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## THE MEMPHIS DEPOT **TENNESSEE**

## ADMINISTRATIVE RECORD **COVER SHEET**



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C.G.

#### DEPARTMENT OF THE ARMY PROGRAM MANAGER FOR CHEMICAL DEMILITARIZATION ABERDEEN PROVING GROUND, MARYLAND 21010-8401

SFAE-CD-NM (50g)

1 3 MAR 1996\_

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MEMORANDUM FOR Commander, Defense Distribution Depot Memphis, ATTN: DDMT-DE (Ms. Christine Kartman), 2163 Airways Boulevard, Memphis, TN 38114-5210

SUBJECT: Interim Holding Facility Support Requirements

- Reference Interim Storage Facility System Installation Plan for Non-Stockpile Project Work at Defense Distribution Depot Memphis, Tennessee (enclosure).
- The Project Manager for Non-Stockpile Chemical Materiel (PM NSCM) requests support from your facility of the planned Interim Holding Facility (IHF) operations at the Dunn Field, Chemical Warfare Material (CWM) investigation.
- 3. Security. Support requirements: In accordance with Army Regulation 190-11, a guard force will be responsible for patrolling the IHF perimeter fence once an item is uncovered and placed into storage. CWM will remain in storage until excavation actions are completed and the Rapid Response System (RRS) treatment unit is in operation and has completed the treatment of the CWM. The RRS is scheduled to be brought on-site in FY 98. Security personnel need not attend specialized CWM training, however, they must be knowledgeable with the PM NSCM IHF plan and emergency notification procedures in the event of a problem. Security personnel will NOT conduct emergency response actions other than to notify the appropriate response authorities.
- Additional requirements: The enclosure includes a description of all site requirements and a recommended drawing which depicts the site pad and surrounding area construction. Specifically, it addresses utility, site layout, site pad, anchoring, fencing, warning signs, electrical power, water, communication, alarm, fire protection, and site preparation requirements. After your review, please inform PM NSCM if you cannot furnish any of the requirements listed in the enclosure and of any necessary modifications.

SFAE-CD-NM

SUBJECT: Interim Holding Facility Support Requirements

5. The PM NSCM point of contact for this action is Mr. Douglas Warnock, DSN 584-7189 or commercial (410) 612-7189.

FOR THE PROGRAM MANAGER:

Encl

ROBERT E. HILLIARD

Colonel, CM

Project Manager for

Non-Stockpile Chemical Materiel

CF (w/encl):

Commander, U.S. Army Engineering and Support Center, Huntsville Division, ATTN: CEHNC-PM, P.O. Box 1600, Huntsville, AL 35807-4301

Commander, U.S. Army Technical Escort Unit, ATTN: SCBTE-CO Aberdeen Proving Ground, MD 21010-5423

#### Interim Storage Facility System Installation Plan for Non-Stockpile Project Work at Defense Distribution Depot Memphis, Tennessee

#### 1.0 INTRODUCTION

This Interim Storage Facility System (ISFS) Installation Plan provides a scope of effort that supports the ISFS site installation at the Defense Distribution Depot Memphis (DDMT) for the temporary storage of chemical warfare material (CWM) recovered on-site.

The Department of Defense (DoD) has designated the Department of the Army as the Defense Executive Agent for the destruction of all United States chemical warfare materiel (CWM). The U.S. Army Program Manager for Chemical Demilitarization (PMCD) has, in turn, been given the responsibility for destroying CWM. Two separate PMCD project managers have been established for destroying United States chemical weapons stockpile and the non-stockpile chemical materiel (NSCM). The Project Manager for Non-Stockpile Chemical Materiel (PMNSCM) is responsible for destroying the five categories of NSCM. One of these categories is buried CWM. PMNSCM supports the Program Manager for DDMT (PMDDMT) and the U.S. Army Corps of Engineers (USACE) for remedial actions at DoD sites. This document is the plan which scopes the installation of the ISFS to be located at DDMT.

Chemical agent identification sets (CAIS) were stored at DDMT. Some ampules from these sets were found to be leaking and were reported to have been buried in a sanitary landfill in the area north of Dunn Avenue (Dunn Field, Area C). The extent to which these ampules were decontaminated prior to burial is not known.

#### 2.0 OBJECTIVES

This plan describes the functional specifications and general layout of ISFS site installation to be performed by PMDDMT, USACE and PMNSCM. This plan was prepared with the following assumptions:

- O The recovered CWM is identified as Chemical Agent Identification Sets (CAIS) and packaged in either single round containers (SRCs) or Department of Transportation (DOT)-approved shipping containers.
- The Maximum Credible Event (MCE) for ISFS operation, as designed, results in no release of CWM.
- Only small quantities of nonexplosively configured CWM are stored.
- One portable storage building will be utilized
- The CWM is classified as a nonsurety, Resource Conservation and Recovery Act (RCRA) hazardous waste.

- o All required plans (particularly contingency plans), environmental studies, documentation (recordkeeping, contingency plans, etc.) and coordination with applicable regulatory agencies will be completed by the USACE prior to and during the execution of this plan.
- An Environmental Protection Agency (EPA) identification number is obtained by the DDMT as the hazardous waste generator.
- CWM hazardous waste must be characterized, manifested, labeled, and reported in accordance with 40 CFR Part 262 and other applicable, Federal, State and local regulations.
- Security must be adequate to prevent unknowing entry and minimize the possibility of unauthorized entry. Appropriate signs must be posted restricting access to the facility.
- Incompatible wastes are stored in separate storage buildings.
- O Structures required for support operations, such as guard houses, personnel support areas, etc., are supplied by DDMT.

#### 3.0 APPLICABLE DOCUMENTATION

This plan references SAIC Drawing Number (D/N) 991800 Interim Storage Facility Site Layout Options (Appendix A).

Nothing on this plan shall supersede applicable Federal, State, and local laws and Department of the Army and Department of Defense regulations. The USACE is responsible for identifying potential conflicts with appropriate relevant and applicable site-specific laws and regulations and to inform PMNSCM of such conflicts.

#### 4.0 DESCRIPTION

The ISFS provides safe and secure temporary storage of recovered CWM prior to on-site treatment. The ISFS site is selected based on criteria required for its installation and operation. This basic plan provides space for one storage building but can be modified to accommodate two buildings. This plan provides the guidelines for selecting the ISFS site and the specifications for construction. Once the site is constructed, the portable storage building will be mobilized to the site and set up by PMNSCM.

#### 5.0 SCOPE

The PMDDMT shall provide the following items in accordance with this plan:

- ISFS Site Location
- Vehicle Access to the ISFS
- o Site Preparation
- Construction of Foundation and Loading Area
- o ISFS Storage Building Anchoring
- o Attachment to Anchors
- Fencing
- Warning Signs
- o Electrical Power (supply line or generator)
- Electrical Installation
- Light Pole
- O Lightning Rod
- o Water
- Portable Eye Wash Station
- o Security
- Communications
- o Site restoration

The PMNSCM shall provide the following items for portable ISFS storage buildings in accordance with this plan:

- o Transportation
- Unloading
- o Set up
- Removal from ISFS Site

#### 6.0 SITE REQUIREMENTS

Site of an ISFS for storage of CWM at a DoD site requires careful consideration of many siting criteria to ensure safe and unhampered ISFS operations. The following criteria should be applied when appropriate.

#### 6.1 Regional Environmental Factors

Assessment of regional environmental factors provides information that can help select the best design of the ISFS site and the selection of appropriate operation procedures. It is recommended that all on-site activities not coincide with periods of seasonal extremes in order to minimize the negative effects to ISFS operations. This plan provides the criteria for the ISFS site design, which must be considered for providing an ISFS site that will facilitate operations procedures and safety.

6.1.1 Wind. The ISFS storage buildings are capable of withstanding winds up to 140 mph when properly anchored. The PMDDMT shall ensure that all support equipment, such as generators, light poles, fences, and guard houses, will likewise be compatible with local maximum wind conditions. If local conditions dictate that the ISFS be designed to withstand winds above 140 mph, topographical relief in the intermediate area or artificial berms shall be used as wind screens to protect the ISFS storage buildings and support equipment.

Surveyors flagging shall be placed around the perimeter of the site as visual wind direction indicators and atop a light pole. Emergency egress for personnel from the ISFS site shall be upwind of the storage building.

6.1.2 Flooding. The ISFS storage buildings are not compatible with floods and shall be located above 100-year flood plains and a minimum of 12 feet above maximum hurricane surge potential in coastal areas. If the local site conditions do not permit locating the ISFS site outside of flood danger, the ISFS operations procedures shall provide operational mitigation measures for flooding.

The ISFS site shall be graded to prevent ponding of water during normal precipitation events. Access to the site for emergency support, fire, and ambulance vehicles shall be assessed for potential cutoff points caused by flooding. ISFS operational procedures shall account for any such limitation of emergency vehicle access.

- 6.1.3 Erosion. The site shall maintain erosion control at all times to include site clearing operations, site preparations, and subsequent normal storage operations. Staked filter fabric or bales of hay shall be placed around the perimeter of the site prior to clearing operations where required to minimize runoff from construction activities and normal operations. This erosion-control measure shall be maintained through site closure. Drainage swales shall be constructed to channel water off the site and to prevent run-on from off-site. Any sloped areas resulting from site clearing or preparation operations shall be stabilized and maintained by using mulch cover or erosion control matting, or by establishing vegetative cover. Additional up-gradient measures may be taken to minimize run-on to sloped areas.
- 6.1.4 Ambient Temperature. The storage buildings are able to maintain the internal temperature below 32 degrees F while the external temperature is 90 degrees F with 95 percent humidity. Ambient temperatures shall be included in the evaluation downwind sensitive receptors in the remediation site risk assessment.

Site preparation and operations shall conform with requirements imposed by local potential ambient temperatures. Local requirements for depth of footings for frost shall be incorporated into site construction plans as required.

6.1.5 Precipitation. The ISFS site shall be constructed and operated such that precipitation run-on is under control. The site shall not be located in seasonal mud slide or avalanche areas. If the local site conditions do not permit locating the ISFS operations site outside of mud slide or avalanche danger, the ISFS operations procedures shall provide operational mitigation measures.

Site vehicle traffic and handcarting areas shall be constructed such that normal operations are not hampered by soft sand, mud and

rutting. Use of local soils, sands, and aggregate as available shall be compacted to the optimum density and graded as required to handle regional precipitation. All site damage shall be repaired as soon as possible in order to resume normal operations.

- 6.1.6 Lightning. The ISFS site shall be equipped with lightning protection. A lightning rod is located on top of the yard light pole and each storage building has a ground rod. The PMDDMT shall ensure that the ISFS site conforms to local lightning protection requirements for equipment and structures.
- 6.1.7 Fires. Site clearing and preparation shall take into account the potential for forest or brush fires in establishing perimeter buffer zones around the site. The PMDDMT shall consult local fire officials for recommendations.
- 6.1.8 Earthquakes. ISFS site structures shall conform to local earthquake construction requirements. The PMDDMT shall consult local building inspectors or the like for recommendations.
- 6.1.9 Flora and Fauna. Flora and fauna of threatened or endangered species and ecologically sensitive areas shall be considered in it site-clearing and during ongoing operations. The PMDDMT shall consult the local U.S. Fish and Wildlife Service manager or conservation office for information. The site shall be made secure from singular or herding/grazing large animals such as deer, elk and moose.

Trees overhanging the site or those that may be up-rooted by wind and/or snow load shall be removed. Poisonous plants such as poison ivy shall be removed from the site. An on-site vegetation control program shall be implemented.

#### 6.2 Accessibility

The ISFS site must be accessible for the mobilization and demobilization of site equipment and vehicles, CWM transportation vehicles to and from the ISFS, emergency support equipment such as fire and ambulance vehicles, and to available utilities. The following criteria shall be considered for providing an ISFS site that will facilitate operations procedures and safety.

- 6.2.1 Roads. Roads to the ISFS shall be assessed as to the potential for closure due to environmental factors such as flooding, snow, washouts, and mud slides. This may require siting the ISFS up-gradient of problem areas, closer to main roads. Roads to the ISFS from main roads shall be passable and maintained as passable for equipment and vehicles used in mobilization and demobilization, vehicles needed in site construction, and emergency support. Anticipated vehicles with special requirements for road weight and overhead clearances are:
  - o tractor with 40-foot trailer, 70,000-pound road weight, with 13.6-foot overhead clearance;

- o 35-ton mobile crane, 80,000-pound road weight, with 11foot overhead clearance; and
- local fire truck, weight, and overhead clearance to be identified locally.

The PMDDMT shall improve and maintain roads consistent with the needs and demands of the anticipated vehicular traffic. Local or state highway maintenance departments shall be contacted for road construction specifications. There shall be sufficient turnaround capability for the largest or most demanding of vehicles anticipated at the site. The turnaround area shall be located outside the fenced area.

- 6.2.2 Location. The ISFS shall be located at the farthest possible distance from sensitive receptors while maintaining proximity to the remedial operation. The location of the ISFS shall be consistent with the remediation risk assessment. The ISFS shall be at a safe distance and direction from the area of remediation. The separation distance of the ISFS and the excavation site shall be established by the site risk assessment.
- 6.2.3 Utilities. Proximity to the nearest utilities shall be considered for siting; however, the utilities can be supplied by mobile systems as required.
- 6.2.4 Through Traffic. The ISFS site shall not be located directly on a throughway. The ISFS fenced area shall be reserved for ISFS support operations only. This precludes the use of the fenced area for storage of materials and equipment outside of the ISFS mission.

#### 6.3 Site Layout

The layout of the ISFS site is provided in D/N 991800, configuration 20 (Appendix A). This configuration can be located parallel to existing limited access through roads. The crane used to unload the storage building is aligned parallel to the vehicle gate. The flat bed trailer is parked behind the crane during the unloading process. This configuration does not provide for a turnaround area for large vehicles like the crane and tractor trailer, but the smaller vehicles can easily utilize the pad and road for turnaround area. The road must lead to a turnaround area for the large vehicles.

6.3.1. Pad. The pad, as illustrated in D/N 991800, supports the storage buildings and the offloading operations. The pad is constructed of 6 to 12 inches compacted subgrade, 6 inches of compacted crushed aggregate base coarse, and 6 inches of compacted aggregate base fine. The pad shall be constructed to be compatible with local geography and precipitation events. The pad and the connecting road shall ensure that adequate drainage exists to prevent runoff from the surrounding area, from standing water during and after rainstorms, and to ensure a solid foundation during ISFS operations. Erosion control measures will be instituted for the

entire ISFS site.

The storage buildings each weigh approximately 20,000 pounds empty and 25,000 pounds maximum capacity. The storage buildings are placed on three 4-inch by 12-inch by 10-foot treated timbers and are anchored to the pad using four dead men.

The timbers will prevent the buildings from setting down into the aggregate, which facilitates the removal of the buildings.

The pad must be compatible with the equipment used to offload the munitions from the transport vehicle and movement of the munitions into the storage building. The compacted aggregate provides a hard surface to facilitate the transportation equipment. Once unloaded from the transport vehicle, the overpacked munitions are moved using handcarts or similar equipment.

- 6.3.2 Anchoring. The storage building shall be anchored using four dead men. Each building is equipped with four anchoring points, one at each corner. The anchor points will be secured to the dead men as illustrated in D/N 991800. The dead men are four feet deep and back-filled with concrete piers.
- 6.3.3 Fencing. The interim storage facility shall be surrounded by a separate fence (D/N 991800) to prevent unknowing entry to the yard and minimize the possibility of unauthorized entry. The fence is designed to be a deterrent for casual observers and provide a clear boundary for the ISFS. The fence shall be 6-foot high fabric, constructed in accordance with commercial practice and meet the requirements of this specification. The fence shall be chain link (galvanized, aluminized, or plastic-coated woven steel) with 2-inch mesh, and 9-gauge diameter wire.

The bottom of the fence shall extend to 2 inches or less above the firm ground, and surfaces should be stabilized in areas where soil or surface water may lead to erosion. Areas prone to standing water shall be graded and drained to prevent the fence line from standing in water.

Posts, bracing, and structural members of the fence should be placed on the interior of the fence, and galvanized steel or aluminum tie wires of the same gauge as the fence shall secure the fabric to the posts or structural members. Tie wires shall be installed in such a way as to prevent easy removal by hand. Fence posts shall be set in concrete to a depth of 24 inches. If the life or the fence is envisioned to be less than 90 days, the use of concrete may be waived and the posts shall be driven into existing soil to depth of 24 inches. The posts shall be set at a maximum of 10-foot intervals.

A personnel gate and a vehicle gate shall provide access to the ISFS. The personnel gate shall be located upwind to the buildings and will be used for emergency egress. The vehicle gate shall provide general access to the ISFS. The gates shall be constructed

of the same material as the fence and provide structural integrity equivalent to the fence.

- 6.3.4. Signs. A sign with the legend "Danger Unauthorized Personnel Keep Out" shall be posted at each entrance to the ISFS and at other locations on the fence, in sufficient numbers to be seen from any approach. The legend must be written in English and in any other language predominant in the area surrounding the ISFS and must be legible from a distance of at least 25 feet. The sign shall be approximately 12 by 14 inches and shall comply with 29 CFR 1910.145.
- 6.3.5 Electric Power. The PMDDMT shall provide the required power of 40 amps at 208 volts 3 phase, 60 HZ, and 40 amps at 120 volts, 1 phase, 60 Hz for the storage building. The electric power can be supplied by an overhead line or a mobile generator. The overhead supply line can be brought to the light pole shown in the site layout drawing. In no cases shall any lines be located any closer than 9 feet from the ground or come in contact with the fence or any other equipment or structure. The electric power, whether line or generator, shall be terminated in a National Electrical Manufacturers Association (NEMA) 4 electrical box located near the base of the light pole. The PMDDMT shall provide electrical supply wired to the storage building. The wiring shall be consistent with local codes.

The light pole shall be equipped with a light to provide illumination (minimum 5 footcandles) of the fenced area. The light shall automatically turn on at dusk and turn off at dawn. A shutoff switch or breaker for the yard light shall be installed in the electrical box. A lightning rod shall be installed on the light pole to provide lightning protection for the fenced area. A grounding rod shall be driven to a depth of 6 feet at the light pole and each of the storage buildings.

Overhead wires shall not infringe on the swing of the crane used for unloading the storage building from the transport trailer. The light pole guy wires, if required, shall not interfere with ISFS operations.

- 6.3.6 Water. Normal ISFS site operations will not require water. Drinking water shall be supplied by each individual organization as required. PMDDMT shall provide a portable eyewash station to be located outside of the storage building during operations. Water may be applied to the site as means of dust suppression. Water for facility fire protection shall be supplied by local fire fighting equipment responding to emergencies. Water for contingency decontamination (approximately 500 gallons) of the storage building shall be supplied by the PMDDMT as required.
- 6.3.7 Communication. The ISFS does not require installation of communication systems. Hand-held radios operating on an assigned frequency will be the primary means of communication. The site remediation contractor may install communications equipment at his discretion.

- **6.3.8 Alarms.** The ISFS in not equipped with a security alarm system. Security shall be provided under the site work plans by the PMDDMT.
- 6.3.9 Fire Protection. The storage buildings are equipped with internal self-actuation fire suppression systems. The storage buildings have 2-hour fire-rated walls. Emergency response to fires shall be provided for under the site work plans by the PMDDMT.

#### 6.4 PREPARATION

Environmental and site accessibility criteria assessment for the ISFS site shall be completed and the site location finalized prior to the preparation of the site. Information gathered in this assessment shall be used in planning the site preparation and layout activities. Documentation of site conditions prior to clearing and site preparation shall be completed and used as the baseline for site restoration at the projects completion. An erosion control plan shall be in place prior to any clearing activity.

- 6.4.1 Mobilization. Mobilization shall be conducted with a systematic approach. The access road to the ISFS shall be upgraded as required. Once completed, equipment may be mobilized to the site for clearing operations.
- 6.4.2 Clearing. Sensitive ecosystems, threatened or endangered flora or fauna species, and areas of historical or archeological nature shall be identified prior to clearing activities. Vegetation shall be cleared from the ISFS site, exposing the subgrade soil. Vegetation with the perimeter buffer zone shall be cut to within 8 inches. Overhanging tree branches that could fall and damage the ISFS storage building shall be removed. Caution shall be exercised in removing vegetation that prevents rapid erosion or loss of slope stability. The cleared site shall include the perimeter buffer zone, parking area, turnaround area, and any additional space for support trailers. Dimensions for the ISFS site shall be taken from D/N 9918000. In general, the cleared area required for a single storage building is approximately 40 by 106 feet, plus a perimeter buffer zone of 12 to 30 feet. Site-specific plans may include the use of existing roads or local resources as part of the site.
- 5.4.3 Site Grades. Following the completion of site clearing, the site sloped areas, such as the fenced-in, turnaround, support, and drainage swale areas shall be brought to grade as specified in D/N 991800. The pad shall have a slope of 1:30. The pad slope falls away from the center line and runs the full length. The ISFS pad shall maintain grades as smooth as possible to avoid jostling of vehicles or hand carts transporting overpacked CWM. The PMDDMT shall maintain the pad to be free from depressions and irregularities. The transition zone from the pad to the site access road shall be smooth.

The immediate perimeter of the elevated pad shall slope away from

the pad, not to exceed 1:4 for a distance of approximately 20 feet. The purpose of this structure is to function as a drainage swale diverting runoff from the site and preventing run-on onto the site. If local precipitation does not warrant a drainage swale, the site grading may be modified.

- 6.4.4 Materials of Construction (Soils). Availability and requirements for fill and subgrade materials for site construction will vary from site to site. The PMDDMT shall evaluate on-site material requirements prior to purchase of off-site materials. Any materials used must meet anticipated vehicle traffic and equipment usage, drainage requirements, and loading requirements. Local or state highway maintenance departments may be contacted for recommendations on materials selection and potential off-site
- **6.4.5** Soil Compaction. Soils used in construction, where applicable, shall be placed in the correct lift height and compacted in accordance with site-specific engineering requirements. Soils used in construction of the site shall be checked for the appropriate density using standard field density-testing methods.
- **6.4.6** Concrete. Concrete is used on-site in the construction of anchoring for security fence posts and of dead men. Concrete mixtures shall meet commercial specifications for its intended use.
- **6.4.7** Depth of Footings. Depth of footings for various site structures is assumed to be 4 feet. If this depth is not appropriate for local conditions, equivalent methods may be substituted.
- 6.4.8 Restoration. The PMDDMT shall conduct restoration of the site as part of site closure and demobilization. All grades shall be returned to original or near-original condition unless site improvements are of local benefit. Vegetation shall be established by grass seeding or vegetation similar to that existing. In areas of thick undercover, seeding will provide erosion protection until the natural growth fills in. In drier areas mulch may be used as required. Local public works, U.S. Soil Conservation Service, or state agricultural extension service may be contacted for recommended specifications for vegetation/seeding operations.

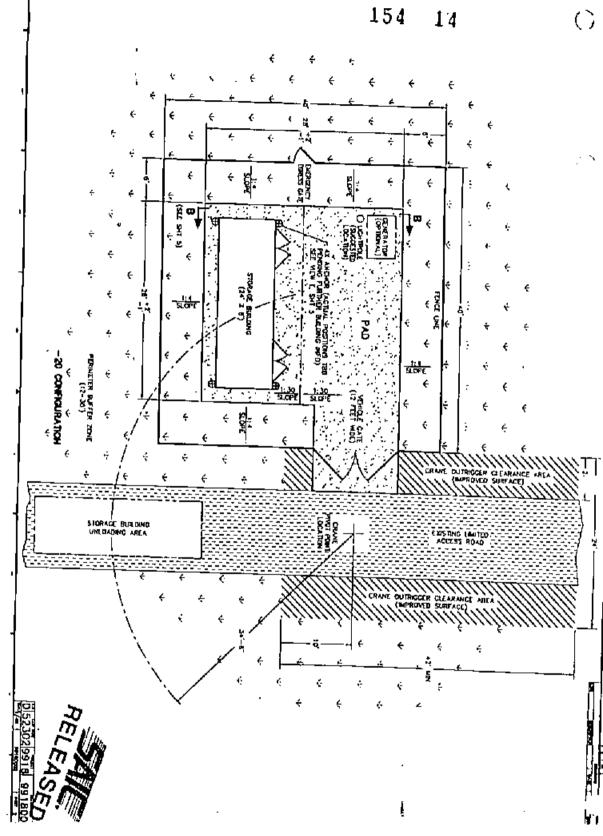
### 6.5 Storage Building Installation

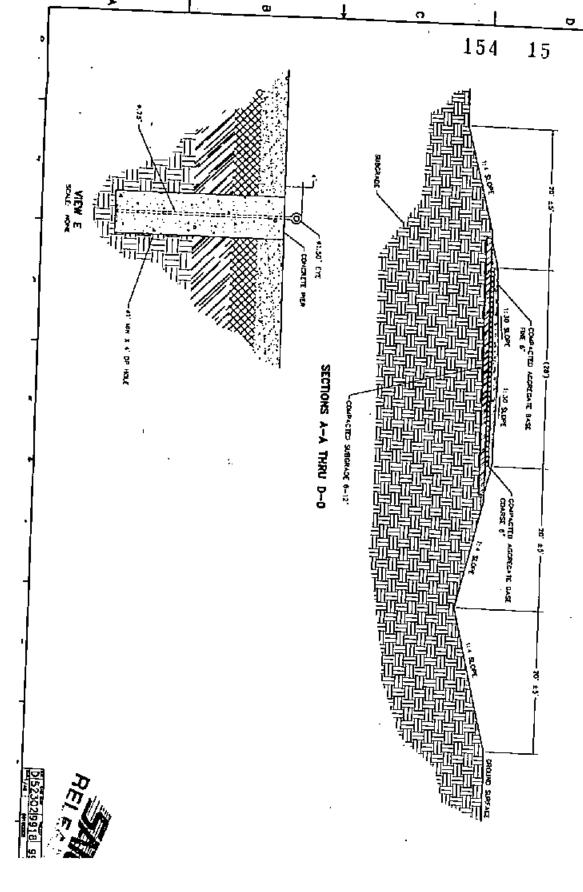
The PMNSCM shall transport the appropriate number of storage buildings to the ISFS site. The storage buildings shall be transported to the ISFS site using a semitractor with a flatbed trailer. An example of the storage building has been provided in appendix B.

Once the storage building is on site, PMNSCM-contracted personnel shall unload and place the storage building on the 4-by 12-inch timbers using a leased crane or forklift. An example of this equipment has been provided in appendix C. PMNSCM contract

personnel shall level and tie the storage building to the four anchors. PMDDMT contract personnel shall connect the electrical supply power from the electrical wires supplied by PMDDMT. All electrical work shall be performed in accordance with local codes.

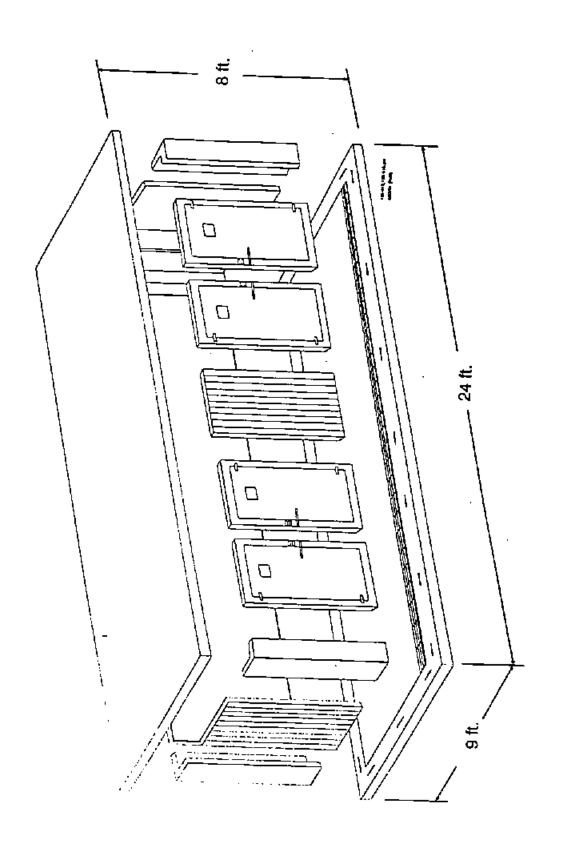
At the completion of the ISFS operations, PMDDMT shall arrange to have the storage building disconnected from electrical service and PMNSCM shall ensure the IHF is removed from the site in the same manner as it was installed.

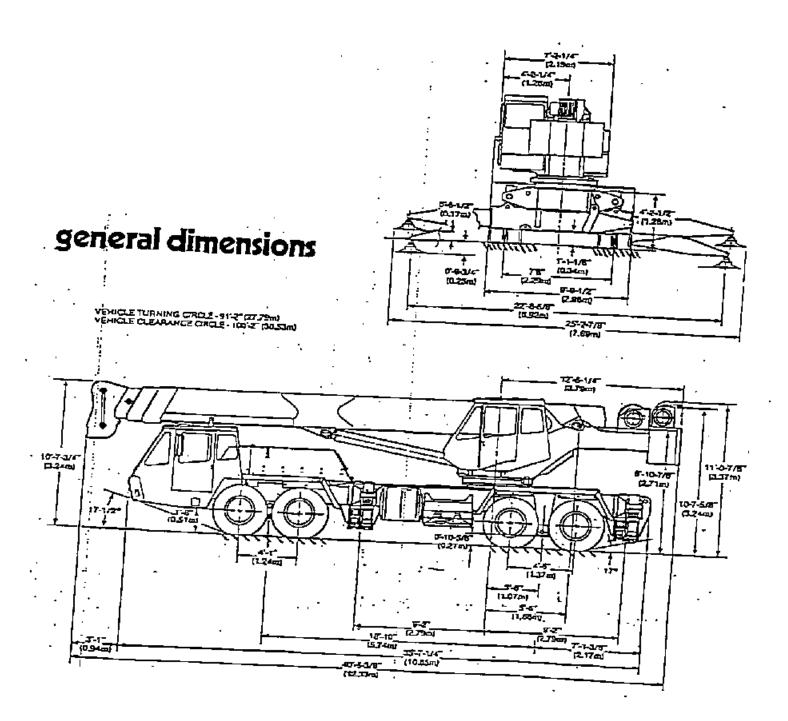




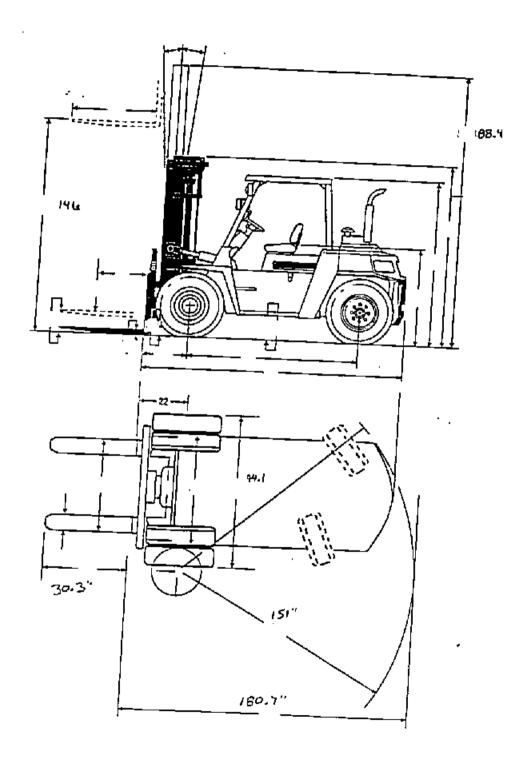
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Example of Equipment for Unloading Portable Storage Buildings



Example of Portable Storage Building



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## **ADMINISTRATIVE RECORD**

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