Mallinckrodt Inc.

HoltraChem Manufacturing Site
Orrington, Maine

Phase 5 Dismantling Work Practices Plan

June 2007

Work Plan

Contents

Figures

Tables

Section 1
Introduction

1.1 Purpose of Document

The purpose of this document is to present the plan of work for the dismantling of certain buildings at the HoltraChem Manufacturing Site in Orrington, Maine. CDM Constructors Inc. (CDM) will perform this work under contract to Mallinckrodt Inc. (Mallinckrodt).

The objectives of this project are:

- To the extent feasible, remove remaining unused buildings, tanks, and pipe racks anticipated to be within the footprint of the proposed soil consolidation area recommended in the May 2003 Corrective Measures Study Report; and

- Remove several additional structures that the Maine Department of Environmental Protection (DEP) deems to be safety hazards due to their deteriorated condition.

1.2 Associated Documents

1.2.1 Previous Detailed Work Practices Plans

The work presented in this plan has been preceded by four prior phases of decontamination and dismantling. Each prior phase was conducted under a DEP-approved work plan, as follows:

- Detailed Work Practices Plan for the Cell Process Dismantling Interim Stabilization Measures (CDM Revised March 21, 2003, approved by DEP letter dated June 20, 2003).

- Phase 2 Supplement to the Decontamination and Dismantling Work Practices Plan (CDM April 30, 2004, approved by DEP letter dated June 3, 2004).

- Phase 3 Supplement to the Decontamination and Dismantling Work Practices Plan (CDM April 2006, conditionally approved by DEP letter dated May 4, 2006).

- Phase 4 Supplement to the Decontamination and Dismantling Work Practices Plan (CDM Revised September 2006, conditionally approved by DEP letter dated October 11, 2006).

1.2.2 Health and Safety Plan

The Phase 5 work will be performed under the current Site Remediation Health and Safety Plan (CDM Revised August 11, 2006).

1.2.3 Perimeter Air Monitoring Program

Ambient air monitoring during dismantling activities will be performed in accordance with the Cell Process Dismantling Perimeter Air Monitoring Plan (CDM, Revised September 18, 2006).

1.2.4 Quality Assurance Project Plan

Quality Assurance / Quality Control procedures for the dismantling project and associated analyses are presented in the Cell Process Dismantling Quality Assurance Project Plan (QAPP) (CDM Revised June 28, 2006).

1.2.5 Characterization Report

Between July and November of 2005, CDM (and its subcontractor) performed sampling and analysis of construction materials from buildings, structures, tanks, pads, and stored items throughout the plant. The intent of the sampling and analysis was to characterize buildings, tanks, and miscellaneous materials to support the design of the dismantling program. The characterization study was conducted to:

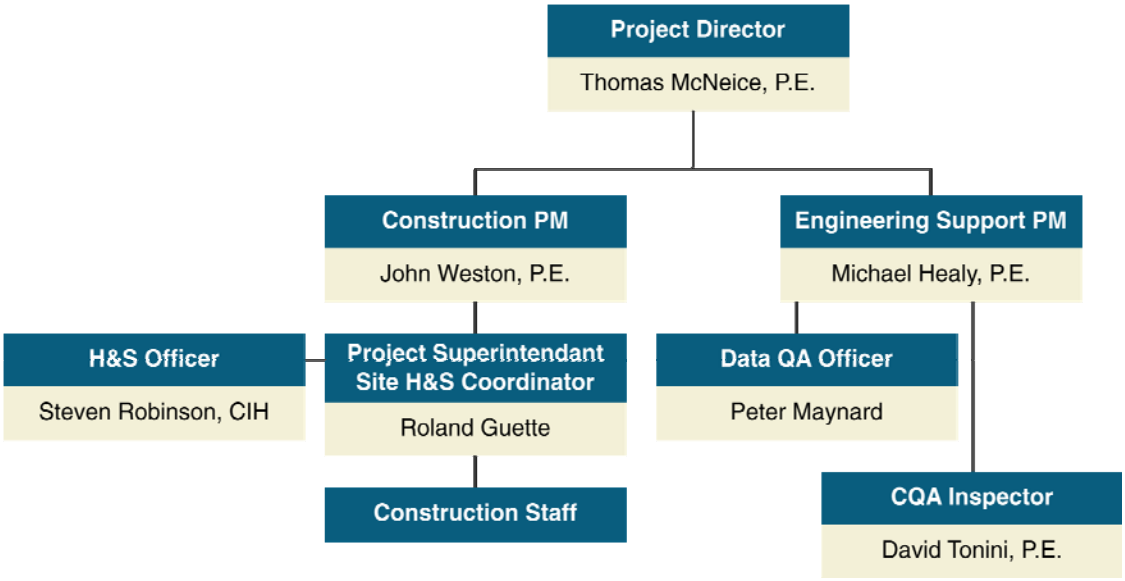
- Determine the level and extent of mercury contamination in the building materials;
- Determine the extent, quantity, and location of asbestos containing materials;
- Determine the extent, quantity, and location of surfaces coated with lead-based paint;
- Determine the number and locations of PCB contaminated electric light ballasts and PCB contaminated electrical equipment; and
- Evaluate the levels of mercury and asbestos to develop the dismantling procedures and sequencing, worker health and safety precautions, environmental controls, air monitoring procedures, and final disposition of materials.

As mentioned above, an asbestos survey was included in the work. The survey was conducted by Environmental & Construction Management Services, Inc., a Maine licensed Asbestos Consultant. The asbestos survey covered all buildings, process piping, tanks, and exterior areas of the plant. The used equipment storage area (boneyard) was also included in the survey. The results of the sampling and analysis are included in the CDM report titled, "Results of Plant Buildings and Structures Characterization Testing Program," dated May 2006.

1.3 Project Organization

CDM is continuing as Mallinckrodt's Corrective Action Program Manager for the activities to be undertaken at the HoltraChem Site. For the Phase 5 dismantling operation, key staff members will include Thomas McNeice, John Weston, Roland Guerrette, Michael Healy, and Peter Maynard.

A project organization chart showing lines of authority and communication is provided below.



Mr. Thomas McNeice is the Project Director and has complete oversight of the project. Mr. McNeice is responsible for the overall satisfactory completion of the project. Mr. McNeice has complete authority over all actions taken at the site including:

- The development of the work plans.
- Communicating with local, state, and federal authorities on matters relating to the project.
- Overall management of the dismantling program implementation.

Mr. John Weston is the Construction Project Manager and will also provide project quality oversight. Mr. Weston's duties include:

- Contracting and management oversight of work practices and activities.
- Reporting on project matters to Mr. McNeice, Project Director.

Mr. Roland Guerrette is the Project Superintendent and Site Health and Safety Coordinator. His duties include:

- On-site management of field activities.
- Coordinating plan execution within the requirements of the QAPP.
- Updating the Project Manager and Project Director on the progress of the work on a periodic basis.
- Managing compliance with the Health and Safety Plan.
- Directing spill/incident response activities.

Mr. Michael Healy is Engineering Support Project Manager. In this capacity, he is responsible for:

- Preparation of work plans and supporting documents.
- Engineering necessary to support construction in the field.
- Monitoring project compliance with the work plans and managing the independent construction quality assurance functions.

Mr. David Tonini will serve as Construction Quality Assurance (CQA) Inspector for this project. The duties of the CQA Inspector will include:

- Monitoring compliance with the field aspects of the QAPP.
- Obtaining decontamination confirmation samples and managing sample shipping and analysis.
- Maintenance of construction quality assurance records.
- Reporting QA matters to the Project Manager.

Mr. Peter Maynard is the Project Data QA Officer. The Project Data QA Officer will report to the Project Manager. The Project Data QA Officer's duties will include:

- Reviewing activities related to field and laboratory testing for compliance with the QAPP and regulatory requirements.
- Reporting data-related QA matters to the CQA Officer and the Project Manager.
- Performing Data Quality / Usability reviews.

Section 2
Scope and Extent of Dismantling

2.1 Objective

The objective of Phase 5 is to remove remaining unused buildings, tanks, and pipe racks anticipated to be within the footprint of the proposed soil consolidation area recommended in the May 2003 Corrective Measures Study Report and several additional structures that DEP deems to be safety hazards due to their deteriorated condition. As described below, several items cannot be removed at this time because they are needed for operation of the existing wastewater treatment system.

2.2 Extent of Phase 5 Dismantling

Phase 5 consists of the removal of structures and tanks located within the area that is anticipated for use as a consolidation area for soil and sediment excavated as part of the corrective measures program. Although the exact configuration and dimensions of the consolidation area will not be determined until design of the corrective measures is completed, CDM anticipates that an area of approximately 3.5 acres will be required. Figure 2-1 shows the anticipated consolidation area and the remaining structures and tanks requiring removal. The structures are listed as follows:

Tank No.	***Description***
A	(3) Groundwater Holding Tanks
B	New Pump Tank
C	New Treatment Tank
D	Sludge Receiver
E	New Brine Containment Area
F	MCC -7
G	Filtered Brine Pump House
H	Paint Shop
I	Brine Pipe Rack
J	Chlorine Pipe Rack
K	Caustic Pipe Rack
L	HCL Pipe Rack
M	Chloropicrin Pipe Rack
4	(2) Bleach Storage Tanks
5	Bone Char Absorber
6	(2) Chloropicrin Storage Tanks
9	HCL Storage Overflow Tank
10	B-1 HCL Storage Tank
40	(9) HCL Storage Tanks
41	(3) Chlorine Storage Tanks
43	Process Water Storage Tank

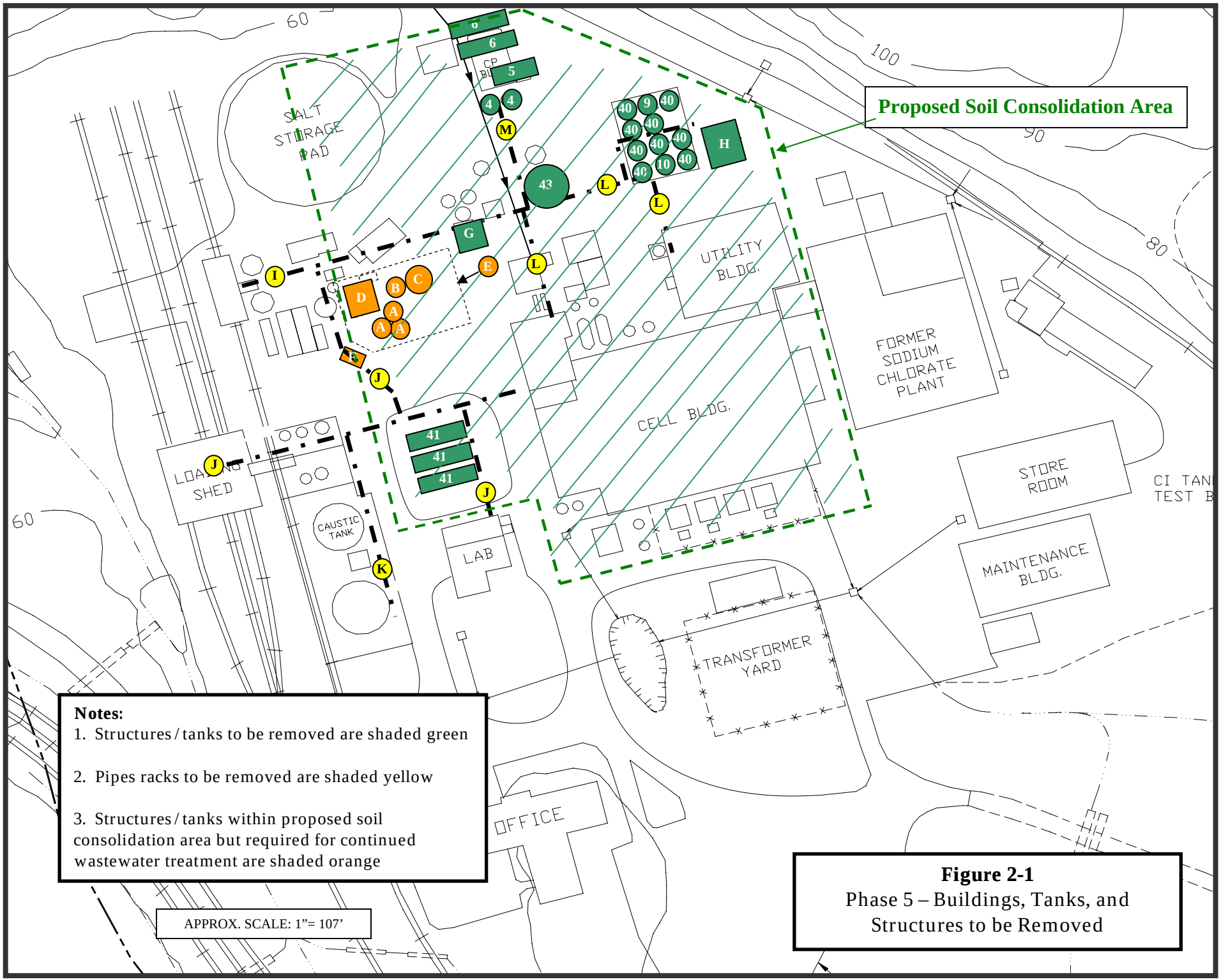


Figure 2-1
Phase 5 – Buildings, Tanks, and Structures to be Removed

Items A through F can not be dismantled at this time because they are needed for operation of the existing wastewater treatment system. Also, certain portions of the pipe racks listed above will not be dismantled, as they support operating site utilities and wastewater transfer lines. Tank residues were removed during Phase 3 from the tanks identified for dismantling under Phases 5.

At the request of DEP, the following additional structures will be dismantled due to their deteriorated condition, which DEP has deemed to represent a safety hazard:

- Nitromethane Building
- Old Well Pump Station
- River Well Pump Houses (3)
- Filtered Brine Pump House (already included in Phase 5 scope above)
- Paint Shop (already included in Phase 5 scope above)

The locations of the structures described above are shown on the attached **Figure 2-2**. Test results and/or prior use indicate that these buildings are not considered mercury-contaminated.

The vertical extent of the building and tank dismantling will include the superstructures and all internal supports down to, but not including the floor slabs of the buildings or the tank pads. The floor slabs and tank pads will remain in place until the soil remediation program is implemented in accordance with the final approved Corrective Action Work Plan.

Section 3
Dismantling Procedures

3.1 General Dismantling Procedures and Sequence

Dismantling of the seven buildings and 20 tanks, identified as Phase 5, will be accomplished using the methods, procedures, controls, monitoring and characterization procedures defined herein.

In general, the main dismantling activities will proceed according to the following sequence:

1. Establishment of site controls and work zones.

2. General cleaning to remove remaining equipment and materials from buildings to be dismantled.

3. Lamp and ballast removal.

4. Final inspection of buildings to confirm removal of hazardous items and materials.

5. Asbestos abatement.

6. Building dismantling, materials processing, transportation, and disposal.

3.2 Site Preparation

This section presents the activities that will be completed and the facilities that will be set up to prepare the site for the dismantling operations.

To support the previous dismantling activities, CDM constructed a six-foot high chain link fence around the active work area. The purpose of the security fence is to restrict access to the work area by trespassers and curious onlookers, and to prevent theft and vandalism. Due to the anticipated short duration of dismantling activities at locations outside the perimeter fencing, these locations will be secured with caution tape for the duration of the dismantling activities.

3.3 Environmental Controls

The environmental concerns requiring management during execution of this project consist of the following:

- Migration of particulates from asbestos abatement operations.
- Migration of fugitive dust from dismantling operations.

CDM has included specific methods and engineered controls in the project plan to mitigate these potential concerns as discussed below. Phase 5 activities are not

anticipated to result in the release of mercury vapors. However, the Cell Process Dismantling Perimeter Air Monitoring Program, as revised September 18, 2006, will be continued during the course of the work.

3.3.1 Controls During Asbestos Abatement

The majority of the required asbestos abatement consists of the removal of transite roof panels. State and federal regulations govern the removal methods and environmental controls that must be implemented during this work. These methods are established to control particulate emissions during removal operations. Exterior asbestos-containing siding and roof panels will be removed in accordance with State of Maine Chapter 425 Section 7.D.(2) which specifically addresses removal of exterior transite siding.

Non-destructive transite panel removal methods will be used for the building exteriors. Water mist spray will be used throughout the process to control particulates. Transite panels will be individually removed and lowered to plastic sheeting located on the ground. Each panel will be sheared to appropriate lengths for disposal using special equipment designed for cutting transite panels with a minimum of dust generation. Sized panels will then be carefully stacked and placed into disposal containers. Water spray and misting will be used throughout the removal, processing, and loading steps to prevent particulate emissions.

CDM will use a licensed asbestos abatement contractor to perform the work in accordance with EPA and DEP regulations.

3.3.2 Dust Control

The objective of dust control measures during the dismantling operations will be to prevent the migration of visible dust beyond boundaries of the active work zone. This will be accomplished using water spray techniques commonly employed during building dismantling projects. CDM will deploy handheld hose streams using adjustable mist and spray nozzles as necessary to control the generation and migration of dust. One or two hose stations will be set up as dictated by the type of material being removed. Hose streams will be used to wet surfaces prior to and during activities to reduce dusting potential. Water mist sprays surrounding active equipment will be used when needed to knock down dust at its source. CDM has found these methods to be effective at other dismantling projects.

During the project, the CQA inspector will monitor dust control operations. If at any time during the course of work, visible dust migrates beyond the active work zone, dismantling operations will be halted. Work activities and/or dust control methods will be reevaluated and modified as necessary to correct the situation.

3.3.3 Monitoring

Although Phase 5 work is not anticipated to generate mercury emissions, CDM will continue to conduct perimeter air monitoring during active dismantling operations.

As detailed in the separate Perimeter Air Monitoring Program Work Plan as revised September 18, 2006, CDM will continue the real time mercury vapor monitoring and 24-hour total mercury sampling at the work area perimeter that has been used effectively in the prior dismantling phases. The air monitoring will follow the procedures and protocols developed for the previous phases, which are sufficient to monitor volatile mercury and particulate mercury emissions from the work area. Work area mercury monitoring will be conducted for worker health and safety as outlined in the Site Specific Health & Safety Plan. Additionally, during asbestos abatement activities, air monitoring for particulates will be performed to confirm control of asbestos particulate emissions.

3.4 Detailed Dismantling Procedures

3.4.1 Introduction

All miscellaneous materials inside the buildings to be dismantled and appurtenant to the tanks to be dismantled will be removed and disposed. Based on the characterization report, all of these materials are not considered to be mercury-contaminated and will be disposed at an industrial waste landfill or recycled. Miscellaneous materials may include but not be limited to:

- Steel piping (water, steam, fuel, process) and miscellaneous steel (bolts, hardware, cables, doors, etc.).
- Fiberglass piping and miscellaneous fiberglass walkways, grating, stairs, staging.
- Interior wood structures, supports, plywood sheeting, doors.
- Electrical conduits, cables, fixtures, panels.
- Glass and windows.
- Plastic sheeting, covers, and panels.

3.4.2 Lamp and Ballast Removal

Prior to dismantling, fluorescent lamps and light ballasts potentially containing PCBs will be removed from the buildings and disposed of separately. The fluorescent lamps will be removed from intact fixtures, prior to dismantling. Lamps will be stored in a secure area and in a manner to minimize breakage. All lamps, including broken lamps, will be managed onsite in accordance with the Maine Hazardous Waste Management rules for universal waste and recycled according to Maine regulations at approved commercial fluorescent lamp recyclers.

Lighting fixture ballasts will be removed using appropriate techniques and personnel protective gear. Removal will be performed using methods and tools that will minimize damage to the fluorescent lamp and facilitate a quick, neat removal with the ballast intact and undamaged. All ballasts are assumed to contain PCBs at concentrations greater than or equal to 50 ppm, unless otherwise labeled by the manufacturer, and will be managed and disposed as hazardous waste in accordance with Maine Hazardous Waste Management Rules. PCB ballasts known to contain less than 50 ppm PCBs will be managed and disposed as universal wastes. Ballasts labeled as Non-PCB will be disposed as solid waste in accordance with Maine Solid

Waste Management Rules. PCB Ballasts will be stored in an appropriately labeled 55-gallon drum prior to disposal.

3.4.3 Asbestos Abatement

Asbestos abatement will be performed prior to dismantling the buildings and structures. The abatement process is required by EPA and Maine DEP regulations.

The location and quantity of asbestos containing materials to be abated are listed in the report titled, "Results of Plant Buildings and Structures Characterization Testing Program," prepared by CDM, dated May, 2006. Asbestos abatement is also addressed in the remaining sections of this Plan.

The asbestos materials that must be removed prior to dismantling consist of transite roofing panels and asphalt roofing potentially containing asbestos, but may also include other items such as minor insulation, floor tiles, and ceiling tiles. CDM will employ Maine-licensed asbestos abatement contractor to perform the work in accordance with Maine regulations.

The environmental controls to be employed during asbestos abatement are discussed in Section 2.3.

3.4.4 Building Demolition

In general, building demolition will proceed as follows:

- Buildings located in the vicinity of the former Cell Building (Filtered Brine Pump House and Paint Shop) will be pressure washed inside and out prior to demolition to remove dust and minor debris. Wash water will be contained within the existing system of berms and impoundments that contain runoff from the manufacturing area. The captured water will be pumped to the wastewater storage tanks and treated.

- A loading area for roll-off containers will be established adjacent to the building to be demolished.

- Asbestos abatement of transite roof panels will be required prior to demolishing the Filtered Brine Pump House, the Paint Shop, and the River Well Pump Houses. In accordance with the asbestos abatement design, the licensed asbestos abatement contractor will remove transite roof panels and stack them neatly in a roll-off container lined with 6 mil polyethylene. Water spray will be used to wet panels prior to removal and to control dust during removal and loading. Asbestos abatement will also be performed on the Old Well Pump Station to remove the asphalt roof, which is assumed to contain asbestos fibers. The roofing materials will be kept wet during removal and will be loaded in a roll-off container lined with 6 mil polyethylene. Loads will be sealed prior to transport.

- After completion of asbestos abatement, the buildings will be demolished using conventional methods. Materials will be pushed into the interior of the building so that demolished materials are generally contained on the concrete slab. Demolished materials will be loaded directly into roll-off containers and disposed at an industrial waste landfill. If suitable, structural steel will be segregated for recycling.

- The floor slabs and tank pads will remain in place until the soil remediation program is implemented in accordance with the final approved Corrective Action Work Plan.

Particular aspects of the scope for each building are discussed as follows:

Nitromethane Building – The dismantling of this building will be performed using conventional methods. Debris will be loaded directly into roll-off containers and disposed at an industrial waste landfill. The superstructure will be demolished and the floor slab will be left in place. Dust will be controlled using water spray if necessary. There are no asbestos containing materials in this building according to the asbestos survey.

Old Well Pump Station – This is a very small structure located east of Landfill 2. It will be necessary to clear the access road to this structure, which has become overgrown with brush. Prior to demolition, asbestos abatement will be performed on this building to remove the asphalt roof, which is assumed to contain asbestos fibers. The building will then be demolished and loaded directly into a roll-off container for disposal at an industrial waste landfill.

River Well Pump Houses – These consist of three concrete block buildings southwest of Landfill 1. Asbestos abatement will be required to remove and load the transite roof panels. After removal of the roofs, the concrete block walls will be demolished using conventional methods and loaded directly into roll-off containers for disposal as non-hazardous waste at an industrial waste landfill. The floor slabs will be left in place. Debris in the vicinity of the well houses will also be loaded and disposed of. The well pumps will be removed from the three wells using a crane and the well casings and discharge piping will be capped with bolted or welded caps to prevent access. Due to their use in pumping mercury contaminated groundwater for process cooling, scale and solids associated with the well pumps may be contaminated with mercury. The pumps will be placed directly into bermed, polyethylene lined containment areas staged adjacent to the pump houses. The pumps will be dismantled and placed into containment bins within the bermed area and transported to the sludge press decontamination area for cleaning and loading for hazardous waste disposal. Cleaning liquids will be pumped to the wastewater treatment system. Solids will be disposed as hazardous waste.

Filtered Brine Pump House – This is a small structure located near the New Brine Containment Area. The building will be pressure washed on the inside and outside

prior to demolition to remove dust and minor debris. Asbestos abatement will be required to remove and load the transite roof panels. After removal of the roof panels, the FRP wall panels will be removed and loaded directly into roll-of containers for disposal as non-hazardous waste at an industrial waste landfill. The structural steel superstructure will then be demolished using conventional methods and loaded directly into roll-off containers for recycling or disposal as non-hazardous waste in an industrial waste landfill.

Paint Shop – This is a small concrete block structure located behind the Former Sodium Chlorate Building. The building will be pressure washed on the inside and outside prior to demolition to remove dust and minor debris. Asbestos abatement will be required to remove and load the transite roof panels. After removal of the roofs panels the concrete block walls will be demolished using conventional methods and loaded directly into roll-off containers for disposal as non-hazardous waste in an industrial waste landfill. Dust will be controlled using water spray if necessary.

3.4.5 Pipe Rack Removal

The pipe racks will be removed using a crane. Steel will be sized and loaded into roll-off containers for recycling. Safety barriers will be installed at cutoff points on pipe racks and walkways.

3.4.6 Tank Sizing and Loading

The dismantling of tanks will be performed concurrently with building dismantling. All tanks have been cleaned of residual contents in prior phases, or during the plant shutdown. Based on prior use, the tanks to be disposed during this phase are not considered mercury-contaminated. In most cases, this was confirmed during the characterization program with sampling. Therefore, the tanks will be cut up in place and direct loaded for disposal or recycling. Any tanks not sampled during the characterization program will be sampled prior to disposal / recycling to confirm that they are not mercury contaminated.

The tanks to be removed are identified in **Table 3-1**.

General dismantling procedures for tanks will consist of the following:

- Disconnecting or unbolting the tank from its pad, if necessary.
- Cutting the tank into sizes acceptable to the disposal companies, and loading the material into roll-off containers for disposal.

Table 3-1
Phase 5 – Tank Removal and Disposal

Tank No.	*Description*	*Location*	*Size*	*Mat'l*	*Est. Wt. (lbs)*	*Tank Mat'l Hg Conc. (mg/kg)*
4	(2) Bleach Storage Tanks	CP Area	8' x 15'	PVC, FRP	4,000	0.07
5	Bone Char Absorber	CP Area	2' x 8'	Steel	875	0.03
6	(2) Chloropicrin Storage Tanks	CP Area	5' x 30'	Steel	31,588	n.s.
9	HCL Storage Overflow Tank	HCL Storage	6' x 6'	FRP	429	0.42
10	B-1 HCL Storage Tank	HCL Storage	12' x 20'	FRP	2,481	0.05
40	(9) HCL Storage Tanks	HCL Storage	12' x 20'	FRP	22,329	0.08
41	(3) Chlorine Storage Tanks	S. Cell Bldg	10' x 54'	Steel	172,000	0.08
43	Process Water Storage Tank	Brine Area	30' x 30'	Steel	65,605	n.s.

The Town of Orrington has accepted an offer to purchase eight of the HCL tanks (Tank No. 40) and the two bleach storage tanks (Tank No. 4). If this sale is completed, the tanks will be released to the purchaser and removed from the site intact.

3.5 Work Area Cleanup

After the completion of dismantling activities, the following cleanup activities will take place.

- All site paved areas will be swept.
- Fresh sediment socks will be placed in storm water catch basins.

At this time, it is anticipated that the site fencing and staging areas will remain in place for future use in subsequent remediation activities as part of the overall site corrective action program.

Section 4
Waste and Debris Transportation, Recycling, and Disposal

4.1 General Characterization and Disposal Approach

Based on use, the materials comprising the buildings and tanks to be dismantled are not mercury contaminated. Therefore, all waste generated during Phase 5 will be non-hazardous and will be disposed at an industrial waste landfill or recycled. Significant waste streams to be generated are comprised of the following materials:

- Transite;
- Steel;
- Concrete;
- Concrete Block; and
- Miscellaneous debris, wood, plastic, and other materials

The transite, concrete, concrete block, and miscellaneous materials will be disposed of as non-hazardous waste at an industrial waste landfill. Structural steel, unlined steel tanks, and steel pipe racks will be segregated and, if suitable, recycled.

4.2 Staging

As described in the detailed dismantling procedures in Section 3, most materials will be direct loaded into roll-off containers staged adjacent to the work area.

4.3 Containerization and Loading

A variety of containers of different sizes and materials will be used in this program. Container types will be chosen based on compatibility with the material to be transported, and the requirements of the disposal facilities. The following container types are expected to be used:

- 20 to 30-cubic yard steel roll-off containers will be used for non-hazardous materials and debris.

- 20 cubic yard roll-ff containers will be used for the transport of asbestos-containing materials. These containers will be lined with 6 mil polyethylene.

Loading will be confined to the fenced-in work zone or, for work areas outside the fenced enclosure, will be confined to the immediate work zone, which will be delineated with caution tape.

4.4 Transportation

All transportation from the site will be by road. All waste haulers hired by CDM will be licensed in accordance with State of Maine and federal regulations. All transportation will be in compliance with all State transportation requirements.

4.5 Intended Disposal Facilities

Non-hazardous demolition waste will be disposed at New England Waste Services of ME, Inc. (dba Pine Tree Landfill) or recycled at Industrial Metals Recycling. Well pumps and associated solids will be disposed at Stablex of Canada. Addresses and phone numbers for these facilities are provided below:

- Industrial Metals Recycling
  Outer Broadway
  Bangor, ME 04401
  207-947-3710

- New England Waste Services of ME, Inc.
  dba Pine Tree Landfill
  358 Emerson Mill Rd
  Hampden, ME 04444
  207-862-4200

- Stablex of Canada
  760 Industrial Boulevard
  Blaineville, Quebec J7C 3V4
  450-430-9230