



Title
Building Demolition Plan

Document No.
NFSS-0010

Revision
REV.0

Building Demolition Plan

Niagara Falls Storage Site Building 401 Demolition Lewiston, New York

Contract No. W912P4-07-D-0003-0002

Prepared by:
TPMC-EnergySolutions Environmental Services, LLC

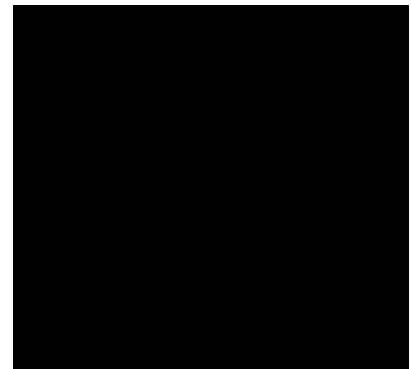


Prepared for the
U.S. Army Corps of Engineers, Buffalo District
Buffalo, New York



**US Army Corps
of Engineers®**
Buffalo District

AUGUST 2010



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Building Demolition Plan
Building 401 Demolition
Niagara Falls Storage Site
Building Demolition Plan

Prepared By:

[Redacted Name]

10 AUGUST 2010

[Redacted Signature]

Date

Reviewed By:

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10 AUGUST 2010

[Redacted Signature], PMP

Date

Approved By:

[Redacted Name]

10 AUGUST 2010

[Redacted Signature], PM / CQC System Manager

Date

- New Plan
- Title Change
- Plan Revision
- Plan Rewrite

Effective Date 10 AUG 2010

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CERTIFICATION OF INDEPENDENT TECHNICAL REVIEW

COMPLETION OF INDEPENDENT TECHNICAL REVIEW

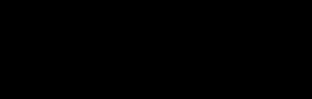
TES, LLC (TES) has DRAFTED the *Building Demolition Plan* for the Niagara Falls Storage Site Building 401 Demolition Project located in Lewiston, New York. Notice is hereby given that an independent technical review has been conducted that is appropriate to address all regulatory and compliance issues appropriate to the Niagara Falls Storage Site Building 401 demolition, as defined in the TES NFSS Building Demolition Plan. During the independent technical review, compliance with established policy principles and procedures, utilizing justified and valid assumptions, was verified. This included review of assumptions; methods, procedures, and material used in analyses; alternatives evaluated; the appropriateness of data used and level of data obtained; and reasonableness of the results, including whether the product meets the customer's needs consistent with existing USACE policy.

Signature/ TES Report Preparer



Date 26 JULY 2010

Signature/ TES Independent Technical Reviewer



Date 26 JULY 2010

Signature/ TES Independent Technical Reviewer



Date 26 JULY 2010

Signature/ TES Independent Technical Reviewer



Date 26 JULY 2010

Independent Technical Review Team Members: 


CERTIFICATION OF INDEPENDENT TECHNICAL REVIEW

Significant concerns and the explanation of the resolution are as follows:

Item	Technical Concerns	Possible Impact	Resolutions
Demolition Plan			
1	See attached sheets		

As noted above, all concerns resulting from independent technical review of the plan have been resolved.



Signature/ 

Date 26 JULY 2010


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LIST OF ACRONYMS

ACM	Asbestos Containing Material
AEC	Atomic Energy Commission
APP/SSHP	Accident Prevention Plan/Site Safety and Health Plan
C&D	Construction and Demolition
CESHP	Corporate Environmental, Safety, and Health Program
CFR	Code of Federal Regulations
COR	Contracting Officer's Representative
CWM	Chemical Waste Management, Inc.
D&D	Decontamination & Demolition
DEMCO	DEMCO, Inc.
DOE	Department of Energy
ES	EnergySolutions
FUSRAP	Formerly Utilized Sites Remedial Action Program
HP	Health physics
HTRW	Hazardous, Toxic, and Radioactive Waste
LBP	Lead Based Paint
LOOW	Lake Ontario Ordnance Works
MARC	Multiple Award Remediation Contract
NFSS	Niagara Falls Storage Site
NRC	Nuclear Regulatory Commission
NYS	New York State
OSHA	Occupational Safety and Health Administration
PCB	Polychlorinated Biphenyl
PEL	Permissible Exposure Level
PM	Project Manager
POTW	Publicly Owned Treatment Works
PPE	Personal Protective Equipment
QCS	Quality Control System
RCRA	Resource Conservation and Recovery Act
RMS	Resident Management System
SAP	Sampling and Analysis Plan
SOW	Statement of Work
TES	TerranearPMC – EnergySolutions Environmental Services, LLC
TPMC	TerranearPMC, LLC
TSCA	Toxic Substances Control Act
USACE	United States Army Corps of Engineers
WMP	Water Management Plan

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1.0 INTRODUCTION

1.1 OVERVIEW

This document provides a systemic approach to the decontamination, including the identification of potential hazardous materials along with planned removal / abatement procedures, sequenced demolition, loading of waste material, and disposal of all material. associated with Building 401 and the adjacent silos. This plan may be altered during operations with permissions from TPMC-EnergySolutions Environmental Services, LLC (TES), the U.S. Army Corps of Engineers, Buffalo District (USACE), and other participants that may collectively benefit the project as a whole.

This work is being performed by TES under contract W912P4-07-D-0003-0002. TES has teamed with DEMCO, Inc. (DEMCO) for the structural demolition, including ACM and Hazardous abatement activities. TES will interface with the USACE Buffalo District Contracting Officer's Representative (COR) to ensure compliance for the tasks described in this document..

This Demolition Plan (DP) was developed in accordance with the requirements of the Statement of Work (SOW) included in the USACE Solicitation No. W912P4-10-R-0000, Niagara Falls Storage Site Building 401 Demolition (USACE, 2009a).

This Demolition Plan applies to all physical abatement, demolition, and waste generating activities performed as a part of the remediation and demolition activities of the project.

The outlined approach is designed to deliver safe, efficient execution while avoiding impacts to surrounding areas and operations. The work has been sequenced to optimize the schedule while taking into account the site space constraints and limitations.

1.2 BACKGROUND

NFSS is part of the USACE Formerly Utilized Sites Remedial Action Program (FUSRAP). It is located at 1397 Pletcher Road, Lewiston, New York, and the Federal Government owns the site. The site was originally a part of the Lake Ontario Ordnance Works (LOOW). The primary use of the site from early 1940s through mid 1950s was for storage, trans-shipment, and disposal of radioactive wastes from various sources.

Building 401 was initially the powerhouse for the production of TNT at LOOW, and it was also used to store radioactive waste. It was used for the production of Boron-10 from 1953 to 1959 and from 1965 to 1971 and then became a waste storage facility used by the Atomic Energy Commission/Department of Energy (AEC/DOE). In 1971, all major systems and components of Building 401 were removed and the instrumentation and hardware disposed of as surplus material. This building has been largely inactive since, and evidence of bird and animal occupation has been observed. An interior asbestos abatement was performed on Building 401 during spring/summer 2002. Figure 1-1 shows the location of Building 401 at the NFSS.

Building 401 is a steel framed multi-story structure with a ridge height of approximately 76 feet encompassing 100,000 square feet. The main structural system of the building consists of steel and concrete load-bearing walls supporting what may be a transite roof. The interior walls are poured concrete, concrete block, and other construction materials. The exterior is comprised of sections of corrugated steel, and transite siding and roofing. Inside the building, there are

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multiple floors, which contain rooms and offices and building service areas (boiler rooms and tower areas). Additionally, Building 401 has three large concrete silos and the building floor is a concrete slab. Figures 1-2 and 1-3 are Building 401 floor plans

USACE Solicitation No. W912P4-10-R-0000, Niagara Falls Storage Site Building 401 Demolition, and Scoping Information, dated September 2009, provide additional background information on the NFSS site and Building 401 (USACE, 2009a and 2009b).

2.0 SEQUENCE OF OPERATIONS

This plan provides an overall strategy for both the abatement and demolition activities. Work will be sequenced in a safe and efficient manner. General sequence of work includes:

2.1 PRE-DEMOLITION ACTIVITIES INCLUDING:

- Utility abandonment procedures
- Completion of Structural Engineering Survey (Attachment 1)
- Identification of potential hazardous materials including planned removal procedures, including precautions to be taken associated with bird/animal waste, potential ACM and LBP and contaminated surfaces
- Identification of on-site competent person as well as level of authority established
- Development of drawings and calculations to substantiate work procedures, including temporary supports required to avoid catastrophic collapse of building
- Fire safety procedures
- Debris Removal
- TES load rating evaluation for existing roadways to be used.

2.2 DETAILED DESCRIPTION OF DEMOLITION PROCESS

- Measures to protect existing structures, facilities, utilities etc.
- Demolition sequence
 - Isolation of Utilities
 - Abatement
 - Demolition of Silos
 - Demolition of low rise building additions
 - Demolition of high rise building section

2.3 CONTROL MEASURES

- Entry and Exit Procedures
- Decontamination facilities
- Engineering Controls
- Radiological
- Dust Control
- Surface water runoff control methods

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2.4 RIGGING AND LIFTING

A rigging plan will be drafted for all lifts, regardless of weight, in accordance with the scope of work. The rigging plan will be written in accordance with EM 385-1-1, Section 15 (Rigging).

3.0 SITE MOBILIZATION

TES shall conduct a pre-demolition inspection and retain video/photographic documentation of the existing site conditions prior to commencement of any on-site work.

Site mobilization will begin only after all pre-mobilization planning and submittals have been reviewed and approved by USACE. Once complete, TES will perform a preliminary job site turnover walk-through with USACE to adequately understand the site's current configuration (Cold and Dark, Residual Liquids, Site Hazards, Security requirements, etc.). Adequate time and manpower has been allotted in the schedule for the preparation of the pre-mobilization submittals and to perform the job site turnover.

3.1 EQUIPMENT

DEMCO anticipates mobilizing the following major equipment for the Building 401 demolition project:

- 1-Caterpillar 350 High Reach Excavator with Shear and Pulverizer Attachments
- 1-Caterpillar 325 with Grapple, Hammer, and Shear Attachments
- 1-Komatsu PC300 Excavator with Grapple, and Shear Attachments
- 2-JLG 120' Man lifts
- 1-80 Ton Conventional Cranes
- 1-783 Bobcat
- 1-Scissor Lift
- Connex Box for storage
- Hot Work supplies and Sundries
- 3-Pickup trucks
- Dust Control Equipment
- Rigging Equipment (multiple)
- Temporary lighting (multiple)
- 2-Hepa Filtered Negative Air Machines
- 4-Hepa-Filtered Vacuums
- 1-Decontamination Trailer
- 1-Aquahog 5 micron water filtration units
- 1-Holding tank for the collection of water to be sampled
- Fire Protection Supplies
- Generator
- Trash Pump
- Frac Tank

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- Blastrac
- Waste Containers

All equipment mobilization notifications will be made well in advance of the estimated arrival date to allow adequate time for USACE inspection if they choose to do so. Heavy equipment delivery will be closely coordinated with USACE to limit if not completely alleviate any impacts to USACE's (and other USACE subcontractors) ongoing site activities. The excavators and cranes will require assembly onsite, and will be assembled in accordance with manufacturer's specifications. Once assembled, the machines will be inspected and tested to ensure that they are in safe working condition and that all safety apparatus' are in place and functioning as designed. Equipment will be operated by competent, experienced, and properly trained employees.

A Certificate of Compliance for each crane and its operator will be completed by TES, and will be located in the cab as well as attached to the APP/SSHP.

3.2 PERSONNEL

DEMCO will mobilize the following trained and qualified personnel to the Building 401 demolition project site. The DEMCO personnel listed are in addition to the TES project management and support personnel. All site personnel will have Radiation Protection Training meeting 10 CFR Parts 19 and 20 requirements and 40-hour HAZWOPER training. All workers will have passed HTRW physicals prior to reporting for work. Training certificates will be provided to USACE for all personnel prior to initiation of work activities.

Personnel include:

Project Oversight:

- 1 - Operations Superintendent – Mike Healy
- 1 - Site Safety and Health Manager (SSHO) – Mike Benedetto

Decontamination & Demolition (D&D) Team:

- 1 - Labor Foremen
- 5 - Laborers
- 3 - Operators

Hazard Mitigation Team:

- 1 - Supervisor
- 8 - Laborers

The sequencing of pre-demolition activities and subsequent structural demolition of Building 401 and ancillary systems will be in accordance with the agreed-upon project schedule. Two distinct teams, the hazard mitigation team and D&D team, will be utilized to accomplish the overall work scope in a safe, systematic, and efficient progression. Both will be directed by the TES/DEMCO on-site management group. The SSHO will be an active participant in each of these teams promoting a “zero tolerance” safety culture, and assessing ongoing work procedures and potential hazards. The hazard mitigation team will be comprised of experienced and properly trained technicians with an average of ten years in the industry. All members will possess required local, state, and federal work related credentials. The hazard mitigation team will

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complete the abatement of identified universal wastes and asbestos containing materials. A NYS certified and licensed third party asbestos abatement consultant will oversee all abatement activities. Abatement techniques and packaging procedures will comply with all applicable regulatory agencies, and all required notifications will be submitted. Abatement will be a predecessor to subsequent D&D activities. Completing the abatement prior to D&D will eliminate the possibility of potential worker exposure and cross-contamination.

The D&D team will be made up of an integrated group of laborers, equipment operators, and D&D foremen. All members will have extensive training and experience in the safe and efficient de-construction of tanks, mechanical components, and buildings. The core group of this team will consist of full time DEMCO employees that travel throughout the country working on and managing large D&D Projects. They all have extensive radioactive decontamination and demolition experience and are familiar with working in high-profile, demanding, and heavily regulated facilities. They are aware of the unique challenges of performing D&D activities near remaining structures and operating facilities.

4.0 PRE-DEMOLITION ACTIVITIES

4.1 UTILITY ABANDONMENT

TES will perform a geophysical survey to locate all underground utility lines within the work perimeter prior to the start of demolition to verify that all utilities to building 401 have been terminated. Isolation of building 401 utilities will be performed/verified as required or as site conditions dictate. The project will utilize Dig Safe of New York prior to start of demolition for stakeout requests. The project will ensure that all utilities identified are clearly marked with the marking protected to remain visible during demolition. Stakeout requests will utilize either 1-800-962-7962 or by dialing 811.


If located and not terminated, the underground utility lines (gas, electric, water, sewer, telephone, etc.) will be shown on a drawing that will be presented to the USACE. After USACE acceptance, TES will disconnect and properly terminate all existing utility lines as required for building demolition.

4.2 BUILDING 401 STRUCTURAL INTEGRITY EVALUATION

DEMCO has subcontracted, a professional structural engineer, licensed in New York State (NYS), to evaluate the integrity of Building 401. The engineering assessment was performed in accordance with:

- SEI/ASCE 11-99 Guideline for Structural Assessment of Existing Buildings.
- ANSI A1-.6 – Safety Requirements for Demolition Operations,
- 29 CFR 1926.850- Safety and Health Regulations for Construction, Preparatory Operations.

The evaluation includes the current condition of the building and the recommended approach/sequencing for building/silo demolition, measures to be taken to prevent inadvertent/unplanned collapse. Evaluations for the building and the three adjacent concrete silos are included.

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A report detailing the results and recommendation identified in the evaluation has been submitted to USACE for comment. The evaluation will be resubmitted to the USACE as an attachment to this document with prior comments addressed. The Licensed New York State Professional Engineer has stamped and signed the referenced report.

4.3 HAZARDOUS MATERIALS CHARACTERIZATION

Characterization, through the use of sampling, analysis, radiological surveys and historical knowledge will be conducted as outlined in the Sample and Analysis Plan to identify radiological and hazardous conditions that will be encountered during the demolition project.

Prior to the start of demolition activities, TES will identify and quantify hazardous materials including lead, light ballasts, fluorescent light fixtures, mercury/sodium vapor lights, capacitors, thermostats, ACM and bird/animal wastes. Once identified, these wastes will be removed or stabilized (e.g. animal/bird waste) and will be segregated and packaged separately from other building debris.

The removed materials will be characterized using process knowledge combined with sampling and analysis to determine proper disposal requirements. These materials will be removed from Building 401 prior to any demolition activities, staged, and transported for disposal to either CWM's Model City Facility for RCRA hazardous waste or Modern Landfill for non-hazardous construction and demolition debris. TES is responsible to ensure that waste being disposed of in New York State is compliant with New York State regulations (e.g. 6NYCRR Parts 360 and 380) as well as any site specific waste acceptance criteria.

4.4 PRE-DEMOLITION ACM SURVEY

A pre-demolition asbestos survey will be performed by a New York State certified and licensed asbestos inspector on both the interior and exterior of the building, inclusive of the roof. The objective of this inspection is to evaluate, correlate, and quantify all asbestos containing materials and provide guidance for removal prior to the Building 401 demolition. Both hazardous and radiological controls will be established prior to the start of the survey. Specific AHA's will be developed to cover these tasks including working at heights, used of powered equipment as well as asbestos awareness and asbestos worker training verification. Access to areas requiring sampling will be by aerial man lift or similar equipment. Suspect materials used in the construction of the building such as floor, wall, and ceiling materials, surfacing materials, thermal systems insulation, roofing, caulks, and miscellaneous materials will be sampled. The inspector will select materials for inclusion in this report through their expertise and through understanding of the historical uses of asbestos.

Samples will be collected from locations and recorded on a chain of custody document, recorded on a drawing, and individually retained within a container and transported to the analytical laboratory for analysis. All materials sampled will be analyzed by Polarized Light Microscopy (PLM) and Transmission Electron Microscopy (TEM). Any materials will be considered as asbestos containing material (ACM) if one or more layers contain asbestos greater than 1%.

The Survey will be submitted to the USACE for acceptance and will be the basis for ACM abatement tasks.

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Confirmed ACM shall be removed in accordance with the USACE Safety and Health Requirements Manual, EM 385-1-1, Section 06.B.05.

5.0 ASBESTOS ABATEMENT

Removal will be in accord with site, local, state, and federal regulatory agency guidelines. All abatement workers will have completed required training and will possess required credentials and certifications. Asbestos Warning tape will be positioned to establish a controlled area, and to prevent accidental entry into the work zone. Poly sheeting will be positioned under and adjacent to areas where removal is occurring. Aerial lifts will be utilized to provide worker access to the abatement areas. Appropriate fall protection and PPE will be used for all abatement work activities.

All individuals who enter the Work Area shall legibly sign the entry/exit log located in the clean room upon each entry and exit. The log shall be permanently bound and shall identify fully the facility as Building 401 Niagara Falls Storage Site, the contractor as DEMCO Inc., the project as the Abatement and Demolition of Building 401 Niagara Falls Storage Site, Lewiston, NY, each Work Area and worker respiratory protection employed. The job supervisor shall be responsible for the maintenance of the log during the abatement activity.

Required personnel and area air sampling will be administered until a negative exposure assessment has been established and warrants the elimination of area air sampling. All air samples will be analyzed by an approved and accredited laboratory.

A remote decontamination facility shall be used for the project, and entry and exit requirements shall be as follows:

Each worker shall remove street clothes in the clean room and don two disposable suits, including gloves, hoods and non-skid footwear, and put on a clean respirator with new filters before entering the work area. HEPA filters, appropriate for use during asbestos abatement activities, will be utilized in all respirators.

Each worker shall, before leaving the work area, clean the outside of the respirators and outer protective clothing by wet cleaning and/or HEPA vacuuming. The outer disposable suit shall be removed in the work area and placed in a labeled ACM 6 mil. poly disposal bag. The worker shall then proceed into the decontamination facility. The inner disposable suit shall be wet wiped and HEPA vacuumed thoroughly before removing and prior to an aggressive shower. The respirator shall be removed and rinsed in the shower.

Following showering and drying off, each worker or authorized visitor shall proceed directly to the clean room, dress in street clothes and exit the decontamination enclosure system immediately. Personnel will sign the log book to document egress from the regulated area.

Three types of asbestos containing materials exist within Building 401. The following addresses each type individual as well as specific applicable precautions:

The following sections address specific work practices, engineering controls, and precautions associated with each type of asbestos:

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5.1 TRANSITE

Transite siding exists on the exterior of Building 401, and possibly the roof. Access to the transite panels for DEMCO workforce will be by a 120 foot man lift. Although transite is normally not considered friable, if broken there is a potential for personnel exposure and release of fibers to the environment. As a precautionary measure, the panels will be wetted prior to and during removal to prevent any potential for airborne fibers. Fasteners holding the transite panels in place will be carefully removed so as not to break or damage the ACM material. Removal tools include pry bars, impact guns, and cordless drills. Three standard techniques are available for physical removal of the siding depending on specific transite conditions. The first being prying the panels from place utilizing a pry bar, the second is the use of a cordless drill or impact gun to either reverse the fasteners and remove or tighten the fasteners to the point of failure, and the third is to cut the anchoring portion of the fastener off from inside of the panel and then remove it from the outside. Where panels have been sealed (glued) at the seams, the glue or caulk will be cut with a razor knife to minimize the potential for unnecessary breakage. When working at higher elevations, the panels will be secured with slings prior to fastener removal.

Removed panels will be loaded directly into double 6 mil poly lined skip pans or lined man-lift baskets. After the transfer container is filled the poly will be fastened atop the pile of transite and lowered to grade level. Any skip pans will be held in place and lowered to grade by an 80 ton hydraulic crane. The wrapped and sealed transite will be carefully transferred to a roll off disposal container to minimize the potential for breakage. Removal of the windows and transite material will require the use of skip pan and hydraulic crane. This is the only anticipated crane rigging anticipated for the project. The skip pan will be loaded to a maximum of 80 percent of its working capacity on this project.

5.2 CAULK

Asbestos containing glass caulking is present in Building 401 windows and requires removal prior to demolition. Access to the Building 401 windows will be provided to the DEMCO workforce utilizing the 120' man lift.

The window caulking will be wetted prior to beginning removal operations. Removal of the windows as complete components from the window frames will be performed by Seawalls equipped with metal blades. The windows will be removed intact to insure that no disturbance of the intact caulking occurs. Once removed, they will be loaded directly into a double 6 mil poly lined skip pan. Once the Skip pan is full, the poly will be fastened at the top and lowered to grade level. The windows will then be transferred to a roll off container for offsite disposal by fork truck.

5.3 GALBESTOS

Galbestos is present on the exterior of Building 401. The galbestos will be removed mechanically by Cat 350 UHD high reach with grapple attachment. Galbestos siding will be peeled away from the exterior of the facility by the grapple attachment and lowered directly into a 6 mil double poly lined roll off box for offsite disposal.

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6.0 HAZARDOUS MATERIAL IDENTIFICATION AND REMOVAL

The TES Team will visually inspect and identify the presence of potentially hazardous materials and clearly mark for removal prior to demolition. Expected material to be removed includes:

- Mercury-containing thermostats
- PCB containing capacitors and light ballasts
- Mercury containing light fixtures
- Mercury sodium vapor lights
- Any loose hazardous waste as identified.

During the ACM abatement phase of the project, DEMCO will concurrently collect all batteries, fluorescent bulbs, high intensity lighting, related PCB containing ballasts and capacitors, mercury containing devices, smoke detectors and miscellaneous chemicals from the structure. All of the above related items shall be placed in DOT approved disposal containers and manifested for legal disposal or recycling.

Florescent light tubes will be removed from the overhead fixtures by hand. Light tubes shall be removed intact and placed into shipping containers as they are removed. Light tubes will not be allowed to accumulate un-containerized in the work area. The use of a scissor lift and/or ladder will be necessary to facilitate the removal of the light tubes.

After the light tubes have been removed from the fixtures, the ballast labels will be checked. Any ballast that does not specifically state that it is “PCB Free” will be removed and disposed of as PCB waste.

Mercury containing switches will be carefully removed so as not to rupture the mercury vial. This will be accomplished utilizing hand tools, if the vial cannot be easily removed, then the entire fixture will be removed. The mercury vials and/or switches will be wrapped in cushioning material and placed in an appropriate container for disposal.

All CFCs will be removed from the building’s air condition system prior to demolition. A CFC recycling machine will remove all CFCs within the system. A collection hose will be connected to the access port of the AC system, and all CFC within the system will be evacuated by the machine and placed in a separate pressurized container. The CFC’s will then be removed from site and recycled accordingly.

The removed materials will be characterized using process knowledge combined with sampling and analysis as required to determine the proper disposal requirements.

6.1 ANIMAL MATERIAL NEUTRALIZATION

Animal material is present throughout the building. There are two different types of animal material present, animal carcasses and animal feces. The carcasses and feces will be addressed with guidance from EP 415-1-266 Section 11 per SOW 3.5.8 Animal carcasses will be sprayed with a minimum 10 to 1 bleach based neutralizing agent and collected via shovel and disposed of as municipal waste. Animal feces will be neutralized with a minimum 10 to 1 bleach based agent and left in place. In areas where excessive build-up of feces exists, the neutralizing agent

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will be applied in such way to get total coverage and permeation throughout all material. TES shall ensure that no pathogens are released from animal feces during building demolition.

6.2 LEAD BASED PAINT (LBP)

DEMCO is aware that some or all of the existing paint on structural steel and components might contain lead. Lead based paint will not require removal prior to demolition, But in specific cases where hot work cutting techniques will be used to segment material with LBP, lead will be abated or engineering controls will be implemented prior to any cutting.

The following precautions and procedures outline the process DEMCO will use for worker and pedestrian safety.

- Lead awareness training shall be a minimum site requirement, while more advanced training shall be in accordance with 29 CFR 1926.62. All workers must have the required OSHA lead training when actually working with lead.
- Painted surfaces on piping, ductwork and other suspect surfaces shall be assumed to be lead containing until a positive determination is made. Appropriate measures to prevent the spread of contamination and exposure shall be implemented.
- Work activities with the potential for lead exposure shall be conducted in accordance with the DEMCO HASP.
- Personal air monitoring for lead exposure will be taken during all torch cutting operations.
- Abatement of lead paint from the structural steel at proposed torch cutting locations via approved paint removal gel is a viable alternative in some instances.
- A Regulated Area shall be established at the required distance in areas where airborne lead concentrations exceed the PEL (50 µg/m³). Warning signs which read "WARNING-LEAD WORK AREA POISON NO SMOKING OR EATING" shall be posted and hazard barrier tape installed.
- All Lead work shall be in accordance with 29 CFR 1926.62
- If the PEL has been exceeded, additional PPE will be required. Requirements include: Coveralls, shoe covers, gloves and full-face respirators with Combination HEPA/P-100 / Organic Vapor cartridges.
- Engineering controls shall be implemented where/when feasible. Controls include but are not limited to: increased ventilation and use of local HEPA exhaust ventilation.
- Food, beverages, tobacco products, and cosmetics shall be prohibited in all areas where lead exposure is possible.
- Workers shall wash hands and face immediately after leaving the work zone.
- Accumulated lead containing debris shall be kept to a minimum.
- Compressed air shall not be used to clean PPE or other surfaces.
- Shoveling, sweeping, and brushing shall be used only where vacuuming or other methods are ineffective. Wet methods shall apply.
- Vacuums shall be equipped with High Efficiency Particulate Air (HEPA) filters.
- Lead workers must have baseline blood lead and ZPP analysis performed, as part of their pre-employment physical. Exit blood test will be administered upon termination.

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7.0 BUILDING PREPARATIONS

7.1 TRENCH AND DRAIN PLUGGING

Cleanout of the trenches and building pits will be performed as the first task associated with the hazardous materials abatement process. Workers will wear the appropriate level of PPE to minimize potential exposure to hazardous materials. The trench grates and pit covers will be removed by hand and staged for replacement after cleaning and prior to trench and pit closure to prevent creation of a trip hazard. Hand tools, primarily shovels, will be used to compile, collect, and load the materials within the trenches. After liquid and solid debris are removed to a practicable extent from within the trenches and pits, they will be plugged and backfilled with crushed stone. USACE-approved flow fill material will be utilized to cap off and seal the trenches even at grade level to prevent any liquid from migrating off-site. It will be selected to withstand long term exposure to outdoor weather conditions. Cut sheets and MSDS sheets for the fill material will be provided to USACE.

Any material removed from drains and sumps shall be segregated and sampled in accordance with the TES Waste Management Plan and Field Sampling Plan. This material will not be mixed with other waste streams until its contaminants have been determined. Drains and sumps will be plugged and sealed in the same manner as trenches and pits.

7.2 RADIOLOGICAL CONTAMINATION ABATEMENT

Building 401 contains areas with radiological contamination. TES health physics personnel will survey the building for radioactive contamination in accordance with the SAP. Contaminated building material will be identified, segregated and marked with orange colored paint so that material that cannot be removed prior to the start of demolition can be controlled and removed at the earliest point that access can be obtained. Locations of these components will also be catalogued on the appropriate site drawing and updated by a Quality Control representative. As the components are removed, the corresponding notation on the drawing will be initialed and dated. This additional level of tracking will insure that all RAD components are accounted for, and disposed of properly. Once removed, radiological contamination material will be segregated and sent to an appropriate disposal facility (EnergySolutions' Clive Landfill). Radioactively contaminated floor slab and footer sections will be marked for potential remediation to meet unrestricted release for the removable radiological component (NRC Regulatory Guide 1.86 criteria; NRC, 1974).

Soil areas adjacent to the Building 401 work zone (within 15 meters) will be covered with crushed stone and geotextile fabric in order to minimize disturbance during demolition activities. Soil areas of marked contamination will be specifically avoided by all TES personnel.

Removal of the radiologically contaminated materials from within the structure will begin with the removal of known contaminated items. Items known to be contaminated will be removed by hand labor and transported to grade where the materials will be loaded into the appropriate waste container (e.g. B25, intermodal type container) for offsite disposal. If during the pre-demolition radiological survey additional contamination is found, then newly discovered radiologically contaminated material will be collected or isolated as practical. Structural metal materials requiring removal will be removed by thermal methods. Thermal cutting will be performed a

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minimum 12 inches beyond the areas of concern. Suspect lead paint within these areas will be abated prior to thermal cutting. Removal of structural steel will be reviewed by the DEMCO competent person to insure that no threat to structural stability of the building is made. On vertical columns, any removal will be review by a licensed engineer. If horizontal members or cross ties within the facility are required to be removed, DEMCO's in-house engineer Walter Leineck will determine if outside consultation from a New York State licensed engineer is required. .

The radiological decontamination of the concrete will be performed utilizing dry decontamination techniques to minimize the creation of additional liquid waste. Two types of dry decontamination methods will be used. The first is a blastrac type system, which will be used on horizontal surfaces. The second is a vacublast system. This system will be used on vertical and overhead surfaces.

The blastrac type system is a portable shot blast cleaning system, capable of removing up to ¼ inch of floor surface at a single pass. It contains a high performance airless centrifugal wheel for propelling shot in a controlled pattern and direction. Dust created from removal operations will be collected by a separate dust collector system, which will be equipped with a HEPA filter to protect from airborne contamination.

The vacublast type system is a closed circuit system that uses compressed air, mixed with an abrasive agent, to perform the removal action. The abrasive agent is propelled through a blast gun and recovered continually through the removal action. Any dust created during removal operations is collected inside the closed blast gun system, and HEPA filtered to control air borne contamination.

Equipment brought onto the project will be both operationally inspected and radiologically surveyed prior to use and prior to entering the radiological work area. All equipment will be inspected on a daily basis and at frequencies identified per the manufacturer specifications, and maintained in a safe operating condition. Only approved employees or designated sub-tier contractors (who have been trained and are qualified by their employer) will operate heavy equipment or trucks.

7.3 PREMATURE COLLAPSE / COMPETENT PERSON.

The Contractor's on-site Competent Person (as defined in 29 CFR 1926.32(f)), Mike Healy, will be required to obtain assistance from the NYS licensed Structural Engineer if a change of predicted events during demolition or a potential hazardous condition that was not expected occurs that might impact the structural integrity of the building and increase the potential for unintended premature collapse of the structure. Mr. Healy's resume is provided

If required as a result of decontamination or contaminated material removal, temporary shoring, approved by the NYS licensed Structural Engineer, will be installed. Based upon the existing condition of the buildings, and the pre-demolition evaluation by DEMCO personnel and a New York state licensed engineer, no modifications to the structure prior to or during mechanical demolition are anticipated.

Engineering and administrative controls have been identified to prevent premature collapse of the structure. Available engineering controls consist of a temporary shoring as discussed

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previously and the use of proper equipment so that precision cuts ensure controlled demolition. Examples of administrative controls consist of hold points related to weather (e.g. high winds) incorporated into work control, daily planning meeting to ensure all personnel are aware of work objectives and safety controls and use of trained operators.

7.4 FIRE SAFETY PROCEDURES / PREVENTION

Fire Safety is addressed in Appendix A of the Accident Prevention Plan, Doc# - NFSS-0011-1

To reduce the risk of fire, employees will implement the following fire prevention requirements. Fire prevention will be achieved by:

- Maintaining good housekeeping, removing combustible materials routinely
- Locating combustible storage piles away from ignition sources
- minimizing the storage of fuels and lubricants on site.
- Locating internal combustion engine exhausts away from combustible materials and air intakes
- Allowing combustion engine equipment, such as generators to cool prior to refueling

Fire extinguishers will be available at the work site and stationed on all heavy equipment, whether driven or not. The maximum travel distance to any fire extinguisher for ground personnel will be less than 100 feet. Personnel will be familiarized with the location of extinguishers prior to working in the area. The extinguishers will be inspected routinely at the first of each month. All personnel will receive training in the different classes of fires and the use of portable fire extinguishers. Extinguishing a fire should only be performed in the initial stages of the fire and if it is safe to do so. Employees however are not required to attempt extinguishing a fire.


7.5 WORK AREA INGRESS/EGRESS

Entrance requirements will be specific to the work area and task being performed. Individual areas will be posted to warn individuals of potential hazards. Entry controls will be put into place and reinforced using specific training for access to the project areas. Requirements for entry will be commensurate with potential hazards. In case of emergency within the project area, all project personnel shall evacuate the work area to a designated rally point. TES and USACE personnel will agree upon the safest and most logical location factoring in weather conditions, prevailing wind direction, proximity to work areas and other structures, and personnel safety.

7.6 SEVERE WEATHER STOPPAGE CONSIDERATION

TES has the responsibility to eliminate the chance of injury to personnel and to minimize damage to property in event of severe weather (rain, wind, lightning, snow).

Local weather will be monitored on a daily basis and recorded/documented in bound construction log book.

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The Project Manager / Superintendent will be responsible for tracking weather conditions based on local weather broadcasts / US Weather Service. Doppler Weather reports and maps will be utilized, if available, to further monitor adverse weather conditions.

At all times, the Site supervisor has the authority and obligation to suspend work due to severe weather and when adverse conditions are eminent, the Site Supervisor, in conjunction with both the Safety Representative and Project Manager, shall review local weather conditions.

The following protocol will be followed with regard to lightning:

Lightning Alert

Thunder is heard and/or lightning is reported in the area by US Weather Service. Workers are informed of conditions at daily safety meeting. Lightning is always associated with thunderstorms, hence without thunderstorm conditions it is impossible to have lightning.

Lightning Watch

Lightning is spotted within sight and is *moving toward* the immediate area. PM is to assess wind speed, and other factors in anticipation of conditions. If lightning is within 5 miles of the job site, outside work will stop immediately and workers will return to the break trailer until the weather front has been evaluated by Site Safety Representative. Elevated removal work or crane work shall be suspended during sustained winds of 30 miles per hour or during periods of lightening. In the event of tornado or severe thunderstorm warnings or the threat of other severe weather conditions, those tasks necessary to stabilize the work site shall be immediately performed and personnel will proceed to shelter

8.0 DEMOLITION ACTIVITIES

TES will complete the demolition of Building 401 and attached silos at the NFSS. The concrete floor slab and footer will remain. TES will remediate concrete surfaces that are radioactively contaminated in excess of levels above unrestricted release criteria for removable contamination (NRC Regulatory Guide 1.86). The schedule for the project is presented in the Contractor Quality Control Plan (TES, 2010b).

8.1 WATER MANAGEMENT

TES has developed a section within the Waste Management Plan describing the methods to be employed for management of surface water runoff, runoff from loading and/or staging areas, and water generated during decontamination activities. This section identifies the sources and use of potable water for dust suppression and equipment decontamination. This Waste Management Plan includes information on discharge permitting, anticipated effluent limits, wastewater treatment methods (if required), and effluent monitoring and reporting for wastewater that will be generated during the project. Treated wastewater will be discharged to an approved publicly owned treatment works (POTW) commercial treatment facility acceptable to the USACE, Buffalo District. TES will ensure that all applicable NYS codes are met and complied with including required approvals.

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TES will minimize the potential spread of radiological and other contamination during Building 401 demolition by implementing water diversion as well as wastewater collection. Water diversion measures will consist of limiting areas where work with potentially contaminated debris occurs, implementing sedimentation and erosion control measures, and placing waste/debris on top of polyethylene plastic. In addition, all waste/debris piles will be covered to prevent the generation of contaminated runoff.

All wastewater will be collected during the demolition of the building. Work area perimeter controls will eliminate water migration. Laborers will continually direct water to the pump that will be located at the lowest elevation inside the work zone. Items to be used include polyethylene tanks; a pump powered by a gasoline fueled electric generator, hose and support equipment. These components make up the wastewater collection system.

The wastewater collection system will be fully operational prior to the start of work activities. The DEMCO SSO will conduct daily pre-evolution and periodic inspections of the wastewater collection system. Deficiencies will be corrected immediately.

The collected wastewater will be conveyed to temporary on-site wastewater storage and treatment system consisting of frac tanks and a skid mounted bag filtration unit. Wastewater will be pumped from the collection system to one of the frac tanks where settling of suspended solids will occur. Wastewater will later be pumped out of the influent frac tank and treated using bag filtration to reduce the concentration of suspended solids. Treated wastewater will be stored in the effluent frac tank pending receipt of analytical results. The contents of the effluent frac tank will be pumped out and transported to the POTW or a commercial treatment facility acceptable to the USACE, Buffalo District for discharge, following receipt of monitoring results confirming that radiological effluent limits have been met.

8.2 DUST CONTROL METHODS

Dust control measures will be implemented during demolition to prevent the spread of contamination as well as maintaining the particulate level at the permissible exposure level (PEL) specified in 29 CFR 1926.55. The dust control program will consist of both dust suppression measures and ambient air monitoring to verify the success of dust suppression. Dust controls to be implemented during the project are summarized below; a detailed description of the dust control program is included in Section SOP 38 of the TES HASP for the project.

Conventional methods will be used to suppress dust generated during demolition, including:

- Wetting demolition equipment and active demolition areas as required
- Covering waste/debris piles
- Hauling wastes/debris leaving the site in covered or closed containers
- Keeping vehicles speeds below 10 miles per hour on unpaved surfaces
- Applying a water spray during waste/debris handling and to unpaved vehicle access routes at the site, as required.

A spray nozzle and pump system will be used to suppress fugitive dust while preventing overly wet conditions, avoiding ponding and runoff, and conserving water. Water for dust suppression will be obtained from the on-site water source and from runoff water passing state limits for re-

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use as discussed in Section 8.2 of the Waste Management Plan. TES will provide required documentation to USACE to support the use of runoff water for dust suppression

Project activities that could potentially cause the release of dust, such as building demolition, waste/debris piles, loading wastes/debris, transport of waste/debris, will be monitored for dust particulates and radioactivity in accordance with procedures described in the APP for the project (TES, 2010a).

8.3 STRUCTURE DEMOLITION

8.3.1 *Silo Demolition*

Demolition of the Silos to the south of Building 401 will be performed by the Cat 350 UHD with hammer attachment. Each silo will be demolished similarly. The high reach with hammer attachment will approach the silo from the south and hammer the upper most portions of the silo fracturing and size reducing the concrete in place. When possible, Brian Krantz, the high reach operator will direct the debris into the silo where the majority of debris will be allowed to accumulate. Accumulated material as well as the bottom 30 feet of each silo will be demolished and debris loaded out by the Cat 345 with grapple or bucket attachment.

CAUTION

No personnel shall be permitted in any area being affected by demolition. Only those personnel necessary for specific tasks shall be permitted in the demolition zone.

8.3.2 *Building 401 Demolition*

Demolition of the main Building 401 structure will begin with the removal of the low rise portion of the facility attached to the main high rise section of the facility. This removal action will be performed by a Cat 345 with shear attachment. Generally speaking, the low rise additions will be removed and size reduced from within the footprint of the facilities where possible.

Work will proceed from the top of the structure downward proceeding bay by bay through the facility. The Cat 345 operator working under the direct supervision of Mike Healy, DEMCO's onsite superintendent, will shear first the roof trusses attached to the main structure. The operator will then shear the roof truss on the opposite end located along the building perimeter and lower the removed beam to grade. Roofing will be lowered along with truss sections. Once removed from place the trusses and debris generated will be allowed to accumulate on the building slab. Horizontal beams will then be removed via shear followed by vertical columns which will be bent over and sheared at the bottom. Bolts attaching the structural steel columns to the concrete slab will have been removed prior to column demolition via approved torch cutting techniques. The building contains several intermediate platforms suspended from the main structural framework. Controlled free fall of these platforms will occur as the demolition progresses. All debris generated from removal actions will be direct onto the building slab for segregation, size reduction, and load out.

Demolition of the high rise section of Building 401 will be accomplished utilizing the Cat 350 UHD track hoe with shearer attachment

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Brian Krantz, the high reach operator will be responsible for the safe dismantlement of the upper portions of Building 401. Mr. Krantz has extensive experience in the operation of high reach excavators within nuclear environments as well as the DOE Complex in general.

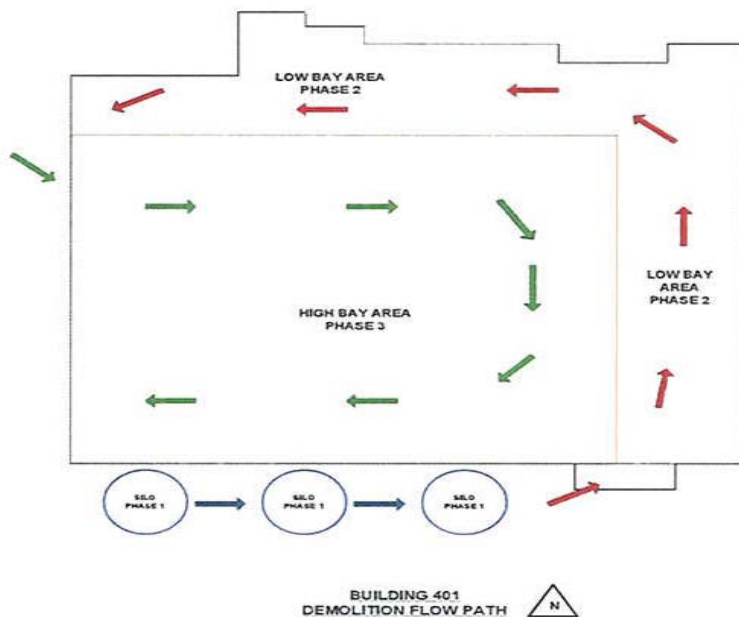
The upper portions of Building 401 will be dismantled bay by bay in a fully controlled manner, beam by beam, and column by column. The first portion of each bay to be removed will be the roof. The high reach operator will approach and cut the first roof beam at the end of the beam just inside the column line. The operator will then bend the beam downward before freeing the other end of the beam from the opposing column. The freed beam will then be lowered to grade by the operator for size reduction by the Cat 345 and load out. The roof section within the bay will then be forced downward and collapsed onto the floor below. Debris generated will then be raked off of the floor below and direct to grade for processing and load out below by the other track hoers. The vertical columns of the bay will then be bent inward and sheared from place. Once separated, the vertical columns will then be lowered to grade for further processing and load out.

The bays on either side of the removed bay will then be dismantled using identical demolition techniques. To maximize the operator view of the work area, a step backed approach will be used where the closest bay will be removed two levels prior to the second bay of the highest level.

High reach demolition will be performed on the upper three stories of the facility. The demolition of the lower two stories is more safely and efficiently handled by the Cat 345, and will be demolished in a similar manner to the previously mentioned low rise sections of the facility.

See attached graphic below for a visual representation of the flow of demolition.

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9.0 BUILDING SLAB DECONTAMINATION

The radiological decontamination of the concrete will be performed utilizing dry decontamination techniques to minimize the creation of additional liquid waste. Two types of dry decontamination methods will be used. The first is a blastrac type system, which will be used on the horizontal surface. The second is a vacublast type system. This system will be used on vertical and overhead surfaces where a smaller and more mobile system is required to reach the affected area.

The blastrac type system is a portable shot blast cleaning system, capable of removing up to 1/4 inch of floor surface at a single pass. It contains a high performance airless centrifugal wheel for propelling shot in a controlled pattern and direction. Dust created from removal operations will be collected by a separate dust collector system, which will be equipped with a HEPA filter to protect from air borne contamination.

The vacublast type system is a closed circuit system that uses compressed air, mixed with an abrasive agent, to perform the removal action. The abrasive agent is propelled through a blast gun and recovered continually through the removal action. Any dust created during removal operations is collected inside the closed blast gun system, and HEPA filtered to control air borne contamination

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10.0 DUST CONTROL

During building demolition, a fine water mist will be applied by elevated fire hose equipment with misting nozzle or a ground based misting nozzle manned by a demolition worker. Measures will be taken to minimize the creation of excessive run-off. Visible particulate will be suppressed as required by the manned or stationary mounted misting nozzle during all demolition operations. Misting operations combined with particulate monitoring will ensure the particulate level is maintained at the PEL specified in 29 CFR 1926.55. Dust monitors will be placed work area perimeter locations considering work activity locations as well as prevailing wind direction.

NOTE

During windy conditions, where wind is projected to be in excess of 12 to 15 mph, the effectiveness of misting for emission control will be evaluated hourly.

11.0 STOCKPILING AND SEGREGATION

Sizing operations for the structural steel components will include the use of the hydraulic shear on smaller scrap pieces or torch cutting on items that exceed the capacity of the shear.


The segregation and stockpiling of masonry and non metallic debris will be an ongoing operation working simultaneously with demolition. Segregation, size reduction, stockpiling, and load out of the materials will mostly be the responsibility of the Cat 325 operator. Both live loading of trucks as well as loading of dropped roll off containers will be utilized on the project. Stockpiling of debris will be avoided to the extent possible and loading of debris on the day of creation will be preferred. Any material requiring stockpiling overnight will be covered as required by the project documents.

12.0 SURFACE WATER/POLLUTION PREVENTION

The use of good construction management techniques will be used to control storm water from carrying soils or vegetation into nearby creeks or waterways. It is the intent to contain all run-off water that comes in contact with building debris, waste stockpiles or potentially contaminated material.

In addition to controls put in place to maintain run-off to the work area, if ground area outside the building footprint has the potential to be disturbed, rip-rap, diversion ditches, silt fences, and/or straw bales will be used to interrupt the down-gradient flow of storm water, reducing or eliminating the deposition of silt in waterways. Regular inspections, particularly prior to and after significant storm events, will be made and repairs initiated as needed. Additional considerations will be investigated for sheet flow runoff and seasonal deposits of suspended water.

Demolition of the facilities and other soil disturbances will expose the site to storm water runoff. DEMCO will use Best Management Practices in installing and maintaining such controls, above, during site work and until re-vegetation provides adequate cover to prevent erosion. Regular inspections will be conducted and corrective actions taken to limit runoff. Water collected on the building slab will be pumped to water treatment and collection system described above.

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13.0 POST DEMOLITION ACTIVITIES

13.1 CLEANUP

TES will remove all debris/waste from the project site. The debris/waste will be sent to the appropriate landfill (radiological impacted debris – EnergySolutions’ Clive landfill; RCRA/universal wastes – CWM’s Model City Landfill; Asbestos wastes – Modern Landfill; C&D wastes – Modern Landfill; solid wastes - Modern Landfill). Scrap metal for recycling will be sent to Niagara Metals, LLC. TES will receive approval (compliance with 6NYCCR part 360 and 380 regulatory requirements) prior to disposing of materials in New York state landfills, or recycling steel. After all wastes have been removed, TES will remove all temporary facilities and structures, and dismantle and properly dispose of erosion and sediment control facilities.

Equipment/supplies that entered a radiological area will be surveyed and decontaminated, as necessary. Equipment/supplies radiological survey results will be provided to the USACE for approval prior to their release from the site. The equipment/supplies will also be available for radiological survey by the USACE.

13.2 POST-CONSTRUCTION RADIOLOGICAL SURVEY

TES will perform a post-construction radiological survey of the Building 401 slab surface and the surrounding work areas (survey limit will be 15 meters outside of the actual work areas). The survey will be performed by health physicist personnel as outlined in the Sampling and Analysis Plan (TES, 2010d). The results will be compared to the pre-construction radiological survey and unrestricted release criteria as set forth in the Quality Assurance Project Plan.

13.3 SITE RESTORATION

Disturbed areas will be restored to pre-demolition condition at the completion of cleanup and radiological survey activities. TES will leave the snow fence surrounding the areas with elevated radiological levels.

13.4 DEMOBILIZATION

A demobilization plan will be submitted to the USACE for review and approval 30 days prior to the initiation of any demobilization activities. Demobilization will be scheduled for completion within 30 days of completion of field activities. All equipment, which came into contact with contaminated materials, will undergo a thorough wet or dry decontamination, whichever is most appropriate. TES shall collect and contain all water generated during the equipment decontamination activities for sampling, analyses, and proper disposition.

The demobilization will be coordinated by TES to remove all personnel, equipment, supplies, and/or other material generated by TES or its subcontractors. A final parcel inspection will be conducted by the TES project manager or designated representative prior to final departure of all personnel from the site.

14.0 PROJECT COMPLETION REPORT

At the end of the project, TES will prepare and submit a final narrative completion report summarizing all activities associated with the demolition of Building 401. The completion report will include all project records, including lower-tier subcontractor(s) records, in accordance with

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all applicable codes, standards, and regulations. The report will be submitted in loose-leaf binders that are labeled and indexed. Five copies will be provided. In addition to the project completion report, all project documents/records and work plans will be submitted on CD-ROM in electronic Adobe format. Pre-demolition and demolition documentation via photographs and or video will be provided to USACE on a DVD.

Attachments

- A. Checklist of items to be discussed at the Demolition Preparatory Meeting
- B. Engineering Survey
- C. Asbestos Survey Procedures
- D. Resume for Competent Person [REDACTED]

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Attachment A: Checklist for Demolition Preparatory Meeting


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Attachment A:
Checklist for Demolition Preparatory Meeting


Introduction:

Discussion Items:

1. Roles and Responsibilities:
2. Schedule / Milestones
3. Construction Safety
 - a. Administrative Controls
 - b. Equipment Controls
 - c. Daily Safety meetings
 - d. Emergency Response
 - e. Hazards Assessments
 - f. Training Requirements
4. Applicable Plans / Procedures
 - a. Overview
 - b. Delete (LIST ALL THE APPICABLE DOCUMENTS)
5. Sequence of Proposed Work
 - a. Pre-Demolition Activities
 - b. Demolition Activities
 - c. Post Demolition Activities
 - d. Demobilization Activities
6. Control Measures
 - a. Ingress / Egress Procedures
 - b. Support Facilities
 - c. Dust Control
 - d. Water Control
 - e. Progress Reporting
7. Project Closeout / Reporting Requirements
 - a. List the USACE (QcS) Report Tracking System
 - b. Waste Disposal
 - c. Reporting (Weekly / Monthly) Requirements
 - d. Site Restoration
 - e. Final Walk Down and Punch List

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Attachment B: Engineering Survey

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PRE-DEMOLITION ENGINEERING SURVEY (Attachment B to the Building Demolition Plan)

Niagara Falls Storage Site

Building 401 Demolition

Lewiston, New York

Contract No. W912P4-07-D-0003-0002

Prepared by:

TPMC-EnergySolutions Environmental Services, LLC



Prepared for the

U.S. Army Corps of Engineers, Buffalo District

Buffalo, New York



**US Army Corps
of Engineers®**
Buffalo District

JUNE 2010

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Engineering Survey
Building 401 Demolition
Niagara Falls Storage Site
Building Demolition Plan

Draft

Prepared By:	[Redacted]	26 JULY 2010
	[Redacted]	Date
Reviewed By:	[Redacted]	26 JULY 2010
	[Redacted], PMP	Date
Approved By:	[Redacted]	26 JULY 2010
	[Redacted] Project Manager	Date

- New Plan
- Title Change
- Plan Revision
- Plan Rewrite

Effective Date 26 JULY 2010

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Background Information

DEMCO has utilized a professional engineer licensed in the State of New York to perform this Engineering Survey. The survey is in compliance with ANSI A10.6, 29 CFR 1926.850 and SEI/ASCE 11-99, *Guideline for Structural Condition Assessment of Existing Buildings*". This Engineering Survey is the basis for the sequence and technical approach incorporated in the Demolition Plan, including identification of specific demolition equipment.

DEMCO is performing work associated with Niagara Falls Storage Site Building 401 Demolition as a subcontractor to TPMC / EnergySolutions Environmental Services (TES), LLC under contract number W912P4-07-D-0003-0002

Project Overview

Niagara Falls Storage Site (NFSS) is part of the United States Army Corps of Engineers (USACE) Formerly Utilized Sites Remedial Action Program (FUSRAP). FUSRAP was established to identify, investigate, and clean up or control sites contaminated by activities of the Atomic Energy Commission (AEC) and its predecessor, the Manhattan Engineer District (MED). The purpose of this Scope of Work (SOW) is to issue a Task Order (TO) under the Buffalo District's Multiple Award Remediation Contract (MARC) for the Demolition of Building 401 at the NFSS. The Government anticipates awarding a firm fixed priced TO. The technical requirements specified in the MARC are intended to provide requirements for execution of the contract and an understanding of the functions that the Contractor may be required to perform. This individual TO contains additional detailed requirements for the demolition of Building 401 at the NFSS.

NFSS is located at 1397 Pletcher Road, Lewiston, New York, and the site is owned by the Federal Government. The site consists of an engineered Interim Waste Containment Structure (IWCS), various buildings, and open areas (refer to Attachment 1). The site was originally a part of the Lake Ontario Ordnance Works (LOOW). The primary use of the site from early 1940s through mid 1950s was for storage, trans-shipment, and disposal of radioactive waste from various sources. Building 401 was initially the powerhouse for the production of TNT at LOOW, and it was also used to store radioactive materials in support of MED activities during World War II. It was used for the production of Boron-10 from 1953 to 1959 and from 1965 to 1971 and then became a waste storage facility used by the Atomic Energy Commission/Department of Energy (AEC/DOE). In 1971, Building 401 was gutted and its instrumentation and hardware were disposed of as surplus materials. This building has been largely inactive since, and evidence of bird and animal occupation has been observed. An asbestos abatement was performed on Building 401 in the spring and summer of 2002, resulting in the removal of interior asbestos containing material (ACM). Potential exterior ACM was not included as part of this abatement.

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The services required under this SOW involve characterization and packaging of miscellaneous debris in Building 401 at NFSS, demolition of Building 401 and the adjacent silos, and packaging, loading, transporting, and disposing of the demolition debris and other packaged wastes.

Description of Building 401

Building 401 is a multi-story, steel-framed structure with a ridge height of approximately 76.5 feet and enclosing approximately 100,000 square feet of floor area. The main structural system of the building consists of steel and concrete load bearing walls supporting what may be a transite roof. The interior walls are concrete, concrete block and other construction materials. The exterior appears to be comprised of sections of corrugated steel and transite siding and roofing. Inside the building there are multiple floors, which contain rooms and offices and building service areas (boiler rooms and tower areas). There also is a tower area and high bay that may be as high as 75 feet or more. Additionally, Building 401 has three large concrete silos that shall be demolished along with the building proper. The building floor is a concrete slab on grade. The concrete slab and footer will not be removed. The Contractor is advised that posted areas of elevated radioactivity exist in some soils adjacent to Building 401.

DEMCO has been advised that certain issues associated with the building demolition may require special removal/abatement precautions, including, but not limited to the following:

- Bird and animal waste inside of Building 401 and silos.
- Potential ACM in roofing and siding materials.
- Potential lead based paint on surfaces within and outside Building 401.
- Potentially contaminated concrete floors inside of Building 401.
- Potentially contaminated steel beams and rafters inside of Building 401.
- Potentially contaminated floor drains and sumps inside of Building 401.
- Potentially contaminated soils around the perimeter of Building 401.
- Miscellaneous debris inside of Building 401.

Regulatory Background

The demolition of Building 401 at NFSS is being managed by USACE under the authority of FUSRAP via categorical exclusion through the National Environmental Policy Act (42 U.S.C. 4321 et seq.).

Regulatory Compliance

DEMCO shall comply with all applicable Federal, State and local regulations for performing work under this contract.

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This Pre-Demolition Engineering Survey is in accordance with ANSI A10.6 – 2006 and SEI/ASCE 11-99 ‘Guideline for Structural Condition Assessment of Existing Buildings’.

Overall Structural Assessment of the NFSS 401 Building

General Comments

- Structural Concerns: None -Typical for building materials and age. No damaged noted from fire, flood, or winds. Building is structurally sound and it is not anticipated that any pre-mature collapse not associated with specific building section will occur.

- During demolition, continuing inspections by a competent person shall detect hazards resulting from weakened or deteriorated floors, walls, or loosened material. No employee shall be permitted to work where such hazards exist and condition shall be mitigated with mechanical equipment. A construction exclusion zone will be established around the building in the event some debris during demolition fall outside the footprint of the building

Possible use of Temporary bracing / support

- No shoring bracing / support required based on work method. Work shall be sequenced to be dismantled using a combination controlled cut and pull and a top to down direction as per 1926 – Subpart D, ANSI Standard A10.6 and EM385-1-1 Section 23 Demolition.

Mitigation of Premature Collapse

Debris material shall be removed from all floor levels and not permitted to accumulate before commencing the removal of exterior walls and floors in the next story below. The Building does not feature roof cornices or other ornamental stonework that needs to be removed prior to pulling walls over.

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DEMCO

PRE- DEMOLITION ENGINEERING SURVEY

Niagara Falls Storage Site Building 401

Job Name: Building 401 Demolition	Location: Town of Lewiston, NY
Job #: W912P4-07-D-0003-0002	Phone #: [REDACTED]
Job Contact: [REDACTED]	Fax #: [REDACTED]
Name of Area: NFSS	
Name of Structure; Building 401	

Method of Demolition: Conventional; hydraulic equipment, thermal cutting, hand tools.

Safety Exposures	Yes	No	n/a	Location/Description
Adjacent Public Areas		x		Private barricaded site
Adjacent Roadways		x		Private barricaded site
Adjacent Buildings	x			Office / break building West Site
Basements		x		None
Cable Trays		x		Cables removed
Chemical Exposures	x			PCB thermostats etc.
Communication Lines		x		None observed within facility
Confined Space	x			3 Concrete Silos – openings to be barricaded to prevent personnel entry
Electrical Lines		x		Building power removed and verified, no overhead electrical lines running above ground to the building.
Elevator		x		No elevator within facility
Fall Hazards	x			Some un-barricaded floor openings / holes
Fiber Optics		x		None observed within facility
Fire Hazards	x			Wood decking on shed roof sections
Hydrogen Lines/ Tank		x		None observed within facility

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Safety Exposures	Yes	No	n/a	Location/Description
Lead Exposure	x			Painted / coated steel to be sampled and controls to be identified in SSHASP
Live Electrical		x		Terminated by client – verify. Follow Utility Site Specific Abandonment Procedure
Natural Gas Lines		x		Lines previously purged by client – verify. Follow Utility Site Specific Abandonment Procedure
Nitrogen Lines			x	None observed within facility
MSDS	x			Ensure MSDS for all materials on site are available to personnel. Project personnel to be trained on “Right to Know” program
Oil Lines/ Tanks	x			Follow Utility Site Specific Abandonment Procedure
Oxygen Lines	x			Lines previously purged by client. Follow Utility Site Specific Abandonment Procedure.
Partition Walls	x			Constructed of concrete and some temporary wood and drywall materials
Pits / Trenches	x			1’ floor trenches to be cleaned and filled prior demolition.
Process Hazards	x			Lines previously purged by client
Process Lines			x	Lines previously purged by client
RAD Exposure	x			Items identified in contract to be contaminated and removed prior demo
Shoring Requirements		x		Requirement not expected
Stacks		x		None observed
Water Lines		x		Utilities terminated, to be verified prior to demolition
Water Tower		x		None observed
Structural Concerns		x		Typical for building materials and age.
Asbestos	x			Transite and galbestos panels, window caulk to be identified in Survey.
Backfill Material			X	
Contaminated Water		X		Water applied to the structure during demolition will be minimized and controlled. Any contaminated water in sumps and drains will be either collected or solidified in place prior to start of demolition
Contaminated Soil		X		Slab to remain in place.
Hazardous Waste	x			Presently being stored by client. To be removed prior work by client.
Hydrocarbons		X		None observed
Heavy Metals		X		If determined by sampling, will be collected, solidified or otherwise sealed to prevent exposure to personnel or environment
Lead Exposure	x			Lead paint (above). DEMCO SSHASP Lead

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Safety Exposures	Yes	No	n/a	Location/Description
				Compliance plan to be followed.
PCB	x			To be determined if PCB's are present in building paint
Special Waste	x			PCB bulk product LLW
Underground Utilities	x			Call NY - Dig Safe to perform ground penetrating radar surveys or comparable detection method.
Animal Material debris	x			Bird dropping and animal carcasses to be neutralized. Bird dropping does not require removal prior to building demolition. carcasses will be collected and disposed of as municipal waste.

CFR Applicability / Clarification

Listed below are specific sections of 29 CFR 1926, 1962 that apply to building 401 demolition with clarifying mitigation or non-applicability

- 1926.850(a); Condition of structural framing and floors is currently structurally sound. Shed roof constructed of wood decking had several damaged areas.
- 1926.850(b); The structure has not been damaged by fire or flood, etc. Regardless, only essential workers will be permitted inside building during dismantlement.
- 1926.850(c); All utilities including, but not limited to electric, gas, water, steam, sewer, have been de-terminated by the client and verified by the field superintendent.
- 1962.850(d); No power or other utilities will remain activated within the demolition boundary.
- 1962.850(e); No hazardous chemicals, gasses, explosives, flammable materials (except product of demolition), or other dangerous materials remain in the building.
- 1926.850(f); Glass fragmentation is not considered a hazard as personnel will not be allowed in the demolition area after commencement of demolition.
- 1926.850(g); Hazards relating to openings in floors will be barricaded to height of 42".
- 1926.850(h); Debris may drop though barricaded openings in the floors to grade level.
- 1926.850(i); Floor openings will be barricaded or no personnel will be allowed in area after the start of demolition. Prior to demolition, all existing handrail, guars, etc will remain in place.
- 1926.850(j); In general, the structure will be demolished from the top down by completing controlled pulls of building sections after regulated materials have been removed.
- 1926.850(k); Regarding employee entrances to multi story structures being demolished; this is not applicable since only essential workers will be allowed in the work area.
- Water will be used to minimize the amount of dust generated during demolition activities.

Completed by:

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PE – State of NY


Date

Environmental Safety and Health Manager (ES&HM)

Date

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Attachment C: Asbestos Survey Procedures

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ASBESTOS Survey Field Survey Procedures and Sample Analysis Methods

Guidelines used for the asbestos inspection were established by the Environmental Protection Agency (EPA) in the Guidance for Controlling Asbestos Containing Materials in Buildings, Office of Pesticides and Toxic Substances, Doc 560/5-85-024, and 40 CFR Part 763, Asbestos Hazard Emergency Response Act (AHERA).

Field information is organized in accordance with the AHERA methodology of homogenous area (HA). During the survey, reasonable efforts are made to identify all locations and types of ACM materials associated with the scope of work. Sampling has included multiple samples of the same materials chosen at random. However, due to inconsistencies of a manufacturer's processes and the contractor's installation methods, materials of similar construction may contain various amounts of asbestos. Furthermore, some materials that were not originally specified to contain asbestos may in fact contain this mineral. For example, cementations pipe insulation and plaster were frequently mixed with asbestos at the construction site for ease of application. Locating all asbestos materials can only be definitively achieved by conducting exploratory demolition and sampling every section of pipe insulation, fitting or valve covering, fireproofing, and other suspect ACM.

Bulk samples of suspect ACM were analyzed using polarized light microscopy (PLM) coupled with dispersion staining, as described in 40 CFR Part 763 and the National Emissions Standard for Hazardous Air Pollutants (NESHAPS). NESHAPS is the standard industry protocol for the determination of asbestos in building materials. A suspect material is immersed in a solution of known refractive index and subjected to illumination by polarized light. The color displays that result are compared to a standardized atlas whereby the specific variety of asbestos is determined. It should also be recognized that PLM is primarily a qualitative identification method whereby asbestos percentage, if any, is estimated. While EPA and New York State regulations governing ACM consider materials containing greater than 1-percent as asbestos, accurately quantifying asbestos content below 5-percent has been shown to be unreliable.

The New York State Department of Health has revised the PLM Stratified Point Counting Method. The new method, "Polarized Light Microscopy Methods for Identifying and Quantifying Asbestos in Bulk Samples" can be found as item 198.1 in the Environmental Laboratory Approval program (ELAP) Certification manual. The method specifies a procedure of analysis for bulk samples that fall into the category of "Non-friable Organically Bound" (NOB). This category includes any sample in a flexible to rigid asphalt or vinyl matrix (floor tiles, mastic, roofing shingles, roofing felt, etc.). Additional materials that may fall into this category are textured paints and stucco, pipe valve and joint packing, and a variety of other applications. These samples must be "ashed" in a muffle furnace at 480-degrees Celsius (to remove organic matrix), treated with acid (to remove any mineral carbonate), and filtered

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through a 0.4-micron filter before being analyzed by PLM. The sample must be weighted between each of these steps to track the percent loss of organic matrix.

ELAP has determined that analysis of NOB materials is not reliably performed by PLM. Therefore, if PLM yields results of 1-percent asbestos or less, the result must be confirmed by TEM. Bulk samples that undergo TEM analysis use the sample reduction methodology stated above for NOB analysis by PLM. ELAP certified laboratories must include the following statement with their PLM analysis results for each “negative” (1-percent or less asbestos) NOB sample: "Polarized-light microscopy is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials. Before this material can be considered or treated as non-ACM, confirmation must be made by quantitative transmission electron microscopy".

All samples were initially analyzed by Polarized Light Microscopy. Samples which yielded a negative PLM result and which are classified as a "non-friable" material, were then re-analyzed utilizing Transmission Electron Microscopy methodology described above. The laboratory performing both these analysis procedures was Paradigm Environmental, Inc. located at 1815 Love Rd, Grand Island, New York. Paradigm is accredited with the following agencies:

- National Voluntary Laboratory Accreditation Program
- New York State Environmental Laboratory Approval Program