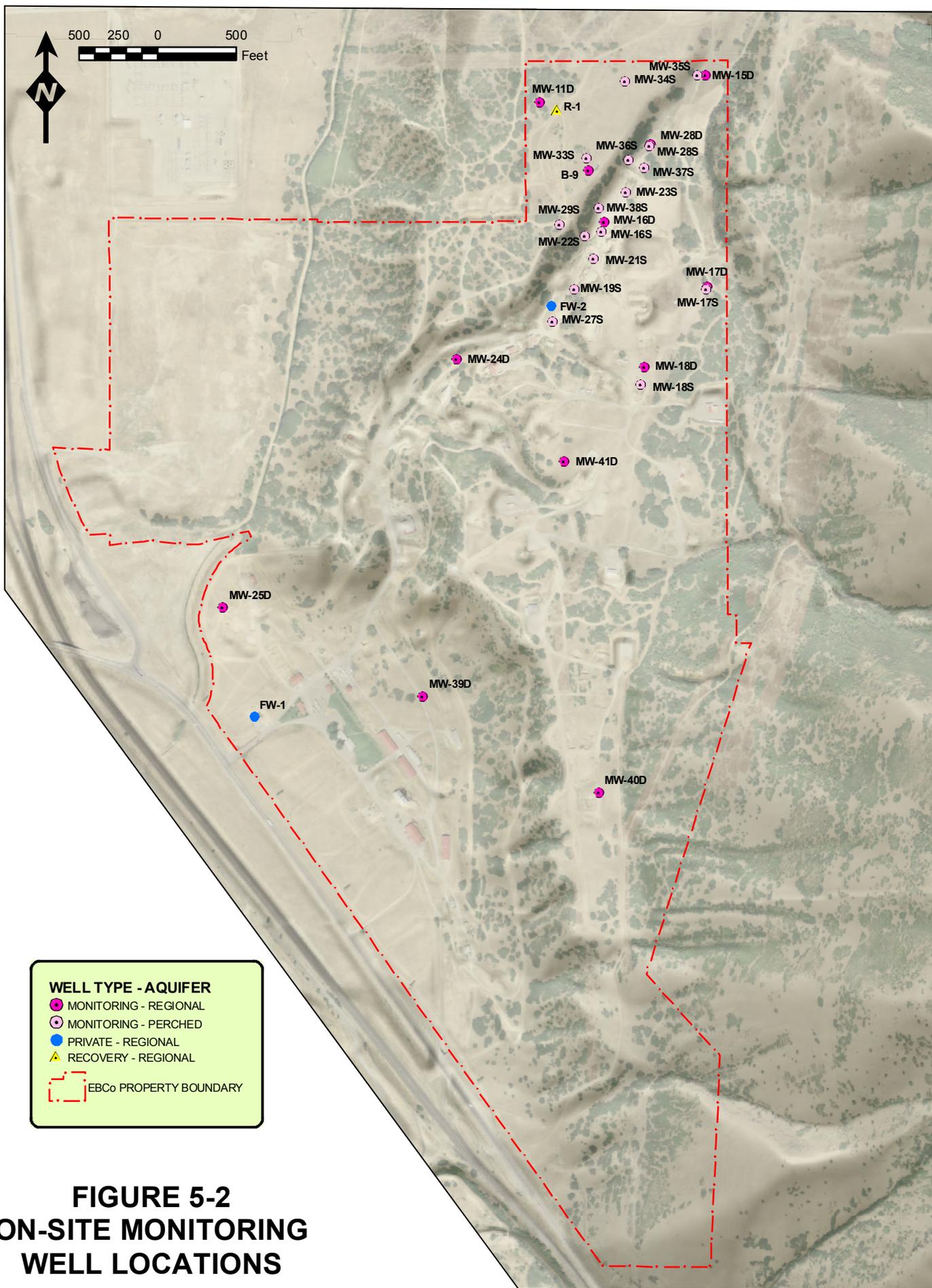
## 5.2 Ground Water Monitoring

Ground water monitoring of both regional aquifer and perched ground water wells is performed in accordance with the CAP, as amended by changes approved by DWQ. The monitoring wells located on the Site provide sufficient coverage to evaluate recovery well R-1 performance, the area of the Site having a ground water use limitation, and any locations where soil clean-up levels did not achieve a risk level of less than  $1 \times 10^{-6}$  for cancer risks or a hazard index of less than one for non-cancer risks using the conservative soil attenuation model (SAM) or the vadose zone model. The locations of on-site monitoring wells are shown in Figure 5-2.

## 5.3 Quality Assurance and Data Quality Objectives

Ground water analytical data will be used to assess ground water quality and concentration trends for comparison with applicable ground water protection criteria. These data will also be used to support a future petition for termination of recovery well R-1 operation and treatment. Quality assurance and data quality objectives are described in the *Quality Assurance Project Plan (QAPP), Ground Water Monitoring Program, The Ensign-Bickford Company, Spanish Fork, Utah* (Charter Oak, 2009). Ground water samples from on-site wells shall be collected, managed and evaluated in accordance with this QAPP.

Ground water sampling performed in accordance with this QAPP will result in definitive data, meaning that the data will be collected using standard sampling methodology and analytical methodology of known precision and accuracy. The data quality objectives for ground water sampling and analysis are the collection of data of suitable quantity and quality for comparison with applicable ground water protection criteria, assessment of constituent distribution and concentration trends, and determining attainment of remedial objectives.



**FIGURE 5-2  
ON-SITE MONITORING  
WELL LOCATIONS**

## 5.4 Health and Safety

Workers potentially in contact with ground water during operations, maintenance and monitoring activities may be subject to OSHA standards governing hazardous waste operations and emergency response as promulgated in 29 CFR 1910.120. The employer of workers involved in these activities is responsible for compliance with these standards.

## 5.5 Easements, Rights of Way and Access to Ground Water Recovery, Treatment and Monitoring Equipment

Recovery well R-1, a portion of the conveyance pipeline and all on-site monitoring wells included in the ground water monitoring program are located on what is currently EBCo property. Easements are already in place for the existing off-site conveyance piping routes and the Spanish Fork GAC treatment system. To the extent property on which any well, piping, or other necessary features appurtenant to the operation of recovery well R-1 and the ground water monitoring program are located is transferred, appropriate easements, access agreements, or rights of way will be established.

## 5.6 Reporting

Copies of Annual Ground Water Reports prepared for the DWQ have been, and will continue to be, provided to the Executive Secretary.

Quarterly reports prepared for the DWQ and addressing the entire ground water recovery program will be copied to the Executive Secretary beginning in 2009. These quarterly reports, submitted by February 28<sup>th</sup>, May 31<sup>st</sup>, August 31<sup>st</sup> and November 30<sup>th</sup> of each year will include:

- Information regarding recovery well flow rates for the previous quarter;
- Explanations about recovery system shutdowns due to maintenance needs or other circumstances;
- A tabular summary of water quality data from the previous quarter;
- A summary of GAC treatment system status, including planned or completed carbon exchanges; and,

- Information regarding UPDES Permit compliance.

## **5.7 Financial Assurance**

Financial assurance for the operation, maintenance and monitoring of the complete ground water recovery and treatment program, including recovery well R-1 and associated systems, has been established and funded in accordance with Department of Environmental Quality requirements.

## **5.8 Termination of Ground Water Recovery from Recovery Well R-1**

Recovery well R-1 and associated treatment systems will be operated as described in this SMP until such time that the Executive Secretary approves termination of this activity.

## **5.9 Inspection and Maintenance of Survey Monuments**

Survey monuments damaged or displaced during construction activities or for any other reason will be replaced by the property owner within 30 days of noticing the damage. If ongoing construction work precludes permanent replacement within the specified 30-day time period, the survey monuments will be replaced within 30 days of completing the construction activity. Temporary markers (e.g. survey stakes, rebar, flagging) will be used until permanent replacements are installed. Replacement survey monuments shall be of the same or equivalent design to the example provided in Appendix C and installed by a Utah Licensed Land Surveyor. The property owner will notify the Executive Secretary of the repairs and provide appropriate supporting documentation demonstrating that the repairs have been completed and that all survey monuments are in-place.

The property owner will inspect the survey monuments every five years to ensure that they are present, in proper condition, and accessible. The property owner shall maintain suitable records documenting the five-year inspections and make these documents available to the Executive Secretary, upon request. If needed, repairs or replacement of the survey monuments will be performed and documented as described above.

## 6.0 ENVIRONMENTAL COVENANTS

Environmental Covenants, documenting Activity and Use Limitations for certain areas, and on the applicable parcels, will be prepared in accordance with the Uniform Environmental Covenant Act (Utah Code, Title 57, Chapter 65, Sections 101-114) and submitted under separate cover. The Executive Secretary and property owner will be signatories to the Environmental Covenants. Within thirty days of the final required signature (to be executed following approval of this SMP), EBCo will record the Environmental Covenants in the same manner as a deed to the property, with the Utah County Records Office. EBCo will distribute file- and date-stamped copies of the Environmental Covenants to the Executive Secretary and the property owner or owners.

## 7.0 SITE MANAGEMENT PLAN NOTIFICATIONS

Following approval, a copy of the SMP and the recorded Environmental Covenants will be provided to:

- The current property owner;
- Municipality; and,
- The Executive Secretary

It is the responsibility of the current and future property owner(s) to ensure that Activity and Use Limitations specified in the Environmental Covenants are obeyed and appropriate notifications and/or submittals are made, as applicable.

Following the initial distribution, the Executive Secretary will maintain the SMP with copies available from the DSHW offices.

The SMP addresses the long-term operation, maintenance, monitoring and reporting requirements related to recovery well R-1 and ground water monitoring. Notification, reporting and documentation requirements related to these activities are addressed in Section 5 of this SMP.

The SMP and Environmental Covenants both detail Activity and Use Limitations for the property. As described in these documents, the property owner is responsible for notifying the Executive Secretary of certain activities within Controlled Areas and in certain cases submitting and/or maintaining appropriate documentation. Table 7-1 summarizes these notification requirements. Compliance with the notification requirements of this SMP does not relieve the property owner from complying with other federal, state and local obligations that may apply.

**Table 7-1: Activity and Use Limitations – Property Owner Notification Requirements**

<b>Activity/Limitation</b>	<b>Action</b>	<b>Notification<sup>1</sup></b>
Disturbance Limitation	Excavation, grading or construction work that disturbs soils within Controlled Area	<ul style="list-style-type: none"> <li>• Written notification at least 30-days in advance of planned work, including documentation suitable to demonstrate prospective compliance with limitation.</li> <li>• Verbal notification at least 7-days in advance of starting work.</li> <li>• Submit documentation/certification demonstrating compliance.</li> </ul>
	Emergency Excavations	<ul style="list-style-type: none"> <li>• Verbal notification of emergency incident within 24-hours.</li> <li>• Written follow-up documentation within 15 days.</li> </ul>
Temporary Irrigation	Installation and operation of temporary irrigation to facilitate initial growth of ground cover	<ul style="list-style-type: none"> <li>• Written notification within 60-days of starting temporary irrigation.</li> <li>• Written notification if more than two irrigation seasons are needed.</li> <li>• Water metering and record keeping</li> </ul>
Construction Limitation	Building and/or utility construction within areas identified as having the potential for subsurface indoor vapor intrusion	<ul style="list-style-type: none"> <li>• Submittal of work plans, testing results, risk assessment results and/or design plans.</li> <li>• Approval required from Executive Secretary prior to commencing work.</li> </ul>
Ground Water Use Without Treatment	Use of water without treatment (with the exceptions for Recovery Well R-1 and Facility Well 2 (FW-2))	<ul style="list-style-type: none"> <li>• Written notification at least 120 days prior to planned water development or use.</li> <li>• Approval required from Executive Secretary and other applicable federal, state or local agencies.</li> <li>• Reporting and notification as specified in this SMP related to the use and monitoring of FW-2</li> </ul>
Inspection and Maintenance of Survey markers	Inspect every five years. Repair/replace if damaged or missing	<ul style="list-style-type: none"> <li>• Maintain records of five-year inspections.</li> <li>• Written notification of repairs to or replacement of survey markers.</li> </ul>
Monitor well FW-2 for CEMs	If CEMs are detected	<ul style="list-style-type: none"> <li>• Oral notification within 15 days of becoming aware of such detection.</li> <li>• Written notification within 30 days.</li> </ul>

<sup>1</sup>Notify the Executive Secretary

## **8.0 CERTIFICATION OF COMPLETION**

The result of implementing this SMP will be to meet the risk-based objectives for applicable land use scenarios for every area of the Site.

### **8.1 Certification of Completion**

Within 60 days of completing the short-term tasks identified in the approved SMP, EBCo will submit a certification of completion to the Executive Secretary signed by EBCo and a Utah licensed Professional Engineer.

## 9.0 SCHEDULE

EBCo expects all short-term activities identified in this SMP, including the filing of the Environmental Covenants with the Utah County Records Office, to be completed within one year of the Executive Secretary's approval of the CMI Report and SMP (whichever is later). A certification of completion will be submitted to the Executive Secretary within 60-days of completion of these activities. This schedule may be modified based on actual time to implement and complete these actions and prepare the supporting documentation.

## 10.0 REFERENCES CITED

Charter Oak Environmental Services, Inc. (Charter Oak), 2009, *Quality Assurance Project Plan (QAPP), Ground Water Monitoring Program, The Ensign-Bickford Company, Spanish Fork, Utah*

Charter Oak Environmental Services, Inc. (Charter Oak), February 2008, *Revised RCRA Corrective Measures Study Report, The Ensign-Bickford Company, Spanish Fork, Utah*

Charter Oak Environmental Services, Inc. (Charter Oak), May 2007, *RCRA Facility Investigation Report, The Ensign-Bickford Company, Spanish Fork, Utah*

Charter Oak Environmental Services, Inc. (Charter Oak), Revised May 2002, Amended August 2004, *Site Investigation Summary and Corrective Action Plan, The Ensign-Bickford Company, Spanish Fork, Utah*

The Interstate Technology and Regulatory Council, 2007, *Vapor Intrusion Pathway: A Practical Guideline*

U.S. Environmental Protection Agency (U.S. EPA), 2002, *OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion Guidance)*

Utah State University, Utah Agricultural Experiment Station, 1994, *Consumptive Use of Irrigated Crops in Utah*, Research Report 145

## **Appendix A**

### Site Background Summary

## A.1 Site Background

The Ensign-Bickford Company (EBCo) owns approximately 480 acres located at the mouth of Spanish Fork Canyon, in Spanish Fork, Utah (Figure 1-1). Manufacturing activities at this location began in approximately 1941 and continued until February 2006. The facility is subject to the requirements of the RCRA Corrective Action program. Operational details and histories regarding the site are summarized in detail in the RCRA Facility Investigation (RFI) Work Plan (Montgomery Watson, 1998), the Corrective Action Plan (CAP, Charter Oak, 2002) and the RFI Report (Charter Oak, 2007). Refer to these documents for a more complete presentation of these histories and details regarding RCRA corrective action completed at the facility.

Between 1999 and May 2007, EBCo conducted an RFI to determine the nature and extent of hazardous waste(s) and hazardous waste constituents at 44 Solid Waste Management Units (SWMUs) identified at the site (Figure A-1). The RFI was completed in accordance with the Final RFI Work Plan and approved addenda thereto. The results of the RFI were presented in the RFI Report, including physical and chemical data collected to characterize site conditions and both human health and ecological risk assessments performed on these data. EBCo responded to comments received from the Division of Solid and Hazardous Waste (DSHW) on the RFI Report. The DSHW approved the RFI Report on February 20, 2008.

EBCo implemented interim measures at the site, between 2003 and 2007, concurrent with the RFI. These interim measures included excavation, on-site treatment and/or off-site disposal of over 130,000 tons of soil affected by site-related constituents of potential concern (COPCs). As part of the overall site remediation effort, EBCo has also decommissioned and dismantled facility infrastructure including: process equipment, foundations, storage magazines, tanks and buildings. The RCRA Interim Measures Report (Charter Oak, 2007) and the RFI Report present details regarding these interim measures.

The Revised RCRA Corrective Measures Study Report (CMS Report, Charter Oak, 2008), presented an assessment of potential site management alternatives and recommended actions to address conditions exceeding applicable risk criteria identified in the RFI. On April 2, 2008, the DSHW approved the CMS Report.

The Corrective Measures Implementation Work Plan (CMI Work Plan, Charter Oak, 2008), presented a general plan to complete final corrective action at the facility and addressed soil excavation and disposal, soil consolidation within a SWMU, post-excavation sampling and analysis, backfill/re-vegetation and potential site management controls. DSHW approved the CMI Work Plan on April 2, 2008, and final corrective actions for soils at the site began immediately thereafter.

Upon completion of the RFI and/or corrective actions EBCo anticipates that 23 SWMUs will meet the requirements for no further action (NFA), and that twenty-one SWMUs will not meet NFA requirements will be subject to activity and use limitations specified in the Site Management Plan and Environmental Covenant for the Site. Table A-1 summarizes the expected final corrective action status of each SWMU. The Corrective Measures Implementation Report will present the final summary of SWMU status.

**Table A-1: Anticipated Corrective Action Status of Each SWMU**

<b>SWMU No.</b>	<b>SWMU Description</b>	<b>Status</b>
01	North Impoundment and Wastewater Conveyance Structure (includes the Wastewater Dispersion Area)	AUL
02	PETN Pack House and Sump	AUL
<b>03</b>	<b>Acid Ponds</b>	<b>NFA</b>
<b>04</b>	<b>SICBM Magazine</b>	<b>NFA</b>
05	Building 18	AUL
06	Building 17	AUL
07	Building 65	AUL
<b>08</b>	<b>NCN Building and Tanks</b>	<b>NFA</b>
<b>09</b>	<b>Dryer Building and Ditch</b>	<b>NFA</b>
<b>10</b>	<b>Breakout Building</b>	<b>NFA</b>
<b>11</b>	<b>Explosives Burn Area</b>	<b>NFA</b>
12	Burn Pit and Burn Cage Storage Area	AUL

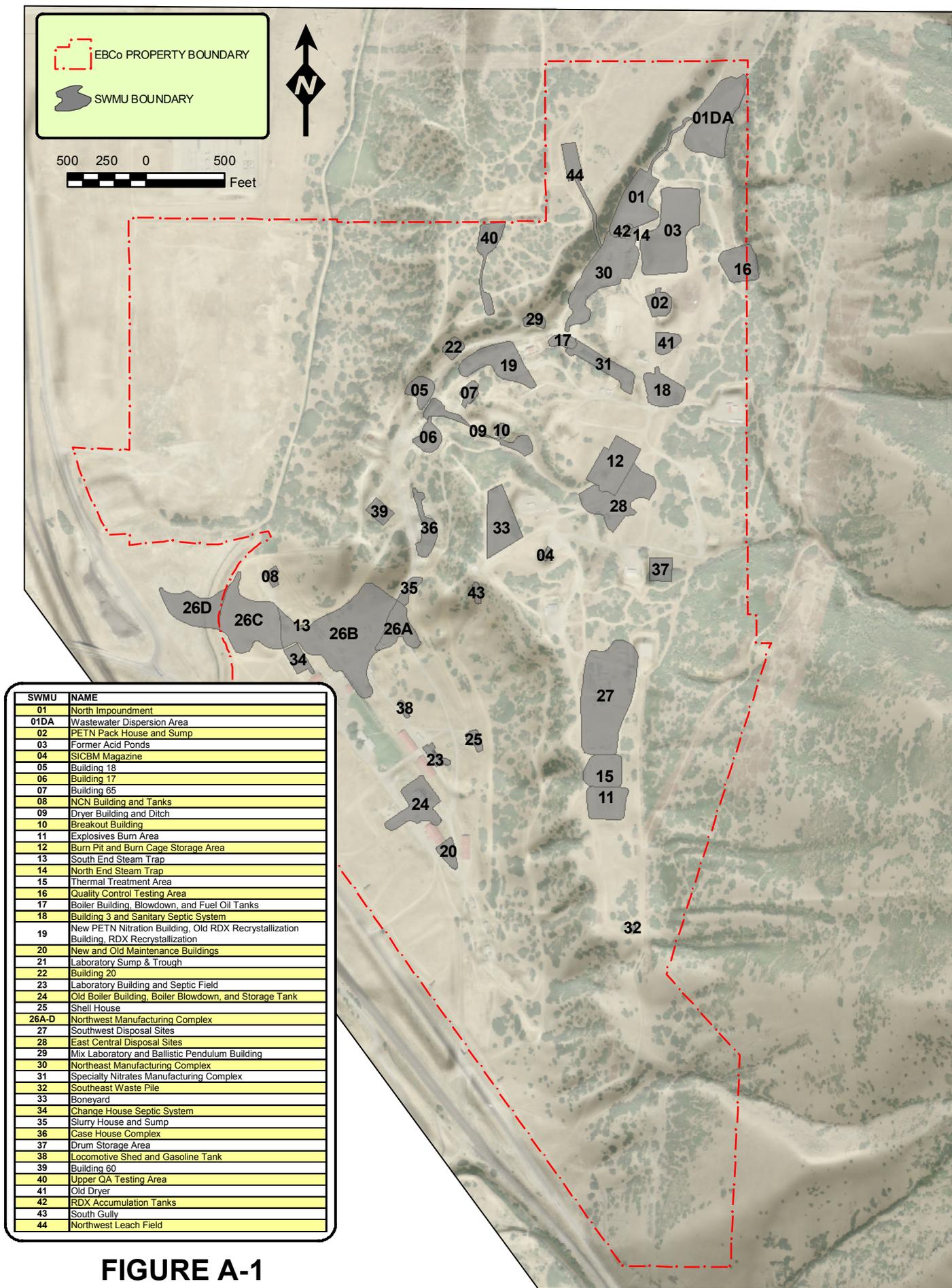
**Table A-1: Anticipated Corrective Action Status of Each SWMU**

<b>SWMU No.</b>	<b>SWMU Description</b>	<b>Status</b>
<b>13</b>	<b>South End Steam Trap</b>	<b>NFA</b>
<b>14</b>	<b>North End Steam Trap</b>	<b>NFA</b>
<b>15</b>	<b>Inactive Thermal Treatment Area</b>	<b>NFA</b>
16	Quality Control Testing Area	AUL
17	Boiler Building, Blowdown, and Fuel Oil Tanks	AUL
18	Building 3 and Sanitary Septic System	AUL
19	New PETN Nitration, Old RDX Recrystallization Building	AUL
<b>20</b>	<b>New and Old Maintenance Buildings</b>	<b>NFA</b>
<b>21</b>	<b>Laboratory Sump</b>	<b>NFA</b>
<b>22</b>	<b>Building 20</b>	<b>NFA</b>
<b>23</b>	<b>Laboratory Building and Septic Field</b>	<b>NFA</b>
24	Old Boiler Building, Boiler Blowdown, and Storage Tank	AUL
<b>25</b>	<b>Shell House</b>	<b>NFA</b>
26	Northwest Manufacturing Complex	AUL
<b>27</b>	<b>Southeast Disposal Sites</b>	<b>NFA</b>
28	East Central Disposal Sites	AUL
<b>29</b>	<b>Mix Laboratory and Ballistic Pendulum Building</b>	<b>NFA</b>
30	Northeast Manufacturing Complex	AUL
31	Specialty Nitrates Manufacturing Complex	AUL
<b>32</b>	<b>Southeast Waste Pile</b>	<b>NFA</b>
33	Boneyard	AUL
<b>34</b>	<b>Change House Septic System</b>	<b>NFA</b>
35	Slurry House and Sump	AUL
36	Case House Complex	AUL
<b>37</b>	<b>Drum Storage Area</b>	<b>NFA</b>
<b>38</b>	<b>Locomotive Shed and Gasoline Tank</b>	<b>NFA</b>
39	Building 60	AUL
<b>40</b>	<b>Upper QA Testing Area</b>	<b>NFA</b>
41	Old Dryer	AUL
42	RDX Accumulation Tanks	AUL
<b>43</b>	<b>South Gully</b>	<b>NFA</b>
<b>44</b>	<b>Northwest Leach Field</b>	<b>NFA</b>
NFA	Signifies No Further Action <ul style="list-style-type: none"> <li>• Shading identifies SWMUs where DSHW has already made a NFA determination</li> <li>• Bold text indicates that a NFA determination is anticipated upon conclusion of corrective actions</li> </ul>	
AUL	Signifies that the SWMU will be subject to Activity and Use Limitations as specified in the Site Management Plan and Environmental Covenant for the Site.	

## A.2 Basis for Ground Water Use Limitation

The hydrogeology of the site and ground water quality conditions are detailed in the RFI Report. Both perched ground water and a regional aquifer are present below the site. Perched ground water has been identified in the northeast area of the property at a depth of approximately 100 feet below the ground surface. The hydraulic characteristics of the perched ground water system preclude its use as a viable ground water resource. The regional aquifer underlies the entire site and consists of both unconsolidated materials and bedrock. Portions of the regional aquifer below the site have hydraulic characteristics which are suitable for water supply purposes as evidenced by the presence of two water supply wells owned by EBCo and recovery well R-1. In other areas of the site, primarily underlain by the North Horn Formation (consisting predominantly of siltstone and claystone), the regional aquifer is not likely to possess suitable hydraulic characteristics for water supply purposes.

As detailed in the RFI Report and Annual Ground Water Reports submitted to the Utah Department of Environmental Quality, portions of both the perched ground water system and the regional aquifer below the site contain COPCs at concentrations exceeding applicable ground water protection criteria. Only RDX exceeds applicable ground water quality protection criteria in the regional aquifer below the EBCo site.



SWMU	NAME
01	North Impoundment
01DA	Wastewater Dispersion Area
02	PETN Pack House and Sump
03	Former Acid Ponds
04	SICBM Magazine
05	Building 18
06	Building 17
07	Building 65
08	NCN Building and Tanks
09	Dryer Building and Ditch
10	Breakout Building
11	Explosives Burn Area
12	Burn Pit and Burn Cage Storage Area
13	South End Steam Trap
14	North End Steam Trap
15	Thermal Treatment Area
16	Quality Control Testing Area
17	Boiler Building, Blowdown, and Fuel Oil Tanks
18	Building 3 and Sanitary Septic System
19	New PETN Nitration Building, Old RDX Recrystallization Building, RDX Recrystallization
20	New and Old Maintenance Buildings
21	Laboratory Sump & Trough
22	Building 20
23	Laboratory Building and Septic Field
24	Old Boiler Building, Boiler Blowdown, and Storage Tank
25	Shell House
26A-D	Northwest Manufacturing Complex
27	Southwest Disposal Sites
28	East Central Disposal Sites
29	Mix Laboratory and Ballistic Pendulum Building
30	Northeast Manufacturing Complex
31	Specialty Nitrates Manufacturing Complex
32	Southeast Waste Pile
33	Boneyard
34	Change House Septic System
35	Slurry House and Sump
36	Case House Complex
37	Drum Storage Area
38	Locomotive Shed and Gasoline Tank
39	Building 60
40	Upper QA Testing Area
41	Old Dryer
42	RDX Accumulation Tanks
43	South Gully
44	Northwest Leach Field

**FIGURE A-1  
SWMU LOCATION MAP**

## **Appendix B**

Representative Seed Blend for Re-vegetation

## REVEGETATION GRASS SEED MIX

PERCENT OF MIX	SPECIES
15.0	BLUE BUNCH WHEAT
15.0	WESTERN WHEAT GRASS
15.0	GREAT BASIN WILD RYE
12.5	THICK SPIKE WHEAT
12.5	SLENDER WHEATGRASS
10.0	RUSSIAN WILD RYE
5.0	SHEEP FESCUE
5.0	FOUR WING SALT BRUSH
5.0	WINTER FAT
4.25	SANDBERG BLUE GRASS
<u>.75</u>	MOUNTAIN BIG SAGE BRUSH
100	TOTAL

## **Appendix C**

### Typical Permanent Survey Monument Specification



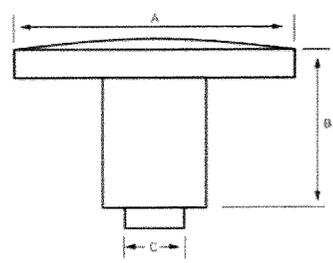
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**Product Information**

**RBX8325**



A = 3 1/4" (83 mm)  
 B = 1 1/4" (38 mm)  
 C = 1" (25 mm)

3 1/4" Domed cap for 1" Rebar (Aluminum)

**Prices**

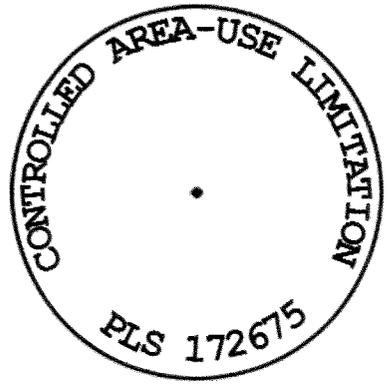
\$7.93	1 - 24	NO CHARGE for stamping 11 or more markers. There is a \$35 setup charge for stamping fewer markers.
\$4.66	25 - 99	
<del>\$4.48</del>	100 - 249	
\$4.28	250 - 499	
\$3.86	500 or more	



Please enter the text you would like printed in the text boxes provided below:

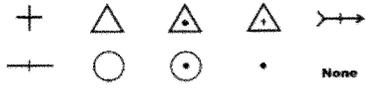
**Outside Row**  
 Total of 46 characters and spaces.  
 Centered at 12 o'clock: CONTROLLE  
 Centered at 6 o'clock: PLS 172675

**Inside Row**  
 Total of 40 characters and spaces.  
 Centered at 12 o'clock:  
 Centered at 6 o'clock:



3 1/4" CAP

Please select the center mark for this cap:



Qty: 1

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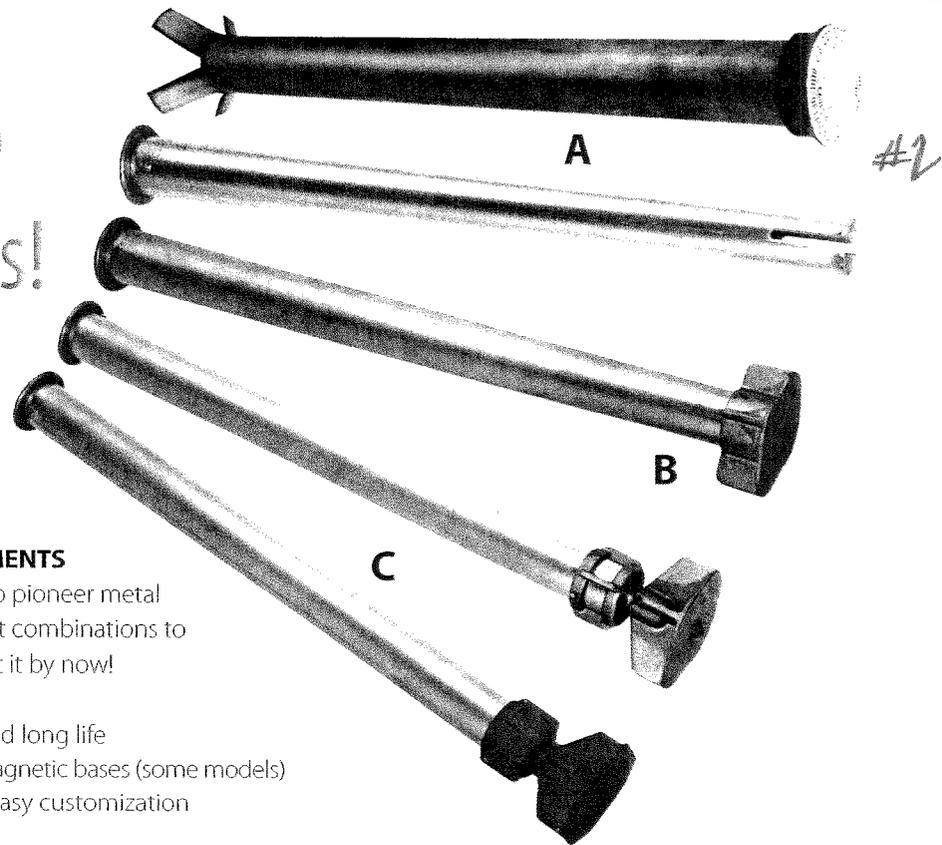
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# Customize Your Monuments!

See page 32 for details



**BERNTSEN® MAGNETIC PIPE MONUMENTS**

In 1971, Berntsen became the first firm to pioneer metal monuments using metallurgically correct combinations to avoid corrosion, and we're pretty good at it by now!

Our pipe monuments are famous for:

- metallurgically correct combinations and long life
- easy installation • low cost • breakaway magnetic bases (some models)
- easy location with magnetic locators • easy customization

**A. FLARED AND NOTCHED-BASE MONUMENTS**

30" Flared or notched-base monuments are available in aluminum, stainless steel and iron pipe. All stainless steel and iron pipe monuments come with a bronze cap, and all pipe monuments come with a permanent magnet. Berntsen® notched-base monuments exceed federal specifications. Pipe can be shipped flared or can be flared in the field.

Item #	Description	1-10	11-24	25-99	100+
<b>A1NB30</b>	30" Aluminum Notched Base (Not Flared)	33.39	21.93	18.46	17.65
<b>A1NBF30</b>	30" Aluminum Notched Base (Flared)	33.39	21.93	18.46	17.65
<b>A1NB36</b>	36" Aluminum Notched Base (Not Flared)	38.36	27.94	24.68	23.45
<b>A1NBF36</b>	36" Aluminum Notched Base (Flared)	38.36	27.94	24.68	23.45
<b>SS5NBF30</b>	30" Stainless Steel Schedule 5 Notched Base (Flared)	Call for Price			
<b>SSBNB30</b>	30" Stainless Steel Schedule 10 Notched Base (Not Flared)	Call for Price			
<b>SSBNBF30</b>	30" Stainless Steel Schedule 10 Notched Base (Flared)	Call for Price			
<b>IPNB30</b>	30" Iron Pipe Base Monument (Not Flared)	61.48	59.00	55.89	51.23
<b>IPNBF30</b>	30" Iron Pipe Base Monument (Flared)	61.48	59.00	55.89	51.23

**B. STANDARD ALUMINUM MONUMENTS**

30" Standard aluminum pipe monument with cast aluminum base that houses a strong, permanent magnet.

<b>A130</b>	30" Aluminum Standard (Cast Magnetic Base)	51.28	41.40	35.58	34.35
<b>A136</b>	36" Aluminum Standard (Cast Magnetic Base)	54.10	45.07	41.08	38.68

**C. BREAK-OFF MONUMENTS**

The break-off pipe monument is 30". When base and cap are added the overall length is about 34". These monuments are available with aluminum or polystyrene bases, and aluminum, stainless steel or PVC pipe.

<b>A1BR30</b>	30" Aluminum Break-Off (Alum. Cap, Pipe, & Base)	57.44	43.82	39.72	38.34
<b>A1BR36</b>	36" Aluminum Break-Off (Alum. Cap, Pipe, & Base)	60.07	46.99	43.29	41.63
<b>A2BR30</b>	30" Alum. Break-Off (Alum. Cap & Pipe, Plastic Base)	45.71	32.53	28.53	27.52
<b>A2BR36</b>	36" Alum. Break-Off (Alum. Cap & Pipe, Plastic Base)	49.06	37.90	33.04	31.57
<b>A3BR30</b>	30" Break-Off (Alum. Cap, PVC Pipe, Plastic Base)	49.09	35.39	29.99	28.93
<b>A3BR36</b>	36" Break-Off (Alum. Cap, PVC Pipe, Plastic Base)	54.73	41.44	34.29	32.86

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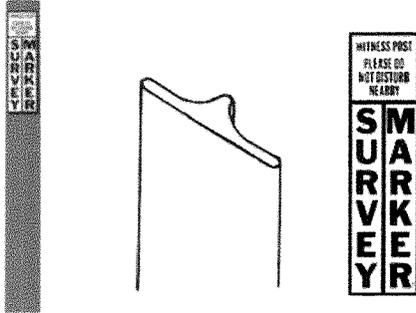


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**Product Information**

**CBM72SM110**



6 Foot Fiberglass Orange Post with SM110 Decal

**Prices**

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\$15.37	20 - 80
\$14.52	100 - 280
\$13.96	300 or more

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## **Appendix D**

### Controlled Area Summaries

**Information Presented in this Appendix D:**

A separate tab is provided for each Controlled Area. Within each tab, the following information is presented.

**Controlled Area and Activity and Use Limitations Summary:**

This summary identifies the Activity and Use Limitations applied for each Controlled Area. This summary is Table 8-1 as presented in the December 2009, RCRA Corrective Measures Implementation Report.

**Controlled Area Summary Sheets:**

Each of these sheets identifies the Controlled Area by number and also identifies the former Solid Waste Management Unit (SWMU) designation. For instance, the location of Controlled Area No. 1 was formerly identified as SWMU 24. During the RCRA Facility Investigation (RFI) and Corrective Measures Implementation (CMI) phases, the SWMU numbers were used, therefore, identification of SWMU numbers allows for reference to the work performed in the RFI and CMI phases of the corrective actions. In some cases, more than one contiguous SMWU is incorporated into a Controlled Area.

The nature of the Activity and Use Limitations is identified as well as the notification and approval requirements for each Controlled Area.

**RCRA Corrective Action Summary:**

For each SWMU at the location of a Controlled Area, a brief summary of RCRA corrective action activities is presented. This summary identifies the classes of constituents for which corrective action was performed for the various exposure scenarios. It also provides a comparison of pre- and post-corrective action maximum concentrations for key constituents. Refer to the Acronyms page in the Definitions Section of this Site Management Plan for explanation of the acronyms used in this summary. For more detailed information pertaining to the current conditions constituent distribution in each Controlled Area, reference is made to the December 2009, RCRA Corrective Measures Implementation Report SWMU tabs under the SWMU-Specific Assessments attachment.

**Table 8-1: Controlled Area and Activity and Use Limitations Summary**

Controlled Area ID	SWMU ID(s)	SWMU Description	Activity and Use Limitations					
			Growing Edible Plants Prohibited	Limited Residential Use Restriction	Disturbance Limitation	Irrigation Limitation	Water Features Prohibited	Construction Limitation
1	24	Old boiler Building, Boiler Blowdown, and Storage Tank		•	•		•	
2	26C	Northwest Manufacturing Complex		•	•		•	
3	26A	Northwest Manufacturing Complex	•		•		•	
	35	Slurry House and Sump						
4	39	Building 60	•		•		•	
5	36	Case House Complex	•		•		•	
6	33	Boneyard	•		•		•	
7	6	Building 17	•		•		•	
8	10	Breakout Building	•		•		•	
9	12	Burn Pit and Burn Cage Storage Area	•		•		•	
	28	East Central Disposal Sites (West side)						
10	28	East Central Disposal Sites (East side)	•		•		•	
11	5	Building 18	•		•		•	
12	7	Building 65	•		•		•	
13	22	Building 20	•		•		•	
14	19	New PETN Nitration Building, Old RDX Recrystallization Building, RDX Recrystallization Storage Tanks	•		•		•	
15	17	Boiler Building, Blowdown, and Fuel Oil Tanks		•	•		•	
16	31	Specialty Nitrates Manufacturing Complex	•		•		•	
17	18	Building 3 and Sanitary Septic System	•		•		•	
18	41	Old Dryer	•		•		•	
19	1	North Impoundment Area and Wastewater Conveyance Structure	•		•	•	•	
	14	North End Stream Trap						
	30	Northeast Manufacturing Complex - Outside of HMX Crystallizer Subarea						
	42	RDX Accumulation Tanks						
20	30	Northeast Manufacturing Complex - HMX Crystallizer Subarea	•		•	•	•	•
21	2	PETN Pack House and Sump	•		•		•	
22	16	Quality Control Testing Area	•		•		•	
23	1DA	Wastewater Dispersion Area	•		•	•	•	•

Controlled Area 24 is an area of the Site having a Ground Water Use Limitation due to existing ground water quality conditons (see Figure 8-2)

Activity and Use Limitations Described in the Site Management Plan

<b>Controlled Area ID:</b>	1		
<b>ACTIVITY AND USE LIMITATIONS</b>			
<b>Limited Residential Use Restriction<sup>1</sup></b>			
<b>Soil Disturbance Limitation to the Ground Surface</b>			
<b>Water Features Prohibited (e.g. retention ponds, infiltration basins, lakes, etc.)</b>			
Activity and Use Limitations are described in Section 4 of the SMP			
<b>PROPERTY OWNER NOTIFICATION AND APPROVAL REQUIREMENTS</b>			
<b>ACTION/ACTIVITY</b>	<b>Notification of Executive Secretary</b>	<b>Approval from Executive Secretary</b>	<b>Documentation Requirement</b>
<b>Soil Disturbance</b>	Yes	No	Maintain
<b>Temporary Irrigation</b>	No	No	No
Notification requirements are described in Sections 4 and 7 of the SMP			

<sup>1</sup>Limited Residential Use is defined as leased or owned residential space within otherwise commercially-owned and developed land. Accessories to residential uses, such as the planting of private or public vegetable gardens, edible fruit trees and orchards are not permitted in areas subject to the Limited Residential Use Restriction. It does not prohibit public recreation use. Residential use is permitted in Controlled Areas subject to this limited restriction where:

- The land is in an otherwise commercially developed area; and,
- The Controlled Area is under buildings, pavement, sidewalks or ornamental landscaping.

## RCRA CORRECTIVE ACTION SUMMARY

**Controlled Area:** 1

**SWMU ID:** 24 (Old Boiler Building, Boiler Blowdown, and Storage Tank)

### SOIL MANAGEMENT

The combined quantity of soil managed by on-site thermal treatment or by off-site disposal was 14,781 tons.

The quantity of soil managed on-site by consolidation in this area was 1,124 tons.

### CURRENT CONDITION CONSTITUENT DISTRIBUTION

Refer to the *RCRA Corrective Measures Implementation Report* (Charter Oak, December 2009) SWMU Tabs included in the SWMU-Specific Assessments attachment for a map and table describing the remaining constituent distribution.

Any soils disturbed within **Controlled Area 1** are subject to the Activity and Use Limitations.

### CLASSES OF COPCs REQUIRING CORRECTIVE ACTION/SITE MANAGEMENT

	Exposure Scenario			
	Industrial/ Commercial/ Construction	Off-Site Resident (MTRA)	On-Site Resident	Visitor/ Trespasser
CEMs	•	•	•	•
PAHs	•		•	•
SVOCs				
VOCs				
METALS (Pb or Sb)				
TPH	•	•	•	
Nitrostarch				

### REPRESENTATIVE COPC CONCENTRATION REDUCTIONS

	Pre-CA Max Conc. (mg/kg)	Post-CA Max Conc. (mg/kg)	Percent Reduction (Max. Conc.)
RDX	2,600	8.2	99.7%
TPH-DRO	1,150	290	75%
TPH-MO	390,000	570	99.9%
B(a)P	0.79	0.0925	88%
D(a,h)A	0.52	0.16	69%

### SOIL COVER AND STABILIZATION

Two-feet of silty soil cover and re-vegetation are required.

<b>Controlled Area ID:</b>	2		
<b>ACTIVITY AND USE LIMITATIONS</b>			
<b>Limited Residential Use Restriction<sup>1</sup></b>			
<b>Soil Disturbance Limitation to the Ground Surface</b>			
<b>Water Features Prohibited (e.g. retention ponds, infiltration basins, lakes, etc.)</b>			
Activity and Use Limitations are described in Section 4 of the SMP			
<b>PROPERTY OWNER NOTIFICATION AND APPROVAL REQUIREMENTS</b>			
<b>ACTION/ACTIVITY</b>	<b>Notification of Executive Secretary</b>	<b>Approval from Executive Secretary</b>	<b>Documentation Requirement</b>
<b>Soil Disturbance</b>	Yes	No	Maintain
<b>Temporary Irrigation</b>	No	No	No
Notification requirements are described in Sections 4 and 7 of the SMP			

<sup>1</sup>Limited Residential Use is defined as leased or owned residential space within otherwise commercially-owned and developed land. Accessories to residential uses, such as the planting of private or public vegetable gardens, edible fruit trees and orchards are not permitted in areas subject to the Limited Residential Use Restriction. It does not prohibit public recreation use. Residential use is permitted in Controlled Areas subject to this limited restriction where:

- The land is in an otherwise commercially developed area; and,
- The Controlled Area is under buildings, pavement, sidewalks or ornamental landscaping.

## RCRA CORRECTIVE ACTION SUMMARY

**Controlled Areas:** 2 and 3

**SWMU ID:** 26 (Northwest Manufacturing Complex - Subareas A, B and C)

### SOIL MANAGEMENT

The combined quantity of soil managed by on-site thermal treatment or by off-site disposal was 7,308 tons.

The quantity of soil managed on-site by consolidation in this area was 770 tons.

The quantity of soil managed on-site by consolidation in the Corrective Action Management Unit (CAMU) was 465 tons.

### CURRENT CONDITION CONSTITUENT DISTRIBUTION

Refer to the *RCRA Corrective Measures Implementation Report* (Charter Oak, December 2009) SWMU Tabs included in the SWMU-Specific Assessments attachment for a map and table describing the remaining constituent distribution.

Any soils disturbed within **Controlled Areas 2 and 3** are subject to the Activity and Use Limitations.

### CLASSES OF COPCs REQUIRING CORRECTIVE ACTION/SITE MANAGEMENT

	Exposure Scenario			
	Industrial/ Commercial/ Construction	Off-Site Resident (MTRA)	On-Site Resident	Visitor/ Trespasser
CEMs	•	•	•	•
PAHs				
SVOCs				
VOCs				
METALS (Pb or Sb)				
TPH				
Nitrostarch	•		•	•

### REPRESENTATIVE COPC CONCENTRATION REDUCTIONS

	Pre-CA Max Conc. (mg/kg)	Post-CA Max Conc. (mg/kg)	Percent Reduction (Max. Conc.)
RDX	49.9	5.2	90%
TNT	5.7	0.73	87%
HMX	100	97.3	3%
PETN	706	220	69%
Nitroglycerin	6.37	0.21	97%
2,4-DNT	0.83	0.39	53%

### SOIL COVER AND STABILIZATION

SWMU 26A: Two-feet of silty soil cover and re-vegetation are required.

SWMU 26B: Meets NFA criteria. No corrective action backfill is required.

SWMU 26C: Two-feet of silty soil cover and re-vegetation are required.

<b>Controlled Area ID:</b>	3		
<b>ACTIVITY AND USE LIMITATIONS</b>			
<b>Growing Edible Plants Prohibited<sup>1</sup></b>			
<b>Soil Disturbance Limitation to the Ground Surface</b>			
<b>Water Features Prohibited (e.g. retention ponds, infiltration basins, lakes, etc.)</b>			
Activity and Use Limitations are described in Section 4 of the SMP			
<b>PROPERTY OWNER NOTIFICATION AND APPROVAL REQUIREMENTS</b>			
<b>ACTION/ACTIVITY</b>	<b>Notification of Executive Secretary</b>	<b>Approval from Executive Secretary</b>	<b>Documentation Requirement</b>
<b>Soil Disturbance</b>	Yes	No	Maintain
<b>Temporary Irrigation</b>	No	No	No
Notification requirements are described in Sections 4 and 7 of the SMP			

<sup>1</sup>Edible plants are defined as home grown produce, including but not limited to fruits and vegetables grown for consumption.

## RCRA CORRECTIVE ACTION SUMMARY

**Controlled Areas:** 2 and 3

**SWMU ID:** 26 (Northwest Manufacturing Complex - Subareas A, B and C)

### SOIL MANAGEMENT

The combined quantity of soil managed by on-site thermal treatment or by off-site disposal was 7,308 tons.

The quantity of soil managed on-site by consolidation in this area was 770 tons.

The quantity of soil managed on-site by consolidation in the Corrective Action Management Unit (CAMU) was 465 tons.

### CURRENT CONDITION CONSTITUENT DISTRIBUTION

Refer to the *RCRA Corrective Measures Implementation Report* (Charter Oak, December 2009) SWMU Tabs included in the SWMU-Specific Assessments attachment for a map and table describing the remaining constituent distribution.

Any soils disturbed within **Controlled Areas 2 and 3** are subject to the Activity and Use Limitations.

### CLASSES OF COPCs REQUIRING CORRECTIVE ACTION/SITE MANAGEMENT

	Exposure Scenario			
	Industrial/ Commercial/ Construction	Off-Site Resident (MTRA)	On-Site Resident	Visitor/ Trespasser
CEMs	•	•	•	•
PAHs				
SVOCs				
VOCs				
METALS (Pb or Sb)				
TPH				
Nitrostarch	•		•	•

### REPRESENTATIVE COPC CONCENTRATION REDUCTIONS

	Pre-CA Max Conc. (mg/kg)	Post-CA Max Conc. (mg/kg)	Percent Reduction (Max. Conc.)
RDX	49.9	5.2	90%
TNT	5.7	0.73	87%
HMX	100	97.3	3%
PETN	706	220	69%
Nitroglycerin	6.37	0.21	97%
2,4-DNT	0.83	0.39	53%

### SOIL COVER AND STABILIZATION

SWMU 26A: Two-feet of silty soil cover and re-vegetation are required.

SWMU 26B: Meets NFA criteria. No corrective action backfill is required.

SWMU 26C: Two-feet of silty soil cover and re-vegetation are required.

## RCRA CORRECTIVE ACTION SUMMARY

**Controlled Area:** 3  
**SWMU ID:** 35 (Slurry House and Sump)

### SOIL MANAGEMENT

The quantity of soil managed by on-site thermal treatment was 129 tons.

### CURRENT CONDITION CONSTITUENT DISTRIBUTION

Refer to the *RCRA Corrective Measures Implementation Report* (Charter Oak, December 2009) SWMU Tabs included in the SWMU-Specific Assessments attachment for a map and table describing the remaining constituent distribution.

Any soils disturbed within **Controlled Area 3** are subject to the Activity and Use Limitations.

### CLASSES OF COPCs REQUIRING CORRECTIVE ACTION/SITE MANAGEMENT

	Exposure Scenario			
	Industrial/ Commercial/ Construction	Off-Site Resident (MTRA)	On-Site Resident	Visitor/ Trespasser
CEMs		•	•	
PAHs				
SVOCs				
VOCs				
METALS (Pb or Sb)				
TPH				
Nitrostarch				

### REPRESENTATIVE COPC CONCENTRATION REDUCTIONS

	Pre-CA Max Conc. (mg/kg)	Post-CA Max Conc. (mg/kg)	Percent Reduction (Max. Conc.)
PETN	13.45	4.23	69%
2,6-DNT	0.07	<MDL	100%
EGDN	1.41	<MDL	100%
TNT	1.24	0.83	33%
Antimony	11.05	4.9	56%

### SOIL COVER AND STABILIZATION

Two-feet of silty soil cover and re-vegetation are required.

<b>Controlled Area ID:</b>	4		
<b>ACTIVITY AND USE LIMITATIONS</b>			
<b>Growing Edible Plants Prohibited<sup>1</sup></b>			
<b>Soil Disturbance Limitation to the Ground Surface</b>			
<b>Water Features Prohibited (e.g. retention ponds, infiltration basins, lakes, etc.)</b>			
Activity and Use Limitations are described in Section 4 of the SMP			
<b>PROPERTY OWNER NOTIFICATION AND APPROVAL REQUIREMENTS</b>			
<b>ACTION/ACTIVITY</b>	<b>Notification of Executive Secretary</b>	<b>Approval from Executive Secretary</b>	<b>Documentation Requirement</b>
<b>Soil Disturbance</b>	Yes	No	Maintain
<b>Temporary Irrigation</b>	No	No	No
Notification requirements are described in Sections 4 and 7 of the SMP			

<sup>1</sup>Edible plants are defined as home grown produce, including but not limited to fruits and vegetables grown for consumption.

## RCRA CORRECTIVE ACTION SUMMARY

**Controlled Area:** 4  
**SWMU ID:** 39 (Building 60)

### SOIL MANAGEMENT

The quantity of soil managed by off-site disposal was 1,196 tons.

### CURRENT CONDITION CONSTITUENT DISTRIBUTION

Refer to the *RCRA Corrective Measures Implementation Report* (Charter Oak, December 2009) SWMU Tabs included in the SWMU-Specific Assessments attachment for a map and table describing the remaining constituent distribution.

Any soils disturbed within **Controlled Area 4** are subject to the Activity and Use Limitations.

### CLASSES OF COPCs REQUIRING CORRECTIVE ACTION/SITE MANAGEMENT

	Exposure Scenario			
	Industrial/ Commercial/ Construction	Off-Site Resident (MTRA)	On-Site Resident	Visitor/ Trespasser
CEMs	•	•	•	•
PAHs				
SVOCs				
VOCs				
METALS (Pb or Sb)				
TPH				
Nitrostarch				

### REPRESENTATIVE COPC CONCENTRATION REDUCTIONS

	Pre-CA Max Conc. (mg/kg)	Post-CA Max Conc. (mg/kg)	Percent Reduction (Max. Conc.)
TNT	220	2.97	99%
PETN	1,200	65.27	95%

### SOIL COVER AND STABILIZATION

Two-feet of silty soil cover and re-vegetation are required.

<b>Controlled Area ID:</b>	5		
<b>ACTIVITY AND USE LIMITATIONS</b>			
<b>Growing Edible Plants Prohibited<sup>1</sup></b>			
<b>Soil Disturbance Limitation to the Ground Surface</b>			
<b>Water Features Prohibited (e.g. retention ponds, infiltration basins, lakes, etc.)</b>			
Activity and Use Limitations are described in Section 4 of the SMP			
<b>PROPERTY OWNER NOTIFICATION AND APPROVAL REQUIREMENTS</b>			
<b>ACTION/ACTIVITY</b>	<b>Notification of Executive Secretary</b>	<b>Approval from Executive Secretary</b>	<b>Documentation Requirement</b>
<b>Soil Disturbance</b>	Yes	No	Maintain
<b>Temporary Irrigation</b>	No	No	No
Notification requirements are described in Sections 4 and 7 of the SMP			

<sup>1</sup>Edible plants are defined as home grown produce, including but not limited to fruits and vegetables grown for consumption.

## RCRA CORRECTIVE ACTION SUMMARY

**Controlled Area:** 5  
**SWMU ID:** 36 (Case House Complex)

### SOIL MANAGEMENT

The quantity of soil managed by off-site disposal was 969 tons.

### CURRENT CONDITION CONSTITUENT DISTRIBUTION

Refer to the *RCRA Corrective Measures Implementation Report* (Charter Oak, December 2009) SWMU Tabs included in the SWMU-Specific Assessments attachment for a map and table describing the remaining constituent distribution.

Any soils disturbed within **Controlled Area 5** are subject to the Activity and Use Limitations.

### CLASSES OF COPCs REQUIRING CORRECTIVE ACTION/SITE MANAGEMENT

	Exposure Scenario			
	Industrial/ Commercial/ Construction	Off-Site Resident (MTRA)	On-Site Resident	Visitor/ Trespasser
CEMs	•	•	•	•
PAHs				
SVOCs				
VOCs				
METALS (Pb or Sb)				
TPH				
Nitrostarch				

### REPRESENTATIVE COPC CONCENTRATION REDUCTIONS

	Pre-CA Max Conc. (mg/kg)	Post-CA Max Conc. (mg/kg)	Percent Reduction (Max. Conc.)
RDX	42	3.4	92%
TNT	32.1	0.2	99%
Nitroglycerin	2.14	<MDL	100%
PETN	824	61	93%

### SOIL COVER AND STABILIZATION

Two-feet of silty soil cover and re-vegetation are required.

<b>Controlled Area ID:</b>	6		
<b>ACTIVITY AND USE LIMITATIONS</b>			
<b>Growing Edible Plants Prohibited<sup>1</sup></b>			
<b>Soil Disturbance Limitation to the Ground Surface</b>			
<b>Water Features Prohibited (e.g. retention ponds, infiltration basins, lakes, etc.)</b>			
Activity and Use Limitations are described in Section 4 of the SMP			
<b>PROPERTY OWNER NOTIFICATION AND APPROVAL REQUIREMENTS</b>			
<b>ACTION/ACTIVITY</b>	<b>Notification of Executive Secretary</b>	<b>Approval from Executive Secretary</b>	<b>Documentation Requirement</b>
<b>Soil Disturbance</b>	Yes	No	Maintain
<b>Temporary Irrigation</b>	No	No	No
Notification requirements are described in Sections 4 and 7 of the SMP			

<sup>1</sup>Edible plants are defined as home grown produce, including but not limited to fruits and vegetables grown for consumption.

## RCRA CORRECTIVE ACTION SUMMARY

**Controlled Area:** 6  
**SWMU ID:** 33 (Boneyard)

### SOIL MANAGEMENT

The combined quantity of soil managed by on-site thermal treatment or by off-site disposal was 1,023 tons.

The quantity of soil managed on-site by consolidation in this area was 2,100 tons.

The quantity of soil managed on-site by consolidation in the Corrective Action Management Unit (CAMU) was 760 tons.

### CURRENT CONDITION CONSTITUENT DISTRIBUTION

Refer to the *RCRA Corrective Measures Implementation Report* (Charter Oak, December 2009) SWMU Tabs included in the SWMU-Specific Assessments attachment for a map and table describing the remaining constituent distribution.

Any soils disturbed within **Controlled Area 6** are subject to the Activity and Use Limitations.

### CLASSES OF COPCs REQUIRING CORRECTIVE ACTION/SITE MANAGEMENT

	Exposure Scenario			
	Industrial/ Commercial/ Construction	Off-Site Resident (MTRA)	On-Site Resident	Visitor/ Trespasser
CEMs	•	•	•	•
PAHs				
SVOCs				
VOCs				
METALS (Pb or Sb)	•		•	
TPH				
Nitrostarch				

### REPRESENTATIVE COPC CONCENTRATION REDUCTIONS

	Pre-CA Max Conc. (mg/kg)	Post-CA Max Conc. (mg/kg)	Percent Reduction (Max. Conc.)
RDX	76	2.7	96%
Lead	55,100	310	99%

### SOIL COVER AND STABILIZATION

Two-feet of silty soil cover and re-vegetation are required.

<b>Controlled Area ID:</b>	7		
<b>ACTIVITY AND USE LIMITATIONS</b>			
<b>Growing Edible Plants Prohibited<sup>1</sup></b>			
<b>Soil Disturbance Limitation to the Ground Surface</b>			
<b>Water Features Prohibited (e.g. retention ponds, infiltration basins, lakes, etc.)</b>			
Activity and Use Limitations are described in Section 4 of the SMP			
<b>PROPERTY OWNER NOTIFICATION AND APPROVAL REQUIREMENTS</b>			
<b>ACTION/ACTIVITY</b>	<b>Notification of Executive Secretary</b>	<b>Approval from Executive Secretary</b>	<b>Documentation Requirement</b>
<b>Soil Disturbance</b>	Yes	No	Maintain
<b>Temporary Irrigation</b>	No	No	No
Notification requirements are described in Sections 4 and 7 of the SMP			

<sup>1</sup>Edible plants are defined as home grown produce, including but not limited to fruits and vegetables grown for consumption.

## RCRA CORRECTIVE ACTION SUMMARY

**Controlled Area:** 7  
**SWMU ID:** 6 (Building 17)

### SOIL MANAGEMENT

The combined quantity of soil managed by on-site thermal treatment or by off-site disposal was 559 tons.

### CURRENT CONDITION CONSTITUENT DISTRIBUTION

Refer to the *RCRA Corrective Measures Implementation Report* (Charter Oak, December 2009) SWMU Tabs included in the SWMU-Specific Assessments attachment for a map and table describing the remaining constituent distribution.

Any soils disturbed within **Controlled Area 7** are subject to the Activity and Use Limitations.

### CLASSES OF COPCs REQUIRING CORRECTIVE ACTION/SITE MANAGEMENT

	Exposure Scenario			
	Industrial/ Commercial/ Construction	Off-Site Resident (MTRA)	On-Site Resident	Visitor/ Trespasser
CEMs	•	•	•	•
PAHs				
SVOCs				
VOCs				
METALS (Pb or Sb)				
TPH				
Nitrostarch				

### REPRESENTATIVE COPC CONCENTRATION REDUCTIONS

	Pre-CA Max Conc. (mg/kg)	Post-CA Max Conc. (mg/kg)	Percent Reduction (Max. Conc.)
RDX	2.8	0.52	81%
TNT	4,620	3.5	99.9%
Nitroglycerin	29.9	0.3	99%
PETN	12,900	440	97%
2,4-DNT	10.6	<MDL	100%

### SOIL COVER AND STABILIZATION

Two-feet of silty soil cover and re-vegetation are required.

<b>Controlled Area ID:</b>	8		
<b>ACTIVITY AND USE LIMITATIONS</b>			
<b>Growing Edible Plants Prohibited<sup>1</sup></b>			
<b>Soil Disturbance Limitation to the Ground Surface</b>			
<b>Water Features Prohibited (e.g. retention ponds, infiltration basins, lakes, etc.)</b>			
Activity and Use Limitations are described in Section 4 of the SMP			
<b>PROPERTY OWNER NOTIFICATION AND APPROVAL REQUIREMENTS</b>			
<b>ACTION/ACTIVITY</b>	<b>Notification of Executive Secretary</b>	<b>Approval from Executive Secretary</b>	<b>Documentation Requirement</b>
<b>Soil Disturbance</b>	Yes	No	Maintain
<b>Temporary Irrigation</b>	No	No	No
Notification requirements are described in Sections 4 and 7 of the SMP			

<sup>1</sup>Edible plants are defined as home grown produce, including but not limited to fruits and vegetables grown for consumption.

## RCRA CORRECTIVE ACTION SUMMARY

**Controlled Area:** 8  
**SWMU ID:** 10 (Breakout Building)

### SOIL MANAGEMENT

The quantity of soil managed by off-site disposal was 492 tons.  
 The quantity of soil managed on-site by consolidation in the Corrective Action Management Unit (CAMU) was 132 tons.

### CURRENT CONDITION CONSTITUENT DISTRIBUTION

Refer to the *RCRA Corrective Measures Implementation Report* (Charter Oak, December 2009) SWMU Tabs included in the SWMU-Specific Assessments attachment for a map and table describing the remaining constituent distribution.

Any soils disturbed within **Controlled Area 8** are subject to the Activity and Use Limitations.

### CLASSES OF COPCs REQUIRING CORRECTIVE ACTION/SITE MANAGEMENT

	Exposure Scenario			
	Industrial/ Commercial/ Construction	Off-Site Resident (MTRA)	On-Site Resident	Visitor/ Trespasser
CEMs			●	
PAHs				
SVOCs				
VOCs				
METALS (Pb or Sb)				
TPH				
Nitrostarch				

### REPRESENTATIVE COPC CONCENTRATION REDUCTIONS

	Pre-CA Max Conc. (mg/kg)	Post-CA Max Conc. (mg/kg)	Percent Reduction (Max. Conc.)
BTTN	0.15	<MDL	100%

### SOIL COVER AND STABILIZATION

Two-feet of silty soil cover and re-vegetation are required.

<b>Controlled Area ID:</b>	9		
<b>ACTIVITY AND USE LIMITATIONS</b>			
<b>Growing Edible Plants Prohibited<sup>1</sup></b>			
<b>Soil Disturbance Limitation to the Ground Surface</b>			
<b>Water Features Prohibited (e.g. retention ponds, infiltration basins, lakes, etc.)</b>			
Activity and Use Limitations are described in Section 4 of the SMP			
<b>PROPERTY OWNER NOTIFICATION AND APPROVAL REQUIREMENTS</b>			
<b>ACTION/ACTIVITY</b>	<b>Notification of Executive Secretary</b>	<b>Approval from Executive Secretary</b>	<b>Documentation Requirement</b>
<b>Soil Disturbance</b>	Yes	No	Maintain
<b>Temporary Irrigation</b>	No	No	No
Notification requirements are described in Sections 4 and 7 of the SMP			

<sup>1</sup>Edible plants are defined as home grown produce, including but not limited to fruits and vegetables grown for consumption.

## RCRA CORRECTIVE ACTION SUMMARY

**Controlled Area:** 9

**SWMU ID:** 12 (Burn Pit and Burn Cage Storage Area)

### SOIL MANAGEMENT

The combined quantity of soil managed by on-site thermal treatment or by off-site disposal was 8,710 tons.

### CURRENT CONDITION CONSTITUENT DISTRIBUTION

Refer to the *RCRA Corrective Measures Implementation Report* (Charter Oak, December 2009) SWMU Tabs included in the SWMU-Specific Assessments attachment for a map and table describing the remaining constituent distribution.

Any soils disturbed within **Controlled Area 9** are subject to the Activity and Use Limitations.

### CLASSES OF COPCs REQUIRING CORRECTIVE ACTION/SITE MANAGEMENT

	Exposure Scenario			
	Industrial/ Commercial/ Construction	Off-Site Resident (MTRA)	On-Site Resident	Visitor/ Trespasser
CEMs	•	•	•	•
PAHs				
SVOCs				
VOCs				
METALS (Pb or Sb)				
TPH				
Nitrostarch				

### REPRESENTATIVE COPC CONCENTRATION REDUCTIONS

	Pre-CA Max Conc. (mg/kg)	Post-CA Max Conc. (mg/kg)	Percent Reduction (Max. Conc.)
RDX	39	3.85	90%
TNT	35.3	0.21	99%
Nitroglycerin	2.01	<MDL	100%
PETN	235.5	9.2	96%
BTTN	1,100	4.5	99.6%
HMX	57.5	4.55	92%

### SOIL COVER AND STABILIZATION

Two-feet of silty soil cover and re-vegetation are required.

## RCRA CORRECTIVE ACTION SUMMARY

**Controlled Areas:** 9 and 10

**SWMU ID:** 28 (East Central Disposal Sites)

### SOIL MANAGEMENT

The combined quantity of soils managed by on-site thermal treatment and off-site disposal was 10,129 tons.

The quantity of soil managed on-site by consolidation in this area was 5,404 tons.

The quantity of soil managed on-site by consolidation in the Corrective Action Management Unit (CAMU) was 1,925 tons.

### CURRENT CONDITION CONSTITUENT DISTRIBUTION

Refer to the *RCRA Corrective Measures Implementation Report* (Charter Oak, December 2009) SWMU Tabs included in the SWMU-Specific Assessments attachment for a map and table describing the remaining constituent distribution.

Any soils disturbed within **Controlled Areas 9 and 10** are subject to the Activity and Use Limitations.

### CLASSES OF COPCs REQUIRING CORRECTIVE ACTION/SITE MANAGEMENT

	Exposure Scenario			
	Industrial/ Commercial/ Construction	Off-Site Resident (MTRA)	On-Site Resident	Visitor/ Trespasser
CEMs	•	•	•	•
PAHs				
SVOCs				
VOCs				
METALS (Pb or Sb)	•		•	
TPH				
Nitrostarch				

### REPRESENTATIVE COPC CONCENTRATION REDUCTIONS

	Pre-CA Max Conc. (mg/kg)	Post-CA Max Conc. (mg/kg)	Percent Reduction (Max. Conc.)
RDX	490	6	99%
TNT	2,000	11	99.5%
BTTN	1,500	4.1	99.7%
PETN	260	23.5	91%
Lead	60,900	320	99.5%
DEGDN	32,000	10.11	99.9%

### SOIL COVER AND STABILIZATION

Two-feet of silty soil cover and re-vegetation are required.

<b>Controlled Area ID:</b>	10		
<b>ACTIVITY AND USE LIMITATIONS</b>			
<b>Growing Edible Plants Prohibited<sup>1</sup></b>			
<b>Soil Disturbance Limitation to the Ground Surface</b>			
<b>Water Features Prohibited (e.g. retention ponds, infiltration basins, lakes, etc.)</b>			
Activity and Use Limitations are described in Section 4 of the SMP			
<b>PROPERTY OWNER NOTIFICATION AND APPROVAL REQUIREMENTS</b>			
<b>ACTION/ACTIVITY</b>	<b>Notification of Executive Secretary</b>	<b>Approval from Executive Secretary</b>	<b>Documentation Requirement</b>
<b>Soil Disturbance</b>	Yes	No	Maintain
<b>Temporary Irrigation</b>	No	No	No
Notification requirements are described in Sections 4 and 7 of the SMP			

<sup>1</sup>Edible plants are defined as home grown produce, including but not limited to fruits and vegetables grown for consumption.

## RCRA CORRECTIVE ACTION SUMMARY

**Controlled Areas:** 9 and 10

**SWMU ID:** 28 (East Central Disposal Sites)

### SOIL MANAGEMENT

The combined quantity of soils managed by on-site thermal treatment and off-site disposal was 10,129 tons.

The quantity of soil managed on-site by consolidation in this area was 5,404 tons.

The quantity of soil managed on-site by consolidation in the Corrective Action Management Unit (CAMU) was 1,925 tons.

### CURRENT CONDITION CONSTITUENT DISTRIBUTION

Refer to the *RCRA Corrective Measures Implementation Report* (Charter Oak, December 2009) SWMU Tabs included in the SWMU-Specific Assessments attachment for a map and table describing the remaining constituent distribution.

Any soils disturbed within **Controlled Areas 9 and 10** are subject to the Activity and Use Limitations.

### CLASSES OF COPCs REQUIRING CORRECTIVE ACTION/SITE MANAGEMENT

	Exposure Scenario			
	Industrial/ Commercial/ Construction	Off-Site Resident (MTRA)	On-Site Resident	Visitor/ Trespasser
CEMs	•	•	•	•
PAHs				
SVOCs				
VOCs				
METALS (Pb or Sb)	•		•	
TPH				
Nitrostarch				

### REPRESENTATIVE COPC CONCENTRATION REDUCTIONS

	Pre-CA Max Conc. (mg/kg)	Post-CA Max Conc. (mg/kg)	Percent Reduction (Max. Conc.)
RDX	490	6	99%
TNT	2,000	11	99.5%
BTTN	1,500	4.1	99.7%
PETN	260	23.5	91%
Lead	60,900	320	99.5%
DEGDN	32,000	10.11	99.9%

### SOIL COVER AND STABILIZATION

Two-feet of silty soil cover and re-vegetation are required.

<b>Controlled Area ID:</b>	11		
<b>ACTIVITY AND USE LIMITATIONS</b>			
<b>Growing Edible Plants Prohibited<sup>1</sup></b>			
<b>Soil Disturbance Limitation to the Ground Surface</b>			
<b>Water Features Prohibited (e.g. retention ponds, infiltration basins, lakes, etc.)</b>			
Activity and Use Limitations are described in Section 4 of the SMP			
<b>PROPERTY OWNER NOTIFICATION AND APPROVAL REQUIREMENTS</b>			
<b>ACTION/ACTIVITY</b>	<b>Notification of Executive Secretary</b>	<b>Approval from Executive Secretary</b>	<b>Documentation Requirement</b>
<b>Soil Disturbance</b>	Yes	No	Maintain
<b>Temporary Irrigation</b>	No	No	No
Notification requirements are described in Sections 4 and 7 of the SMP			

<sup>1</sup>Edible plants are defined as home grown produce, including but not limited to fruits and vegetables grown for consumption.

## RCRA CORRECTIVE ACTION SUMMARY

**Controlled Area:** 11  
**SWMU ID:** 5 (Building 18)

### SOIL MANAGEMENT

The combined quantity of soils managed by on-site thermal treatment or by off-site disposal was 959 tons.

### CURRENT CONDITION CONSTITUENT DISTRIBUTION

Refer to the *RCRA Corrective Measures Implementation Report* (Charter Oak, December 2009) SWMU Tabs included in the SWMU-Specific Assessments attachment for a map and table describing the remaining constituent distribution.

Any soils disturbed within **Controlled Area 11** are subject to the Activity and Use Limitations.

### CLASSES OF COPCs REQUIRING CORRECTIVE ACTION/SITE MANAGEMENT

	Exposure Scenario			
	Industrial/ Commercial/ Construction	Off-Site Resident (MTRA)	On-Site Resident	Visitor/ Trespasser
CEMs	•	•	•	•
PAHs				
SVOCs				
VOCs				
METALS (Pb or Sb)				
TPH				
Nitrostarch				

### REPRESENTATIVE COPC CONCENTRATION REDUCTIONS

	Pre-CA Max Conc. (mg/kg)	Post-CA Max Conc. (mg/kg)	Percent Reduction (Max. Conc.)
RDX	9.35	0.25	97%
TNT	2,890	1.9	99.9%
Nitroglycerin	0.73	0.37	49%
PETN	6,100	46	99%
HMX	210	0.43	99.8%
2,4-DNT	8.08	<MDL	100%

### SOIL COVER AND STABILIZATION

Two-feet of silty soil cover and re-vegetation are required.

<b>Controlled Area ID:</b>	12		
<b>ACTIVITY AND USE LIMITATIONS</b>			
<b>Growing Edible Plants Prohibited<sup>1</sup></b>			
<b>Soil Disturbance Limitation to the Ground Surface</b>			
<b>Water Features Prohibited (e.g. retention ponds, infiltration basins, lakes, etc.)</b>			
Activity and Use Limitations are described in Section 4 of the SMP			
<b>PROPERTY OWNER NOTIFICATION AND APPROVAL REQUIREMENTS</b>			
<b>ACTION/ACTIVITY</b>	<b>Notification of Executive Secretary</b>	<b>Approval from Executive Secretary</b>	<b>Documentation Requirement</b>
<b>Soil Disturbance</b>	Yes	No	Maintain
<b>Temporary Irrigation</b>	No	No	No
Notification requirements are described in Sections 4 and 7 of the SMP			

<sup>1</sup>Edible plants are defined as home grown produce, including but not limited to fruits and vegetables grown for consumption.

## RCRA CORRECTIVE ACTION SUMMARY

**Controlled Area:** 12  
**SWMU ID:** 7 (Building 65)

### SOIL MANAGEMENT

The quantity of soil managed by off-site disposal was 107 tons.

### CURRENT CONDITION CONSTITUENT DISTRIBUTION

Refer to the *RCRA Corrective Measures Implementation Report* (Charter Oak, December 2009) SWMU Tabs included in the SWMU-Specific Assessments attachment for a map and table describing the remaining constituent distribution.

Any soils disturbed within **Controlled Area 12** are subject to the Activity and Use Limitations.

### CLASSES OF COPCs REQUIRING CORRECTIVE ACTION/SITE MANAGEMENT

	Exposure Scenario			
	Industrial/ Commercial/ Construction	Off-Site Resident (MTRA)	On-Site Resident	Visitor/ Trespasser
CEMs		•	•	
PAHs				
SVOCs				
VOCs				
METALS (Pb or Sb)				
TPH				
Nitrostarch				

### REPRESENTATIVE COPC CONCENTRATION REDUCTIONS

	Pre-CA Max Conc. (mg/kg)	Post-CA Max Conc. (mg/kg)	Percent Reduction (Max. Conc.)
TNT	5.04	2.3	54%
Nitroglycerin	1.27	0.44	65%

### SOIL COVER AND STABILIZATION

Two-feet of silty soil cover and re-vegetation are required.

<b>Controlled Area ID:</b>	13		
<b>ACTIVITY AND USE LIMITATIONS</b>			
<b>Growing Edible Plants Prohibited<sup>1</sup></b>			
<b>Soil Disturbance Limitation to the Ground Surface</b>			
<b>Water Features Prohibited (e.g. retention ponds, infiltration basins, lakes, etc.)</b>			
Activity and Use Limitations are described in Section 4 of the SMP			
<b>PROPERTY OWNER NOTIFICATION AND APPROVAL REQUIREMENTS</b>			
<b>ACTION/ACTIVITY</b>	<b>Notification of Executive Secretary</b>	<b>Approval from Executive Secretary</b>	<b>Documentation Requirement</b>
<b>Soil Disturbance</b>	Yes	No	Maintain
<b>Temporary Irrigation</b>	No	No	No
Notification requirements are described in Sections 4 and 7 of the SMP			

<sup>1</sup>Edible plants are defined as home grown produce, including but not limited to fruits and vegetables grown for consumption.

## RCRA CORRECTIVE ACTION SUMMARY

**Controlled Area:** 13  
**SWMU ID:** 22 (Building 20)

### SOIL MANAGEMENT

The quantity of soil managed by off-site disposal was 771 tons.

### CURRENT CONDITION CONSTITUENT DISTRIBUTION

Refer to the *RCRA Corrective Measures Implementation Report* (Charter Oak, December 2009) SWMU Tabs included in the SWMU-Specific Assessments attachment for a map and table describing the remaining constituent distribution.

Any soils disturbed within **Controlled Area 13** are subject to the Activity and Use Limitations.

### CLASSES OF COPCs REQUIRING CORRECTIVE ACTION/SITE MANAGEMENT

	Exposure Scenario			
	Industrial/ Commercial/ Construction	Off-Site Resident (MTRA)	On-Site Resident	Visitor/ Trespasser
CEMs		•	•	
PAHs				
SVOCs				
VOCs				
METALS (Pb or Sb)				
TPH				
Nitrostarch				

### REPRESENTATIVE COPC CONCENTRATION REDUCTIONS

	Pre-CA Max Conc. (mg/kg)	Post-CA Max Conc. (mg/kg)	Percent Reduction (Max. Conc.)
RDX	0.95	0.55	42%
TNT	13	0.15	99%
HMX	2.3	0.53	77%
PETN	170	18.65	89%

### SOIL COVER AND STABILIZATION

Two-feet of silty soil cover and re-vegetation are required.

<b>Controlled Area ID:</b>	14		
<b>ACTIVITY AND USE LIMITATIONS</b>			
<b>Growing Edible Plants Prohibited<sup>1</sup></b>			
<b>Soil Disturbance Limitation to the Ground Surface</b>			
<b>Water Features Prohibited (e.g. retention ponds, infiltration basins, lakes, etc.)</b>			
Activity and Use Limitations are described in Section 4 of the SMP			
<b>PROPERTY OWNER NOTIFICATION AND APPROVAL REQUIREMENTS</b>			
<b>ACTION/ACTIVITY</b>	<b>Notification of Executive Secretary</b>	<b>Approval from Executive Secretary</b>	<b>Documentation Requirement</b>
<b>Soil Disturbance</b>	Yes	No	Maintain
<b>Temporary Irrigation</b>	No	No	No
Notification requirements are described in Sections 4 and 7 of the SMP			

<sup>1</sup>Edible plants are defined as home grown produce, including but not limited to fruits and vegetables grown for consumption.

## RCRA CORRECTIVE ACTION SUMMARY

**Controlled Area:** 14

**SWMU ID:** 19 (New PETN Nitration Building, Old RDX Recrystallization Building, RDX Recrystallization Storage Tanks)

### SOIL MANAGEMENT

The combined quantity of soil managed by on-site thermal treatment or by off-site disposal was 13,897 tons.

The quantity of soil managed on-site by consolidation in the Corrective Action Management Unit (CAMU) was 12,433 tons.

### CURRENT CONDITION CONSTITUENT DISTRIBUTION

Refer to the *RCRA Corrective Measures Implementation Report* (Charter Oak, December 2009) SWMU Tabs included in the SWMU-Specific Assessments attachment for a map and table describing the remaining constituent distribution.

Any soils disturbed within **Controlled Area 14** are subject to the Activity and Use Limitations.

### CLASSES OF COPCs REQUIRING CORRECTIVE ACTION/SITE MANAGEMENT

	Exposure Scenario			
	Industrial/ Commercial/ Construction	Off-Site Resident (MTRA)	On-Site Resident	Visitor/ Trespasser
CEMs	•	•	•	•
PAHs				
SVOCs				
VOCs				
METALS (Pb or Sb)				
TPH				
Nitrostarch				

### REPRESENTATIVE COPC CONCENTRATION REDUCTIONS

	Pre-CA Max Conc. (mg/kg)	Post-CA Max Conc. (mg/kg)	Percent Reduction (Max. Conc.)
RDX	8,700	3.1	99.9%
TNT	27,000	0.11	99.9%
Nitroglycerin	0.15	<MDL	100%
PETN	500	7.8	98%
Nitrostarch	426	17.5	96%
HMX	3,800	2.1	99.9%

### SOIL COVER AND STABILIZATION

Two-feet of silty soil cover and re-vegetation are required.

<b>Controlled Area ID:</b>	15		
<b>ACTIVITY AND USE LIMITATIONS</b>			
<b>Limited Residential Use Restriction<sup>1</sup></b>			
<b>Soil Disturbance Limitation to the Ground Surface</b>			
<b>Water Features Prohibited (e.g. retention ponds, infiltration basins, lakes, etc.)</b>			
Activity and Use Limitations are described in Section 4 of the SMP			
<b>PROPERTY OWNER NOTIFICATION AND APPROVAL REQUIREMENTS</b>			
<b>ACTION/ACTIVITY</b>	<b>Notification of Executive Secretary</b>	<b>Approval from Executive Secretary</b>	<b>Documentation Requirement</b>
<b>Soil Disturbance</b>	Yes	No	Maintain
<b>Temporary Irrigation</b>	No	No	No
Notification requirements are described in Sections 4 and 7 of the SMP			

<sup>1</sup>Limited Residential Use is defined as leased or owned residential space within otherwise commercially-owned and developed land. Accessories to residential uses, such as the planting of private or public vegetable gardens, edible fruit trees and orchards are not permitted in areas subject to the Limited Residential Use Restriction. It does not prohibit public recreation use. Residential use is permitted in Controlled Areas subject to this limited restriction where:

- The land is in an otherwise commercially developed area; and,
- The Controlled Area is under buildings, pavement, sidewalks or ornamental landscaping.

## RCRA CORRECTIVE ACTION SUMMARY

**Controlled Area:** 15

**SWMU ID:** 17 (Boiler Building, Blowdown, and Fuel Oil Tanks)

### SOIL MANAGEMENT

The quantity of soil managed by off-site disposal was 6,190 tons.

The quantity of soil managed by consolidation in the Corrective Action Management Unit (CAMU) was 485 tons.

### CURRENT CONDITION CONSTITUENT DISTRIBUTION

Refer to the *RCRA Corrective Measures Implementation Report* (Charter Oak, December 2009) SWMU Tabs included in the SWMU-Specific Assessments attachment for a map and table describing the remaining constituent distribution.

Any soils disturbed within **Controlled Area 15** are subject to the Activity and Use Limitations.

### CLASSES OF COPCs REQUIRING CORRECTIVE ACTION/SITE MANAGEMENT

	Exposure Scenario			
	Industrial/ Commercial/ Construction	Off-Site Resident (MTRA)	On-Site Resident	Visitor/ Trespasser
CEMs				
PAHs	•	•	•	•
SVOCs				
VOCs	•	•	•	
METALS (Pb or Sb)				
TPH	•	•	•	
Nitrostarch				

### REPRESENTATIVE COPC CONCENTRATION REDUCTIONS

	Pre-CA Max Conc. (mg/kg)	Post-CA Max Conc. (mg/kg)	Percent Reduction (Max. Conc.)
TPH-DRO	63,000	280	99.6%
TPH-MO	2,800	540	81%
Naphthalene	27	<MDL	100%
1,2,4-TMB	72	<MDL	100%
B(a)P	18	0.2	98.9%
D(a,h)A	6.6	0.18	97.3%

### SOIL COVER AND STABILIZATION

Two-feet of silty soil cover and re-vegetation are required.

<b>Controlled Area ID:</b>	16		
<b>ACTIVITY AND USE LIMITATIONS</b>			
<b>Growing Edible Plants Prohibited<sup>1</sup></b>			
<b>Soil Disturbance Limitation to the Ground Surface</b>			
<b>Water Features Prohibited (e.g. retention ponds, infiltration basins, lakes, etc.)</b>			
Activity and Use Limitations are described in Section 4 of the SMP			
<b>PROPERTY OWNER NOTIFICATION AND APPROVAL REQUIREMENTS</b>			
<b>ACTION/ACTIVITY</b>	<b>Notification of Executive Secretary</b>	<b>Approval from Executive Secretary</b>	<b>Documentation Requirement</b>
<b>Soil Disturbance</b>	Yes	No	Maintain
<b>Temporary Irrigation</b>	No	No	No
Notification requirements are described in Sections 4 and 7 of the SMP			

<sup>1</sup>Edible plants are defined as home grown produce, including but not limited to fruits and vegetables grown for consumption.

## RCRA CORRECTIVE ACTION SUMMARY

**Controlled Area:** 16

**SWMU ID:** 31 (Specialty Nitrates Manufacturing Complex)

### SOIL MANAGEMENT

The quantity of soil managed by off-site disposal was 1,958 tons.

The quantity of soil managed by consolidation in this area was 60 tons.

The quantity of soil managed on-site by consolidation in the Corrective Action Management Unit (CAMU) was 3,132 tons.

### CURRENT CONDITION CONSTITUENT DISTRIBUTION

Refer to the *RCRA Corrective Measures Implementation Report* (Charter Oak, December 2009) SWMU Tabs included in the SWMU-Specific Assessments attachment for a map and table describing the remaining constituent distribution.

Any soils disturbed within **Controlled Area 16** are subject to the Activity and Use Limitations.

### CLASSES OF COPCs REQUIRING CORRECTIVE ACTION/SITE MANAGEMENT

	Exposure Scenario			
	Industrial/ Commercial/ Construction	Off-Site Resident (MTRA)	On-Site Resident	Visitor/ Trespasser
CEMs	•	•	•	•
PAHs				
SVOCs				
VOCs				
METALS (Pb or Sb)	•		•	
TPH				
Nitrostarch				

### REPRESENTATIVE COPC CONCENTRATION REDUCTIONS

	Pre-CA Max Conc. (mg/kg)	Post-CA Max Conc. (mg/kg)	Percent Reduction (Max. Conc.)
Nitroglycerin	9.55	0.74	92%
EGDN	46.6	8.2	82%
Lead	23,500	340	99%
DEGDN	100	100	0%
TMETN	36	36	0%

### SOIL COVER AND STABILIZATION

Two-feet of silty soil cover and re-vegetation are required.

<b>Controlled Area ID:</b>	17		
<b>ACTIVITY AND USE LIMITATIONS</b>			
<b>Growing Edible Plants Prohibited<sup>1</sup></b>			
<b>Soil Disturbance Limitation to the Ground Surface</b>			
<b>Water Features Prohibited (e.g. retention ponds, infiltration basins, lakes, etc.)</b>			
Activity and Use Limitations are described in Section 4 of the SMP			
<b>PROPERTY OWNER NOTIFICATION AND APPROVAL REQUIREMENTS</b>			
<b>ACTION/ACTIVITY</b>	<b>Notification of Executive Secretary</b>	<b>Approval from Executive Secretary</b>	<b>Documentation Requirement</b>
<b>Soil Disturbance</b>	Yes	No	Maintain
<b>Temporary Irrigation</b>	No	No	No
Notification requirements are described in Sections 4 and 7 of the SMP			

<sup>1</sup>Edible plants are defined as home grown produce, including but not limited to fruits and vegetables grown for consumption.

## RCRA CORRECTIVE ACTION SUMMARY

**Controlled Area:** 17  
**SWMU ID:** 18 (Building 3 and Sanitary Septic System)

### SOIL MANAGEMENT

The combined quantity of soil managed by on-site thermal treatment or by off-site disposal was 1,148 tons.

The quantity of soil managed on-site by consolidation in this area was 750 tons.

### CURRENT CONDITION CONSTITUENT DISTRIBUTION

Refer to the *RCRA Corrective Measures Implementation Report* (Charter Oak, December 2009) SWMU Tabs included in the SWMU-Specific Assessments attachment for a map and table describing the remaining constituent distribution.

Any soils disturbed within **Controlled Area 17** are subject to the Activity and Use Limitations.

### CLASSES OF COPCs REQUIRING CORRECTIVE ACTION/SITE MANAGEMENT

	Exposure Scenario			
	Industrial/ Commercial/ Construction	Off-Site Resident (MTRA)	On-Site Resident	Visitor/ Trespasser
CEMs	●	●	●	●
PAHs				
SVOCs				
VOCs				
METALS (Pb or Sb)				
TPH				
Nitrostarch				

### REPRESENTATIVE COPC CONCENTRATION REDUCTIONS

	Pre-CA Max Conc. (mg/kg)	Post-CA Max Conc. (mg/kg)	Percent Reduction (Max. Conc.)
RDX	901	0.47	99.9%
TNT	6,952	4.67	99.9%
Nitroglycerin	69.2	0.71	99%
PETN	24,504	802	97%
HMX	46.5	0.87	98%

### SOIL COVER AND STABILIZATION

Two-feet of silty soil cover and re-vegetation are required.

<b>Controlled Area ID:</b>	18		
<b>ACTIVITY AND USE LIMITATIONS</b>			
<b>Growing Edible Plants Prohibited<sup>1</sup></b>			
<b>Soil Disturbance Limitation to the Ground Surface</b>			
<b>Water Features Prohibited (e.g. retention ponds, infiltration basins, lakes, etc.)</b>			
Activity and Use Limitations are described in Section 4 of the SMP			
<b>PROPERTY OWNER NOTIFICATION AND APPROVAL REQUIREMENTS</b>			
<b>ACTION/ACTIVITY</b>	<b>Notification of Executive Secretary</b>	<b>Approval from Executive Secretary</b>	<b>Documentation Requirement</b>
<b>Soil Disturbance</b>	Yes	No	Maintain
<b>Temporary Irrigation</b>	No	No	No
Notification requirements are described in Sections 4 and 7 of the SMP			

<sup>1</sup>Edible plants are defined as home grown produce, including but not limited to fruits and vegetables grown for consumption.

**RCRA CORRECTIVE ACTION SUMMARY**

**Controlled Area:** 18  
**SWMU ID:** 41 (Old Dryer)

**SOIL MANAGEMENT**

The combined quantity of soil managed by on-site thermal treatment or by off-site disposal was 2,092 tons.

The quantity of soil managed on-site by consolidation in this area was 36 tons.

**CURRENT CONDITION CONSTITUENT DISTRIBUTION**

Refer to the *RCRA Corrective Measures Implementation Report* (Charter Oak, December 2009) SWMU Tabs included in the SWMU-Specific Assessments attachment for a map and table describing the remaining constituent distribution.

Any soils disturbed within **Controlled Area 18** are subject to the Activity and Use Limitations.

**CLASSES OF COPCs REQUIRING CORRECTIVE ACTION/SITE MANAGEMENT**

	Exposure Scenario			
	Industrial/ Commercial/ Construction	Off-Site Resident (MTRA)	On-Site Resident	Visitor/ Trespasser
CEMs	•	•	•	•
PAHs				
SVOCs				
VOCs				
METALS (Pb or Sb)				
TPH				
Nitrostarch				

**REPRESENTATIVE COPC CONCENTRATION REDUCTIONS**

	Pre-CA Max Conc. (mg/kg)	Post-CA Max Conc. (mg/kg)	Percent Reduction (Max. Conc.)
RDX	237	3.6	99%
Nitroglycerin	0.61	<MDL	100%
PETN	670	330	51%
HMX	230	54	77%

**SOIL COVER AND STABILIZATION**

Two-feet of silty soil cover and re-vegetation are required.

<b>Controlled Area ID:</b>	19		
<b>ACTIVITY AND USE LIMITATIONS</b>			
<b>Growing Edible Plants Prohibited<sup>1</sup></b>			
<b>Soil Disturbance Limitation to the Ground Surface</b>			
<b>Irrigation Prohibited<sup>2</sup></b>			
<b>Water Features Prohibited (e.g. retention ponds, infiltration basins, lakes, etc.)</b>			
Activity and Use Limitations are described in Section 4 of the SMP			
<b>PROPERTY OWNER NOTIFICATION AND APPROVAL REQUIREMENTS</b>			
<b>ACTION/ACTIVITY</b>	<b>Notification of Executive Secretary</b>	<b>Approval from Executive Secretary</b>	<b>Documentation Requirement</b>
<b>Soil Disturbance</b>	Yes	No	Submit
<b>Temporary Irrigation</b>	Yes	No	Yes
Notification requirements are described in Sections 4 and 7 of the SMP			

<sup>1</sup>Edible plants are defined as home grown produce, including but not limited to fruits and vegetables grown for consumption.

<sup>2</sup>Temporary irrigation allowed for up to two years to establish growth of vegetative cover.

## RCRA CORRECTIVE ACTION SUMMARY

**Controlled Area:** 19  
**SWMU ID:** 1 and 42 (North Impoundment Area)

### SOIL MANAGEMENT

The combined quantity of soil managed by on-site thermal treatment or by off-site disposal was 19,852 tons.

The quantity of soil managed on-site by consolidation in this area was 8,606 tons.

### CURRENT CONDITION CONSTITUENT DISTRIBUTION

Refer to the *RCRA Corrective Measures Implementation Report* (Charter Oak, December 2009) SWMU Tabs included in the SWMU-Specific Assessments attachment for a map and table describing the remaining constituent distribution.

Any soils disturbed within **Controlled Area 19** are subject to the Activity and Use Limitations.

### CLASSES OF COPCs REQUIRING CORRECTIVE ACTION/SITE MANAGEMENT

	Exposure Scenario			
	Industrial/ Commercial/ Construction	Off-Site Resident (MTRA)	On-Site Resident	Visitor/ Trespasser
CEMs	●	●	●	●
PAHs				
SVOCs				
VOCs				
METALS (Pb or Sb)	●			
TPH				
Nitrostarch				

### REPRESENTATIVE COPC CONCENTRATION REDUCTIONS

	Pre-CA Max Conc. (mg/kg)	Post-CA Max Conc. (mg/kg)	Percent Reduction (Max. Conc.)
RDX	8,059	6.9	99.9%
TNT	7,507	2.9	99.9%
Nitroglycerin	639	1.28	99.8%
PETN	30,204	1,834	94%
HMX	424	3.5	99%
Lead	2,050	330	84%

### SOIL COVER AND STABILIZATION

Two-feet of silty soil cover and re-vegetation are required.

## RCRA CORRECTIVE ACTION SUMMARY

**Controlled Areas:** 19 and 20

**SWMU ID:** 30 (Northeast Manufacturing Complex)

### SOIL MANAGEMENT

The combined quantity of soil managed by on-site thermal treatment or by off-site disposal was 18,453 tons.

### CURRENT CONDITION CONSTITUENT DISTRIBUTION

Refer to the *RCRA Corrective Measures Implementation Report* (Charter Oak, December 2009) SWMU Tabs included in the SWMU-Specific Assessments attachment for a map and table describing the remaining constituent distribution.

Any soils disturbed within **Controlled Areas 19 and 20** are subject to the Activity and Use Limitations.

### CLASSES OF COPCs REQUIRING CORRECTIVE ACTION/SITE MANAGEMENT

	Exposure Scenario			
	Industrial/ Commercial/ Construction	Off-Site Resident (MTRA)	On-Site Resident	Visitor/ Trespasser
CEMs	•	•	•	•
PAHs				
SVOCs				
VOCs	•	•	•	•
METALS (Pb or Sb)	•		•	
TPH	•	•	•	•
Nitrostarch				

### REPRESENTATIVE COPC CONCENTRATION REDUCTIONS

	Pre-CA Max Conc. (mg/kg)	Post-CA Max Conc. (mg/kg)	Percent Reduction (Max. Conc.)
RDX	9,942	7.6	99.9%
TNT	6,724	9.1	99.9%
Nitroglycerin	119	1	99%
PETN	31,995	3,400	89%
HMX	2,621	130	95%
1,2,4-TMB	187	27	86%
Lead	1,930	300	85%

### SOIL COVER AND STABILIZATION

Two-feet of silty soil cover and re-vegetation are required.

<b>Controlled Area ID:</b>	20		
<b>ACTIVITY AND USE LIMITATIONS</b>			
<b>Growing Edible Plants Prohibited<sup>1</sup></b>			
<b>Soil Disturbance Limitation to the Ground Surface</b>			
<b>Irrigation Prohibited<sup>2</sup></b>			
<b>Water Features Prohibited (e.g. retention ponds, infiltration basins, lakes, etc.)</b>			
<b>Construction Limitation to Address Potential Subsurface Vapor Intrusion</b>			
Activity and Use Limitations are described in Section 4 of the SMP			
<b>PROPERTY OWNER NOTIFICATION AND APPROVAL REQUIREMENTS</b>			
<b>ACTION/ACTIVITY</b>	<b>Notification of Executive Secretary</b>	<b>Approval from Executive Secretary</b>	<b>Documentation Requirement</b>
<b>Soil Disturbance</b>	Yes	No	Submit
<b>Temporary Irrigation</b>	Yes	No	Yes
<b>Building or Utility Construction</b>	Yes	Yes	Submit
Notification requirements are described in Sections 4 and 7 of the SMP			

<sup>1</sup>Edible plants are defined as home grown produce, including but not limited to fruits and vegetables grown for consumption.

<sup>2</sup>Temporary irrigation allowed for up to two years to establish growth of vegetative cover.

## RCRA CORRECTIVE ACTION SUMMARY

**Controlled Areas:** 19 and 20

**SWMU ID:** 30 (Northeast Manufacturing Complex)

### SOIL MANAGEMENT

The combined quantity of soil managed by on-site thermal treatment or by off-site disposal was 18,453 tons.

### CURRENT CONDITION CONSTITUENT DISTRIBUTION

Refer to the *RCRA Corrective Measures Implementation Report* (Charter Oak, December 2009) SWMU Tabs included in the SWMU-Specific Assessments attachment for a map and table describing the remaining constituent distribution.

Any soils disturbed within **Controlled Areas 19 and 20** are subject to the Activity and Use Limitations.

### CLASSES OF COPCs REQUIRING CORRECTIVE ACTION/SITE MANAGEMENT

	Exposure Scenario			
	Industrial/ Commercial/ Construction	Off-Site Resident (MTRA)	On-Site Resident	Visitor/ Trespasser
CEMs	•	•	•	•
PAHs				
SVOCs				
VOCs	•	•	•	•
METALS (Pb or Sb)	•		•	
TPH	•	•	•	•
Nitrostarch				

### REPRESENTATIVE COPC CONCENTRATION REDUCTIONS

	Pre-CA Max Conc. (mg/kg)	Post-CA Max Conc. (mg/kg)	Percent Reduction (Max. Conc.)
RDX	9,942	7.6	99.9%
TNT	6,724	9.1	99.9%
Nitroglycerin	119	1	99%
PETN	31,995	3,400	89%
HMX	2,621	130	95%
1,2,4-TMB	187	27	86%
Lead	1,930	300	85%

### SOIL COVER AND STABILIZATION

Two-feet of silty soil cover and re-vegetation are required.

<b>Controlled Area ID:</b>	21		
<b>ACTIVITY AND USE LIMITATIONS</b>			
<b>Growing Edible Plants Prohibited<sup>1</sup></b>			
<b>Soil Disturbance Limitation to the Ground Surface</b>			
<b>Water Features Prohibited (e.g. retention ponds, infiltration basins, lakes, etc.)</b>			
Activity and Use Limitations are described in Section 4 of the SMP			
<b>PROPERTY OWNER NOTIFICATION AND APPROVAL REQUIREMENTS</b>			
<b>ACTION/ACTIVITY</b>	<b>Notification of Executive Secretary</b>	<b>Approval from Executive Secretary</b>	<b>Documentation Requirement</b>
<b>Soil Disturbance</b>	Yes	No	Maintain
<b>Temporary Irrigation</b>	No	No	No
Notification requirements are described in Sections 4 and 7 of the SMP			

<sup>1</sup>Edible plants are defined as home grown produce, including but not limited to fruits and vegetables grown for consumption.

## RCRA CORRECTIVE ACTION SUMMARY

**Controlled Area:** 21  
**SWMU ID:** 2 (PETN Pack House and Sump)

### SOIL MANAGEMENT

The combined quantity of soil managed by on-site thermal treatment or by off-site disposal was 2,608 tons.

The quantity of soil managed on-site by consolidation in the Corrective Action Management Unit (CAMU) was 440 tons.

### CURRENT CONDITION CONSTITUENT DISTRIBUTION

Refer to the *RCRA Corrective Measures Implementation Report* (Charter Oak, December 2009) SWMU Tabs included in the SWMU-Specific Assessments attachment for a map and table describing the remaining constituent distribution.

Any soils disturbed within **Controlled Area 21** are subject to the Activity and Use Limitations.

### CLASSES OF COPCs REQUIRING CORRECTIVE ACTION/SITE MANAGEMENT

	Exposure Scenario			
	Industrial/ Commercial/ Construction	Off-Site Resident (MTRA)	On-Site Resident	Visitor/ Trespasser
CEMs	•	•	•	•
PAHs				
SVOCs				
VOCs				
METALS (Pb or Sb)				
TPH				
Nitrostarch				

### REPRESENTATIVE COPC CONCENTRATION REDUCTIONS

	Pre-CA Max Conc. (mg/kg)	Post-CA Max Conc. (mg/kg)	Percent Reduction (Max. Conc.)
RDX	700	1	99.9%
HMX	94	6.9	93%
Nitroglycerin	12.9	<MDL	100%
PETN	7,714	38	99.5%

### SOIL COVER AND STABILIZATION

Two-feet of silty soil cover and re-vegetation are required.

<b>Controlled Area ID:</b>	22		
<b>ACTIVITY AND USE LIMITATIONS</b>			
<b>Growing Edible Plants Prohibited<sup>1</sup></b>			
<b>Soil Disturbance Limitation to the Ground Surface</b>			
<b>Water Features Prohibited (e.g. retention ponds, infiltration basins, lakes, etc.)</b>			
Activity and Use Limitations are described in Section 4 of the SMP			
<b>PROPERTY OWNER NOTIFICATION AND APPROVAL REQUIREMENTS</b>			
<b>ACTION/ACTIVITY</b>	<b>Notification of Executive Secretary</b>	<b>Approval from Executive Secretary</b>	<b>Documentation Requirement</b>
<b>Soil Disturbance</b>	Yes	No	Maintain
<b>Temporary Irrigation</b>	No	No	No
Notification requirements are described in Sections 4 and 7 of the SMP			

<sup>1</sup>Edible plants are defined as home grown produce, including but not limited to fruits and vegetables grown for consumption.

## RCRA CORRECTIVE ACTION SUMMARY

**Controlled Area:** 22  
**SWMU ID:** 16 (Quality Control Testing Area)

### SOIL MANAGEMENT

The quantity of soil managed by off-site disposal was 6,762 tons.

The quantity of soil managed on-site by consolidation in this area was 919 tons.

### CURRENT CONDITION CONSTITUENT DISTRIBUTION

Refer to the *RCRA Corrective Measures Implementation Report* (Charter Oak, December 2009) SWMU Tabs included in the SWMU-Specific Assessments attachment for a map and table describing the remaining constituent distribution.

Any soils disturbed within **Controlled Area 22** are subject to the Activity and Use Limitations.

### CLASSES OF COPCs REQUIRING CORRECTIVE ACTION/SITE MANAGEMENT

	Exposure Scenario			
	Industrial/ Commercial/ Construction	Off-Site Resident (MTRA)	On-Site Resident	Visitor/ Trespasser
CEMs	•	•	•	•
PAHs				
SVOCs				
VOCs				
METALS (Pb or Sb)				
TPH				
Nitrostarch				

### REPRESENTATIVE COPC CONCENTRATION REDUCTIONS

	Pre-CA Max Conc. (mg/kg)	Post-CA Max Conc. (mg/kg)	Percent Reduction (Max. Conc.)
RDX	49	14.35	71%
TNT	82	13	84%
Nitroglycerin	3.02	<MDL	100%
PETN	1,200	220	82%

### SOIL COVER AND STABILIZATION

Two-feet of silty soil cover and re-vegetation are required.

<b>Controlled Area ID:</b>	23		
<b>ACTIVITY AND USE LIMITATIONS</b>			
<b>Growing Edible Plants Prohibited<sup>1</sup></b>			
<b>Soil Disturbance Limitation to the Ground Surface</b>			
<b>Irrigation Prohibited<sup>2</sup></b>			
<b>Water Features Prohibited (e.g. retention ponds, infiltration basins, lakes, etc.)</b>			
<b>Construction Limitation to Address Potential Subsurface Vapor Intrusion</b>			
Activity and Use Limitations are described in Section 4 of the SMP			
<b>PROPERTY OWNER NOTIFICATION AND APPROVAL REQUIREMENTS</b>			
<b>ACTION/ACTIVITY</b>	<b>Notification of Executive Secretary</b>	<b>Approval from Executive Secretary</b>	<b>Documentation Requirement</b>
<b>Soil Disturbance</b>	Yes	No	Submit
<b>Temporary Irrigation</b>	Yes	No	Yes
<b>Building or Utility Construction</b>	Yes	Yes	Submit
Notification requirements are described in Sections 4 and 7 of the SMP			

<sup>1</sup>Edible plants are defined as home grown produce, including but not limited to fruits and vegetables grown for consumption.

<sup>2</sup>Temporary irrigation allowed for up to two years to establish growth of vegetative cover.

## RCRA CORRECTIVE ACTION SUMMARY

**Controlled Area:** 23  
**SWMU ID:** 1DA (Wastewater Dispersion Area)

### SOIL MANAGEMENT

The combined quantity of soil managed by on-site thermal treatment or by off-site disposal was 27,350 tons.

### CURRENT CONDITION CONSTITUENT DISTRIBUTION

Refer to the *RCRA Corrective Measures Implementation Report* (Charter Oak, December 2009) SWMU Tabs included in the SWMU-Specific Assessments attachment for a map and table describing the remaining constituent distribution.

Any soils disturbed within **Controlled Area 23** are subject to the Activity and Use Limitations.

### CLASSES OF COPCs REQUIRING CORRECTIVE ACTION/SITE MANAGEMENT

	Exposure Scenario			
	Industrial/ Commercial/ Construction	Off-Site Resident (MTRA)	On-Site Resident	Visitor/ Trespasser
CEMs	•	•	•	•
PAHs				
SVOCs				
VOCs				
METALS (Pb or Sb)				
TPH				
Nitrostarch				

### REPRESENTATIVE COPC CONCENTRATION REDUCTIONS

	Pre-CA Max Conc. (mg/kg)	Post-CA Max Conc. (mg/kg)	Percent Reduction (Max. Conc.)
RDX	1,700	18	99%
HMX	217	5.1	98%
Nitroglycerin	577	5.38	99%
PETN	35,868	1,200	97%

### SOIL COVER AND STABILIZATION

Two-feet of silty soil cover and re-vegetation are required.

<b>Controlled Area ID:</b>	24		
<b>ACTIVITY AND USE LIMITATIONS</b>			
<b>Ground Water Use Limitation<sup>1</sup></b>			
Activity and Use Limitations are described in Section 4 of the SMP			
<b>PROPERTY OWNER NOTIFICATION AND APPROVAL REQUIREMENTS</b>			
<b>ACTION/ACTIVITY</b>	<b>Notification of Executive Secretary</b>	<b>Approval from Executive Secretary</b>	<b>Documentation Requirement</b>
<b>Well Construction</b>	Yes	Yes	Submit
<b>Monitoring of FW-2<sup>2</sup></b>	No	No	Routine Reporting
<b>Detections of CEMs in FW-2<sup>2</sup></b>	Yes	Yes	Submit
Notification requirements are described in Sections 4 and 7 of the SMP			

<sup>1</sup>No ground water may be extracted from the identified area and used for water supply purposes (e.g. municipal, domestic, irrigation, stock watering) without appropriate treatment unless otherwise approved by the Executive Secretary or until such time as the Executive Secretary approves the removal or modification of this limitation. If a person or entity desires to install a private or public water supply well within this area, they must notify and obtain approval from the Executive Secretary and any other applicable agencies with regulatory authority pertaining to well construction (e.g. the Utah Division of Water Rights, the Utah Division of Drinking Water, municipalities, etc.). Ground water is currently recovered for treatment and beneficial use from Recovery Well R-1. This is considered an approved use upon approval of the SMP.

<sup>2</sup>The SMP establishes an exception to this Ground Water Use Limitation for EBCo Facility Well 2 (FW-2). FW-2 may continue to be used for non-potable applications in accordance with the conditions specified in the SMP. FW-2 is included in the established ground water monitoring program. Results of this monitoring program are provided to the Utah Department of Environmental Quality in routinely submitted reports.