TINKER AFB RCRA PERMIT

ATTACHMENT 1 - OPERATING UNITS

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ATTACHMENT 1.A - GENERAL FACILITY OPERATION AND UNITS

[40 CFR 270.14 (b)(1) and (b)(11)]

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ATTACHMENT 1.A – GENERAL FACILITY OPERATION AND UNITS

1.0 INSTALLATION DESCRIPTION [40 CFR 270.14(b)(1)]

Tinker AFB is located in central Oklahoma, within the corporate limits of the City of Oklahoma City, about ten miles southeast of the downtown area and adjacent to the suburbs of the City of Midwest City and the City of Del City. The base is bordered by Interstate 40 on the north side, Douglas Boulevard on the east, Sooner Road on the west, and Southeast 74th Street on the south.

Tinker AFB is a military installation owned and operated by the USAF. Its primary mission is the maintenance, repair, and modification of military aircraft. The principal organization at the base is the Oklahoma City Air Logistics Complex (OC-ALC), which controls and directs the base's primary mission. Approximately 27,000 military and civilian personnel are employed at the base.

Tinker AFB Building 810 comprises the permitted (greater than 90-day) Hazardous Waste Storage Facility (HWSF). For purposes of Corrective Action, however the definition of facility encompasses the entire continuous installation.

2.0 FACILITY LOCATION AND SETTING [40 CFR 270.14 (b)(11) and 270.15(C)]

The HWSF, Building 810, lies in the southwest corner of Tinker AFB about 150 feet south of Southeast 59th Street.

No public schools, education institutions, child care facilities, nursing homes or hospitals are located within one mile of the facility. A medical clinic housing the 72nd Medical Group is located less than a quarter-mile to the northeast of the HWSF. A recreation park, Tinker AFB's South Forty Recreation Area, which is open to the Air Force community, is located approximately four hundred feet north of the HWSF.

2.1 AREA MAPS [40 CFR 270.14 (b)(11) and 270.15(c)]

Figure 1-1 is a topographic map illustrating the location of the HWSF within Tinker AFB. Figure 1-2 is a topographic map showing the location of the HWSF, wetlands, and flood plains and nearby development. Additionally, water courses, and cultural development on and around the base are shown. Lake Stanley Draper, a major recreational area for the Oklahoma City area, is slightly over one mile south of the HWSF. All of the surface drainage is to the north and does not drain into Lake Stanley Draper.

Figure 1-3 is an aerial photo with both the Hazardous Waste Management Facility (HWMF) less than 90-day storage (Building 809) and the HWSF (Building 810) labeled with the nearby streets and gates. The municipalities of Oklahoma City, Del City and Midwest City adjoin Tinker AFB. These municipalities are 0.12, 1.5, and 2.0 miles from the HWSF respectively.

A Tinker AFB water supply well (#29) is located approximately 2,000 feet east of the HWSF (Figure 1-2). Tinker's well #29 produces water from the Garber-Wellington Aquifer (screen interval > 200 feet below ground surface).

2.2 SEISMIC STANDARD [40 CFR 270.14 (b)(11)(ii)]

The HWSF is not subject to the seismic standard because it does not fall within any county, township, or election district listed in 49 CFR 264, Appendix VI.

2.3 FLOOD PLAIN STANDARD [40 CFR 270.14 (b)(11)(iii)]

The HWSF is not located in the 10-year flood plain. See Figure 1-2 for the outlines of the 100-year flood plain. The information for determining the location of the flood plain was obtained from the 2007 Tinker AFB Integrated Natural Resources Management Plan.

2.4 WIND ROSE [40 CFR 270.14 (b)(19)(v)]

Figure 1-4 presents the prevailing wind direction at Tinker AFB.

3.0 PROCESS INFORMATION

3.1 HAZARDOUS WASTE STORAGE FACILTY (BUILDING 810)

3.1.1 General

Building 810, also known as the HWSF, constitutes the permitted hazardous waste facility on Tinker AFB. Building 810 and landscaping features are located within an approximately 2.2 acre compound within the base. Regarding low-level mixed waste (LLMW): Tinker AFB meets the exemption in 40 CFR 261.3(h)(1) provided this waste is stored meeting 40 CFR Subpart N and 266.230 regulations. Per the Master Materials License (MML) thru the Nuclear Regulatory Commission (NRC) Tinker has specified the LLMW will be stored in the greater than ninety (90) day storage facility of Building 810, in module 119.

3.1.2 Construction Details [40 CFR 264.175(c), 270.15(a)(1)-(5)]

The HWSF building is constructed of concrete masonry unit walls and a metal roof. The HWSF is fully enclosed, with a roll-up bay door and pedestrian doors to control access. The interior of the HWSF consists of the following storage areas:

- Four (4) double-wide, fully enclosed storage modules (103, 107, 120 and 123) allow for the storage of drums and other large containers of waste and materials; up to 20,790 gallons for each module.

- Five (5) standard sized storage modules (102, 108, 113, 119 and 125) allow for the storage of drums and other containers of waste and materials; up to 10,692 gallons for each module.

- One (1) smaller standard sized storage module (115) allows for the storage of drums and other containers of waste and materials; up to 4,752 gallons. The mechanical room is module 116. An access door is between module 115 and the mechanical room.

- Six (6) large closets (109, 110, 111, 112, 118 and 124) for storing smaller quantities of waste and materials; up to 1,188 gallons for each closet.

- Four (4) small closets (104, 117, 121, and 122) for storing smaller quantities of waste and materials; up to 594 gallons for each closet.

- One (1) area (staging area 101) will be used for staging incoming or outgoing wastes.

The HWSF storage modules and/or closets are separated by concrete masonry walls. Figure 1-5a is a schematic of the building plan for the facility, Figure 1-5b is a schematic of a typical module layout.

All floors within the HWSF building are constructed of concrete. The HWSF building is without floor drains. All floor surfaces are flat except for ramp areas. In accordance with 40 CFR 264.175 (b)(1), the floor surfaces are free of cracks or gaps (construction joints are sealed) and are sufficiently impervious to contain leaks or spills until the released material is detected and removed (See Attachment 1.D for inspection procedures and frequency).

Secondary containment for potential spills is provided by two-inch high concrete block curbing around the entire interior perimeter of the HWSF building. The floor of each storage module and closet are depressed four-inches from the main corridor, resulting in a net six inches of containment height, with entrance ramps leading down into the module or closet. Joints in the concrete floor are sealed and the floor is coated with a chemical-resistant epoxy sealant. The secondary containment volume requirements for each module and closet within the HWSF are presented in Section 3.1.4 below. As shown in Figure 1-2 run-on into the HWSF is prevented by modifying the drainage pattern of the site to divert storm water away from the HWSF.

Interior lighting of the HWSF meets appropriate illuminating standards. The HWSF is equipped with two emergency shower/eye wash stations to comply with 29 CFR (see Figure 1-5a).

Security for the HWSF is discussed in Attachment 1.C.

3.1.3 Design Capacity [40 CFR 270.15(a)(1)]

Storage in the HWSF consists of containers placed on pallets which are typically placed on heavy duty metal racks. Sturdy pallets are used as storage platforms, to assist in container handling and to reduce the potential for damage to containers. The pallets also help prevent rust or other moisture damage by elevating the containers above the floor and by providing space for the tines of a mechanical fork-lift when movement of the containers is necessary. Flammable waste liquids will not be stacked directly on top of one another; however, stacking one flammable waste pallet above another on the metal racks is not considered direct stacking. The pallet and metal rack system provide additional storage capacity without stacking pallets directly on top of one another. Small containers may be placed directly on the metal racks without the use of pallets.

A standard pallet is 48-inches by 48-inches. Most of the waste stored at the HWSF is contained in 55-gallon drums. For this purpose, larger pallets measuring 49-inches by 56-inches in size, are used. This will provide additional space to hold four 55-gallon drums thereby reducing the chance of a drum falling off the pallet and being damaged.

The physical storage capacity of the HWSF has been calculated based on rows of pallet storage racks placed inside each storage module or closet. Calculations were made assuming pallets could be stacked three tiers high on storage racks in all storage modules and storage closets. All pallets were assumed to hold 55-gallon drums that are 90% full (i.e., 49.5 gallons each). Occasionally, overpack drums (85-gallon) may be used to contain leaking 55-gallon drums or 55-gallon drums with poor integrity. The 85-gallon overpack drum does not affect the volume calculations in this Attachment, Table 1-1 "Storage Capacities vs. Secondary Containment Capacity Requirements" since they are not used as primary containers. The effective volume would still be 49.5 gallons. Based on these assumptions, the following volumes were calculated for each storage module and closet.

- "A" modules: 103, 107, 120 and 123: four-hundred-twenty (420) 55-gallon drums (90% full) for a total volume of 20,790 gallons in each module.

- "B" modules: 102, 108, 113, 119 and 125: two-hundred-sixteen (216) 55-gallon drums (90% full) for a total volume of 10,692 gallons in each module.

- "C" module: 115: ninety-six (96) 55-gallon drums (90% full) for a total volume of 4,752 gallons.

- "D" closets: 109, 110, 111, 112, 118 and 124: twenty-four (24) 55-gallon drums (90% full) for a total of 1,188 gallon in each closet.

- "E" closets: 104, 117, 121, and 122: twelve (12) 55-gallon drums (90% full) for a total of 594 gallons in each closet.

Storage of hazardous wastes beyond normal hours of operation in the staging area may at times be necessary before loading onto vehicles or transferring to other designated modules or closets within the HWSF. In this case, hazardous waste containers with free liquids will be provided with secondary containment trays; each tray has a containment capacity equal to or greater than the total volume of containers in a tray. Maximum overnight storage in the staging area will be two 10-pallet rows stacking two high, or 40 pallets holding one-hundred-sixty (160) 55-gallon drums (90% full) for a total of 7,920 gallons. Including the staging area, the maximum storage capacity of the HWSF is 158,796 gallons.

3.1.4 Secondary Containment System Design and Capacity [40 CFR 270.15(a)(3)]

In accordance with 40 CFR 264.175 (b)(3), the containment system must have sufficient capacity to contain ten percent of the volume of all containers in the system, or the volume of the largest container in the system, whichever is greater. The maximum sized containers used to store liquid wastes in the HWSF will be 55-gallon drums, which will hold 49.5 gallons of liquid when filled approximately ninety percent full according to operating procedures. All secondary containment areas will far exceed the required containment capacity for a 55-gallon drum, and will meet the ten percent total volume capacity requirement.

The base of each storage module or closet is made of concrete and is four inches lower than then corridor elevation. This, combined with the two-inch curbing around the interior perimeter of the building, provides a six-inch deep containment area the site of the storage module or closet.

The secondary containment capacity was determined by multiplying the horizontal dimensions of each module or closet by the height of the curbing, then converting to gallons. See Table 1-2 of this Attachment for detailed calculations.

Each containment module and closet provides sufficient capacity to contain more than ten percent of the aggregate volume of hazardous waste to be stored. A comparison of the intended storage capacities and secondary containment volumes are in Table 1-1.

Note: the staging area will only be used to stage drums during their shipment. Should hazardous waste containers with free liquids be stored in this area, the containers will be provided with secondary containment trays. Each tray will have a containment capacity equal to or greater than the largest container placed on a pallet.

3.2 Description of Storage Containers [40 CFR 264.171]

The container types that will be used to store hazardous wastes at the HWSF include, but are not limited to: metal drums, barrels, kegs, plastic drums, carboys, cans, pails, boxes (including cubic yard boxes), and bottles. Containers will be visually inspected prior to acceptance of a shipment into the HWSF to ensure that they are compatible with the waste, not leaking and capable of withstanding sustained storage. Containers of hazardous waste transported into and from the HWSF will meet DOT specifications.

3.3 Container Management Practices [40 CFR 270.15(b) and (d)]

The containers are used and managed in accordance with 40 CFR 264 Subpart I. Loading and off-loading of waste will be conducted in the staging area, Figure 1-5(a) where waste containers will be separated and categorized based on their contents. The content or chemical characteristics of a waste that arrived at the HWSF will be used to determine where the waste will be stored within the HWSF. All waste containers must be known to contain only permitted wastes for acceptance into the HWSF. At no times shall any unknown or non-permitted wastes be brought into the facility.

The compatibility of a waste with other wastes will be determined in accordance with the most current compatibility chart located in Appendix V of 40 CFR 264. The HWSF building will be configured to accept three basic compatibility groups: toxics, flammables, and corrosives (acids and bases, separately). An inventory will be maintained showing the name, storage location, and quantity of all wastes being stored. This inventory will be maintained as part of the HWSF operating record.

Flammable wastes constitute the largest of the waste groups and thus require the most space, especially since pallets holding drums of flammable liquids cannot be stacked. The volume of toxic and flammable waste varies considerably. Therefore, it is frequently necessary to convert the use of a bay from storage of one compatibility group to storage of another. An entire bay is normally converted. If it becomes necessary to place more than one compatibility group in the same bay, only one group will be subject to that bay's secondary containment. The other group will be placed in secondary containment devices which are compatible with, and which can hold 100 % of, the waste being contained.

In the event that incompatible wastes must be stored within the same storage module, the incompatible wastes will be separated from one another my means of temporary diking, berms, or some other similar device in accordance with the requirement of 40 CFR 264.177(c). The entire HWSF is permitted for hazardous waste storage, but unused hazardous materials may also be stored on a space available basis.

A detailed description of container management practices is contained in Attachment 1.B, HWMP (contents on CD).

Typically, the storing, labeling, and consolidation (as needed) of wastes will be performed at the 90-day storage area, (i.e., HWMF Building 809), prior to being transported to the HWSF. Building 809 (HWMF) is located just east and adjacent to the HWSF (Building 810). The wastes will be transported to the HWSF by tractor-trailer combinations or straight trucks. Upon arrival at the HWSF, inspections of containerized hazardous wastes will be performed. If the containers are accepted, they will be removed from the transport vehicles using forklifts and placed in the staging area of the HWSF. From the staging area, the containers will be placed directly into the appropriate storage module in the HWSF.

Containers of hazardous waste will always be closed during storage, expect when collecting samples or when transferring waste from one container to another, which requires prior approval from the Asset Management Division. Inspections with recorded results will be conducted

weekly, checking for leaking or deteriorating containers as discussed in Section 6 of the Permit Renewal Application [incorporated into Attachment 1.D].

Hazardous wastes will not be handled or stored in a manner which will impair the integrity of the container. Containers will typically be stored on pallets for ease of inspection, and movement will be done with forklifts to avoid contact with accumulated liquid, if any, in the containment area.

Typically, pallets of the size of 49-inches by 56-inches will be used to store four 55-gallon drums. Smaller pallets, measuring approximately 48-inches square, may be used to hold 1 to 30-gallon cans, cartons, bottles, and other containers. When used to hold 55-gallon drums, the pallets will not be stacked more than three high. Pallets holding flammable liquid wastes will not be stacked directly on top of one another; however, stacking one flammable waste pallet above another on a pallet storage rack (up to 3 levels) is allowed. Multi-level pallet storage racks are installed in the HWSF to allow for the storage of stacked drums on pallets.

Occasionally, wastes may be staged at the generation sites and transported directly to the HWSF. Other hazardous waste accumulation sites at Tinker AFB include tanks in the Chemical Cleaning and Plating Shops, as well as bulk storage containers for the IWTP, barrel washing facility, TAC, the HWSF, with location dependent remediation wastes.

Shop	Bldg.	Container	Type of Waste	Waste Codes
Chemical clean	3001	Above ground tank	Acids	Sample determination
Chemical clean	3001	Above ground tank	Paint strip/degreaser	Sample determination
Chemical clean	3001	Above ground tank	Alkaline	Sample determination
Plating shop	3001	Above ground tank	Alkaline	Sample determination
Plating shop	3001	Above ground tank	Acid	Sample determination
Plating shop	3001	Above ground tank	Chrome	Sample determination
IWTP	62517	Roll-off	Dewatered thickener	D010, F001, F002, F003, F005, F006
Barrel washing facility	3225	Dump hopper	Abrasive blast media	D006, D007, D008
HWMF	809	Roll-off	Contaminated debris, including filters	D005, D006, D007, D008, D010, D011
Restoration	Project location dependent	Roll-off	Remediation waste, soil borings	D039

3.3.1 Container Management [40 CFR 264.173]

- A waste that is incompatible with any other waste or material that is stored such that contact between them might occur during a mutual spill must be separated or protected from contact by a dike, berm, wall, or other device.

- Wastes will be placed in containers that are in good condition without excessive dents, rust, or other corrosion.

- Wastes will be placed in containers that are compatible with those wastes so the ability of the device to hold the waste is not impaired. Containers containing residues of incompatible wastes will not be used.

- Containers must be closed except when sample verification is necessary to determine the nature or characteristics of the contents, or transferring contents to a good container.

- Hazardous wastes will never be handled or stored in a manner that will impair the integrity of the container.

- Palletized containers holding hazardous wastes must be placed vertically and placed on metal storage racks.

- No more than four 55-gallon drums will be placed on a single pallet.

- When used to hold 55-gallon drums, the pallets will not be stacked more than three high.

- Pallets holding flammable liquid wastes will not be stacked directly on top of one another; however, stacking one flammable waste pallet above another on a pallet storage rack will be allowed.

- When moving containers on pallets within the facility, they will be strapped to each other to provide extra stability and prevent damage from falling. Containers of hazardous waste will always be closed during storage, except when collecting samples or when transferring waste from one container to another which requires prior approval from 72nd Air Base Wing CEA.

- Leaking containers will be placed in an 85-gallon DOT approved overpack drum. Labels and marking identical to those on the leaking container will be placed on the overpack. Any spills will be contained and cleaned-up. The absorbents utilized for clean-up will be properly disposed.

- Containers without free liquids will be managed in the same manner as containers with free liquids.

3.4 Air Emission Standards for Containers [40 CFR Part 264 Subpart CC, 270.27]

The RCRA 40 CFR Subpart CC regulations (§ 264.1080 et. seq.) apply to containers with hazardous waste that has an average volatile organic (VO) concentrations at the point of waste generation greater than 500 parts per million by weight (ppmw) as determined by direct measurement method. For a container having a design capacity of greater than 0.1 cubic meters (m^3) (approximately 26.4 gallons) and less than or equal to 0.46 m^3 (approximately 121.5 gallons), the owner or operator is required to control air pollutant emissions from the container in accordance with the Container Level 1 standards. Among other control measures, the standards can be satisfied by using containers that meet the applicable U.S. Department of Transportation (DOT) regulations on packing of hazardous materials for transportation.

Containers with a design capacity greater than 0.46m^3 and managing a hazardous waste with an average VO content greater than 500 ppmw are subject to Container Level 2 standards. Container Level 2 standards may also be met by using containers that meet applicable U.S. DOT regulations on packing hazardous materials for transportation.

The facility will not stabilize organic hazardous wastes in containers; thus, Container Level 3 standards will not apply.

Some of the containers that will be managed at the HWSF will have an average VO content greater than 500 ppmw at the point of generation. All containers that enter into the HWSF will be packaged in accordance with DOT 49 CFR 178 to ensure compliance with Subpart CC.

Attachment A1

Table 1-1: Storage Capacities vs. Secondary Containment Capacity Requirements

	Module or Closet Number	Hazardous Waste Storage Capacity (gallons)	Containment Capacity Required [10% of Storage Capacity] (gallons)	Containment Capacity Available (gallons)
A	103, 107, 120, & 123	20,790 gallons per module	2,079 gallons per module	8,114 gallons per module
B	102, 108, 113, 119, & 125	10,692 gallons per module	1,069 gallons per module	3,989 gallons per module
C	115	4,752 gallons	475 gallons	1,399 gallons per module
D	109, 110, 111, 112, 118, & 124	1,188 gallons per closet	119 gallons per closet	170 gallons per closet
E	104, 117, 121, & 122	594 gallons per closet	59 gallons per closet	91 gallons per closet

Each containment module/closet provides sufficient capacity to contain more than 10% of the aggregate volume of hazardous waste to be stored.

Attachment A1

Table 1-2: Secondary Containment Calculations

	Module or Closet Number	Dimensions [Rectangle 1]	Dimensions [Rectangle 2]	Total volume	Convert to Gallons
A	Modules: 103, 107, 120, & 123	50 feet x 41.33 feet x 0.5 feet = 1,033.25 cubic feet	5.33 feet x 19.33 feet x 0.5 feet = 51.51 cubic feet	1,033.25 cubic feet + 51.51 cubic feet = 1,084.76 cubic feet	1,084.76 cubic feet x 7.48 gallons/cubic feet = 8,114.00 gallons
B	Modules: 102, 108, 113, 119, & 125	50 feet x 21.33 feet x 0.5 feet = 533.25 cubic feet			533.25 cubic feet x 7.48 gallons/cubic feet = 3,988.71 gallons
C	Module: 115	17 feet x 22 feet x 0.5 feet = 187 cubic feet			187 cubic feet x 7.48 gallons/cubic feet = 1,398.76 gallons
D	Closets: 109, 110, 111, 112, 118, & 124	4 feet x 11.33 feet x 0.5 feet = 22.66 cubic feet			22.66 cubic feet x 7.48 gallons/cubic feet = 169.50 gallons
E	Closets: 104, 117, 121, & 122	(4.66 feet x 4.66 feet + 0.67 feet x 4 feet) x 0.5 feet = 12.2 cubic feet			12.2 cubic feet x 7.48 gallons/cubic feet = 91.26 gallons

Assumptions:
(1) Height containment is based on concrete curbing of 6-inched (0.5 feet) high;
(2) Level concrete floor;
(3) Each module is either rectangular or can be artificially divided into rectangular sections for the purpose of calculating surface area;
(4) Volume of containment is determined by the equations:
Volume (cubic feet) = Length (feet) x Width (feet) x Height (feet); and
Volume (gallons) = Volume (cubic feet) x 7.48 gallons per cubic feet
(5) No displacement of available containment volume since waste containers are raised above the floor

Attachment A1, Figure 1-1

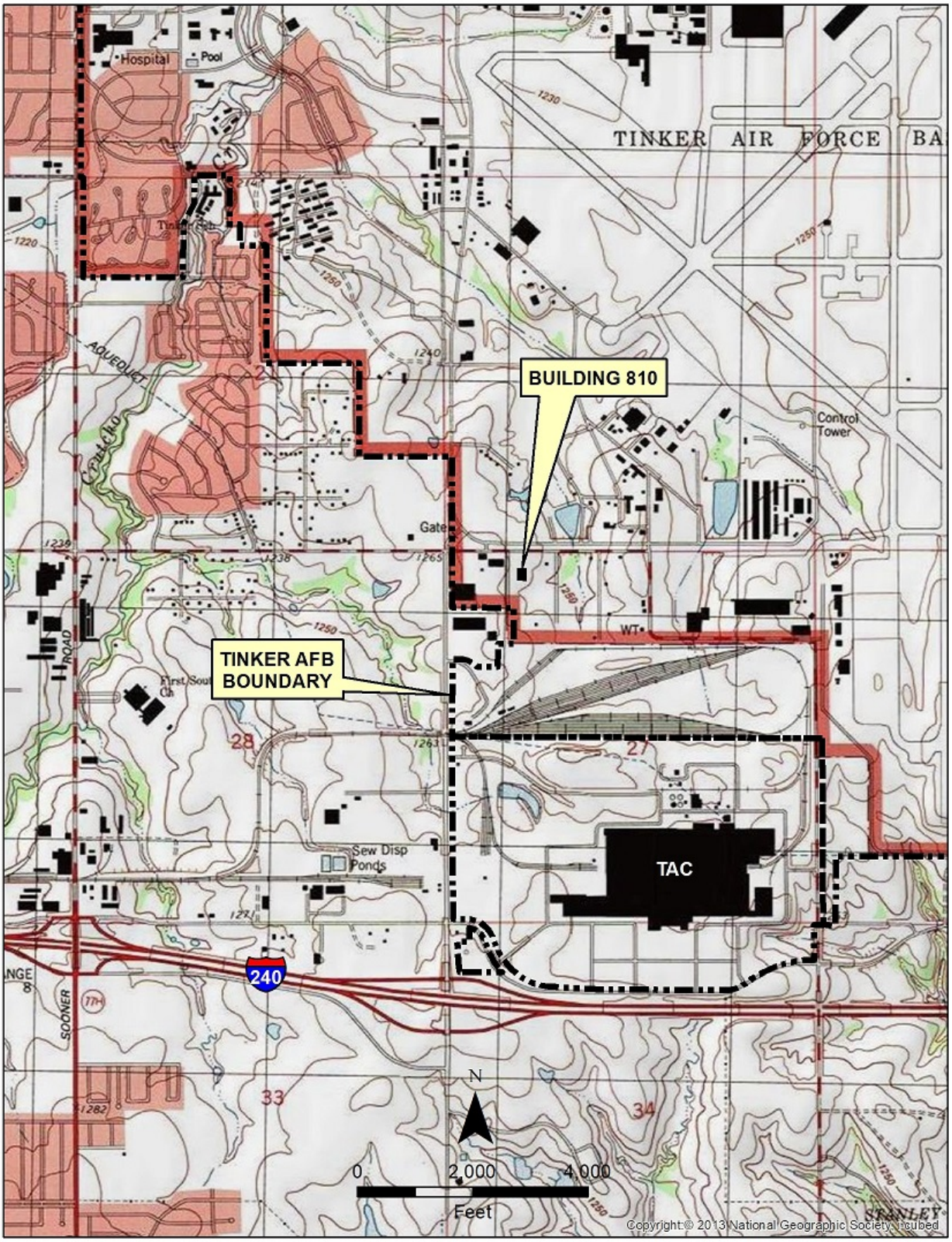


Figure 1-1: Topographic Map Extending To At Least One Mile Beyond Property Boundaries

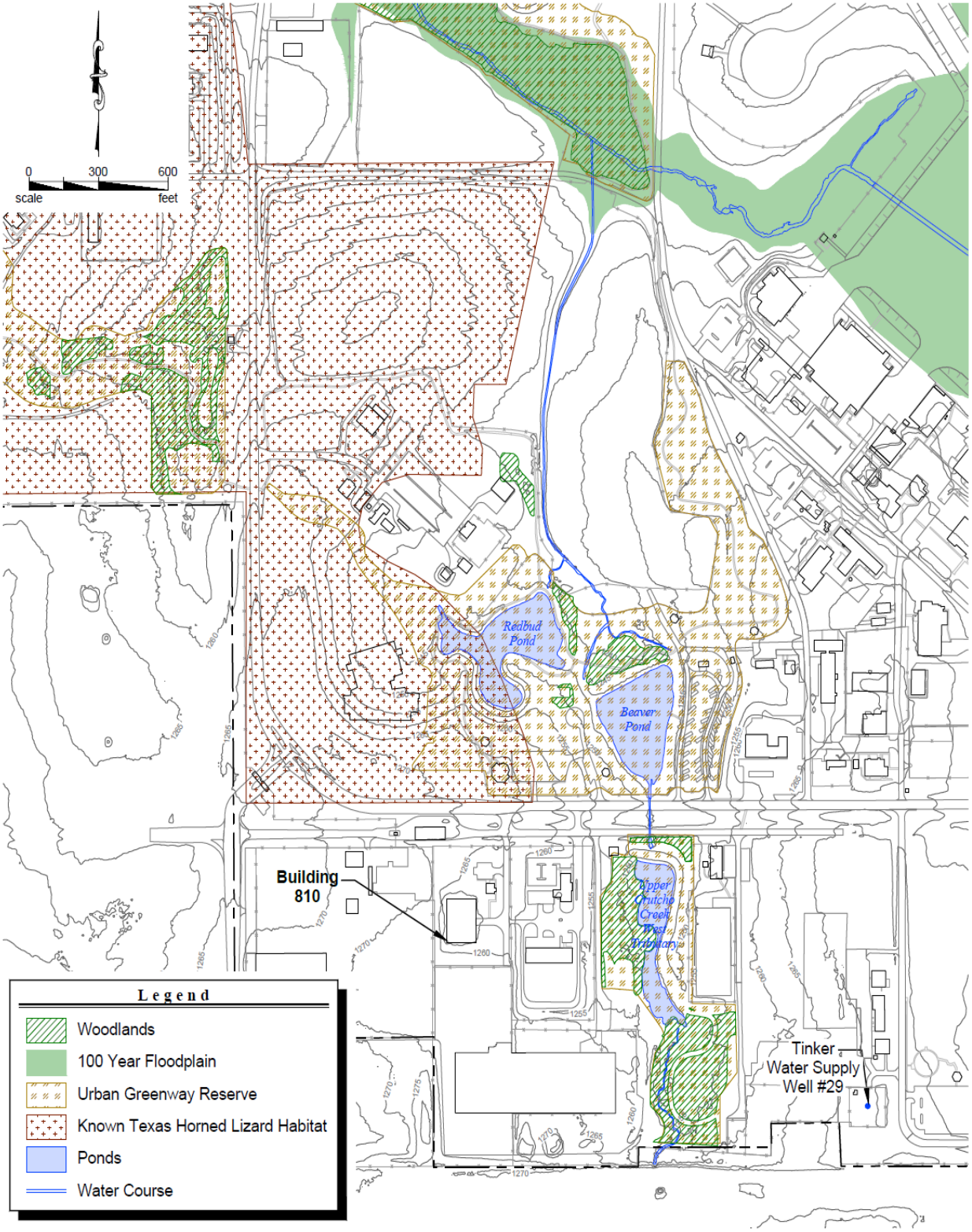


Figure 1-2 Building 810 Topographic Map with Wetlands, Floodplains and Nearby Cultural Development

Tinker AFB location of Buildings 809 (HWMF) & 810 (HWSF)

Attachment A1, Figure 1-3 Aerial Photo of Buildings 809 and 810

Attachment A1, Figure 1-4

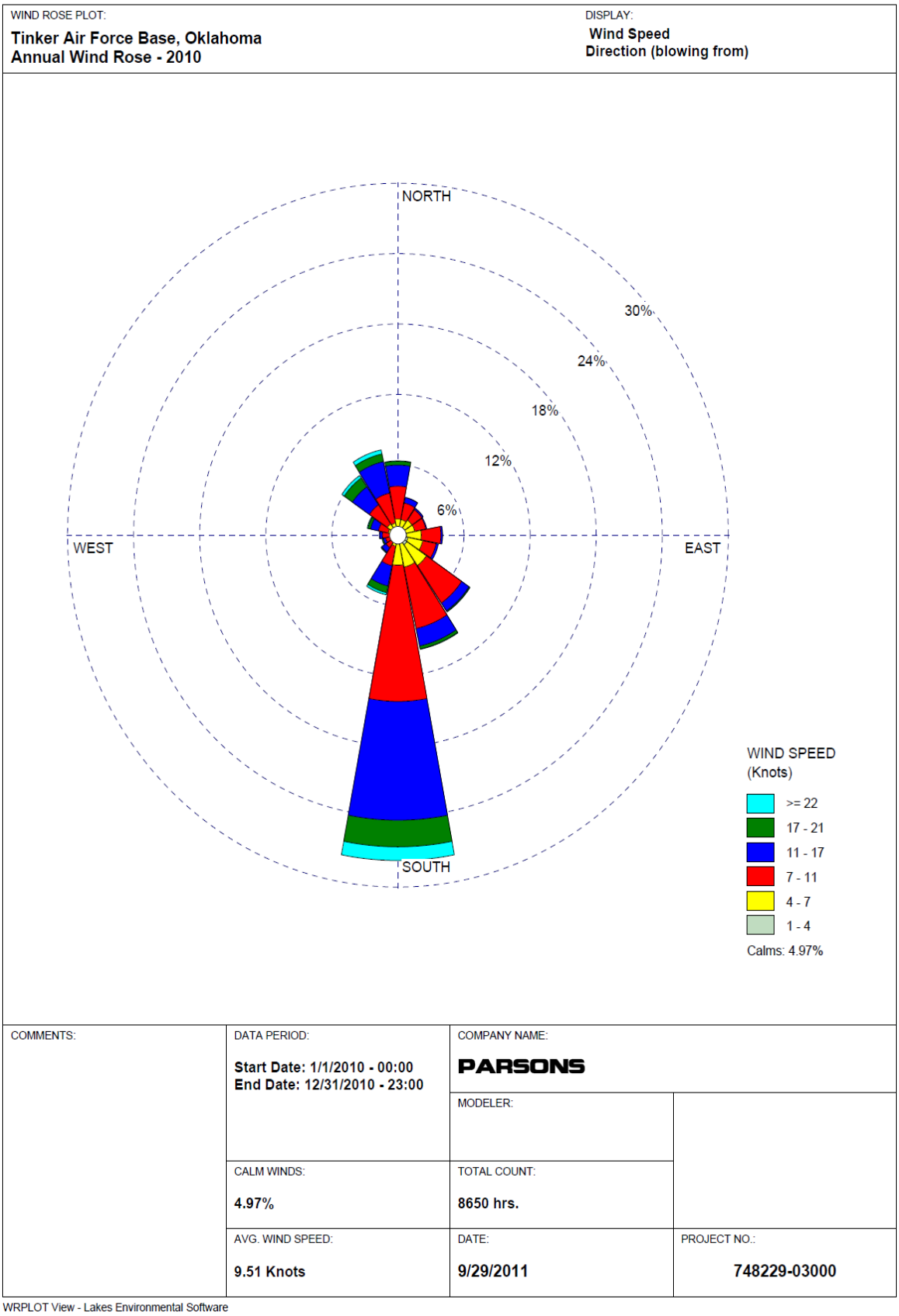
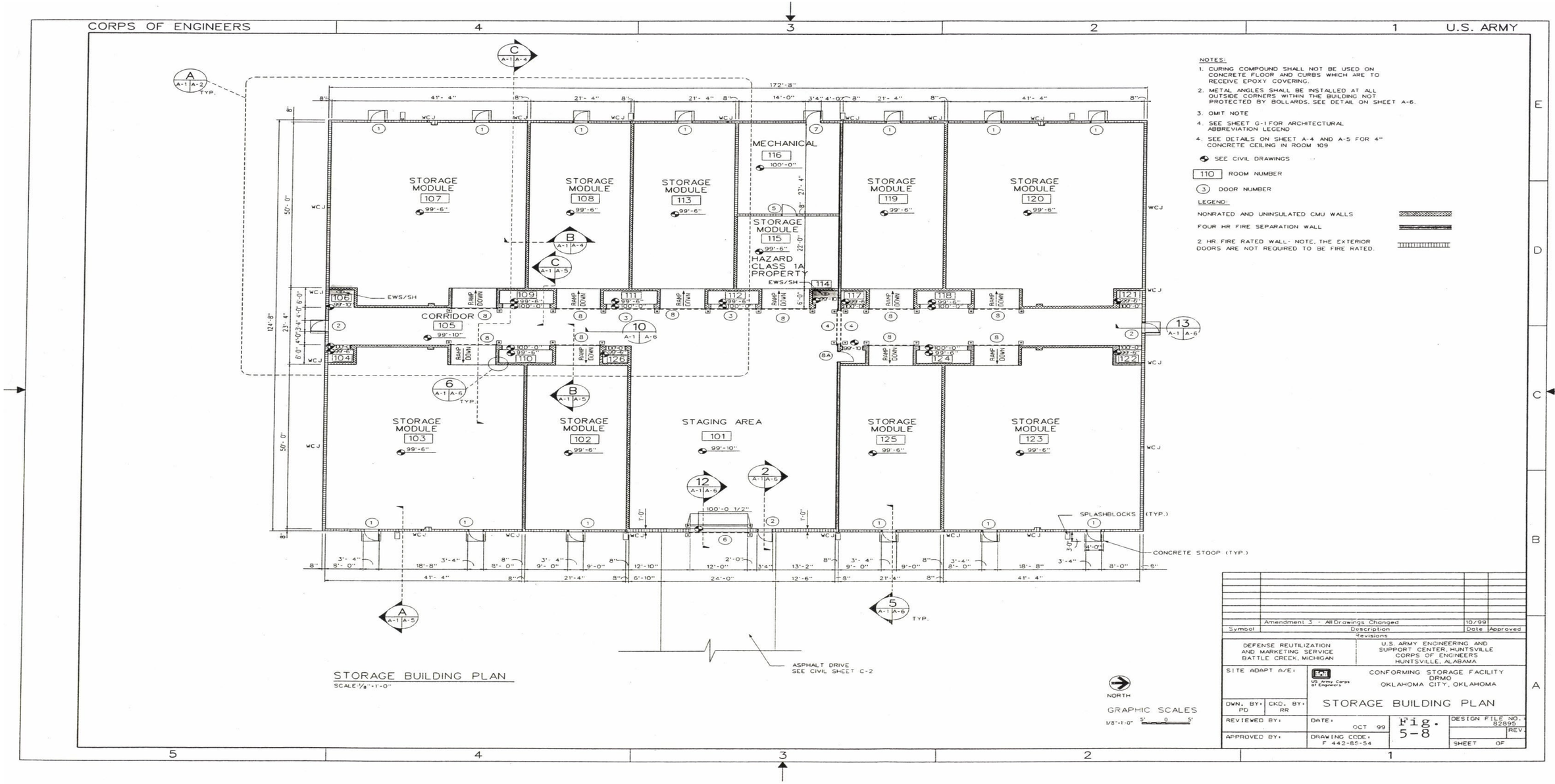
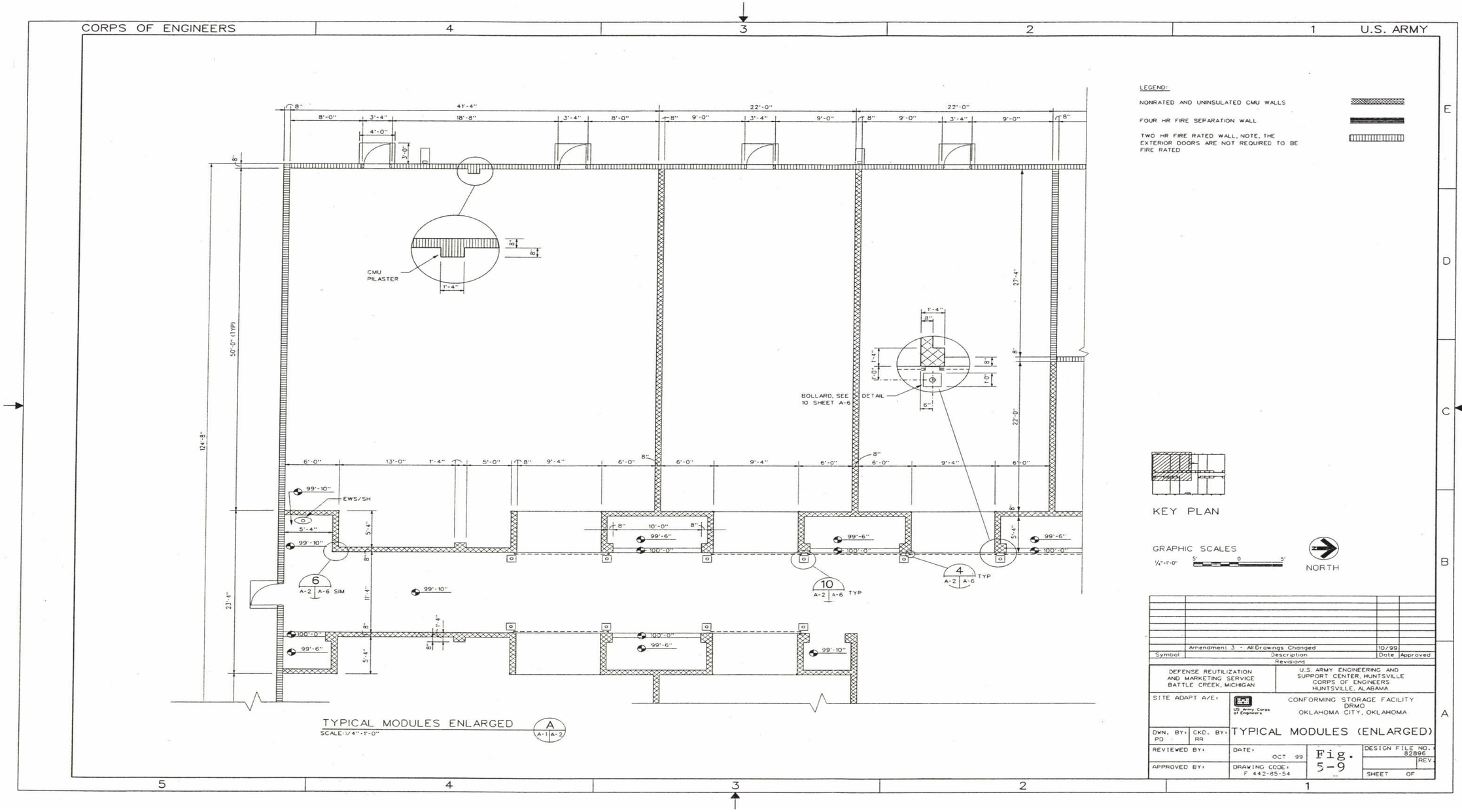


Figure 1-4: Wind Rose



Attachment A1.A Figure 1-5(a) Storage Building Plan



Attachment A1.A Figure 1-5(b) Typical Modules

ATTACHMENT 1.B – WASTE CHARACTERISTICS AND WASTE ANALYSIS PLAN

[40 CFR 270.14 (b)(2) and (b)(3)]

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ATTACHMENT 1.B – WASTE CHARACTERISTICS AND WASTE ANALYSIS PLAN

1.0 WASTE CHARACTERISTICS AND WASTE ANALYSIS PLAN

1.1 WASTE CHARACTERIZATION [40 CFR 270.14(b)(2)]

Typically, containerized waste is characterized in the HWMF – Building #808 (the 90-day barrel yard), prior to the waste being transported to the HWSF. An adequate number of samples are collected so as to provide a representative profile of the waste for proper disposal and regulatory reporting. Analyses of the major waste streams generated at Tinker AFB have been provided in DEQ Form 858 in previous submittals to DEQ.

Process knowledge alone may also be used to characterize a hazardous waste stream generated at Tinker AFB. For example, if hazardous materials that are off-specification, have passed the desirable shelf-life, or otherwise cannot be used, are turned in with their original labeling, the Safety Data Sheets (SDS) will be used to characterize the waste. The generators of the waste are required to provide process information to HWSF personnel.

1.1.1 Waste Generation

The physical and chemical characteristics of the waste stored at the HWSF are described in this section.

The majority of waste streams stored at the HWSF are those generated at Tinker AFB from aircraft maintenance, modification, and jet engine overhaul activities. However, the HWSF also may receive hazardous wastes from other DOD facilities. Waste submitted to the HWSF for storage, irrespective of whether they are from on-site or off-site sources, will meet the characterization requirements of Tinker AFB's Waste Analysis Plan. Most of the DOD wastes have similar physical and chemical characteristics as those are currently permitted for storage. A list of permitted waste codes is shown in the Part A application forms and listed in Section III.

The largest waste streams generated at Tinker AFB result from surface preparation of aircraft skin, structural members, and engine parts. This activity includes paint removal and application; grease, dirt, and carbon removal; metal etching and priming; and abrasive blasting. These processes generate spent solvents, corrosive acids and bases, ignitable liquids, and solutions contaminated with heavy metals. Other large waste streams result from alteration of metal surfaces through removal by grinding and cutting operations or through build-up by electroplating and plasma-spray operations. These processes generate RCRA metals, cyanide solutions, contaminated cutting and coolant fluids, corrosive liquids and occasionally low-level mixed waste (LLMW) that is radioactive.

Maintenance of both aircraft and ground vehicles, which includes oil, filters, and antifreeze replacements as well as purging of tanks, fuel systems, and hydraulic lines generates large quantities of used oil, aircraft fuel, gasoline, antifreeze and hydraulic oil. Much of this material

is sent to recyclers for energy recovery or reclamation. Occasionally, contamination by heavy metals or solvents requires shipment for disposal.

Sludge resulting from operation of the Industrial Wastewater Treatment Plan (IWTP) also comprises a large portion of the hazardous waste stream generated at the base. The sludge results from treatment of wastewater from nearly all of the above described processes. The greatest volume of sludge is contaminated with heavy metals and may be corrosive. Sludge from the bottoms of oil-water separators has a high organic content and also contains heavy metals. Liquid oils and fuel from the tops of these separators are shipped to recyclers for energy recovery. Such bulk wastes are typically pumped into a tank truck and taken directly to an appropriate treatment, storage, or disposal facility (TSDF).

Other significant waste streams resulting from daily operations include soil, sorbents, and debris contaminated with solvents, oils, fuels, and corrosives from clean-up of spills; photographic developers, fixers; and universal waste and other items, including batteries, fluorescent light end caps/ballast, aerosol cans, mercury instruments, glues, and adhesives.

In addition to the activities described above, hazardous waste streams generated at Tinker AFB also results from RCRA corrective actions and CERCLA remediation of previously contaminated sites. These wastes may contain solvents, hydrocarbons, and metal contaminated soil and debris removed during remediation projects.

1.2 Waste Analysis Plan [40 CFR 270.14 (b)(2)]

1.2.1 Purpose and Scope

The purpose of the Waste Analysis Plan is to establish procedures for the analysis of hazardous wastes required before treatment, storage, or disposal according to RCRA (40 CFR Parts 264.13, 265.13, and 268.1) and Title 252, OAC Chapter 205. Wastes are thoroughly characterized prior to turn-in to the HWSF; this is the responsibility of 72 ABW/CEA. Characterization is accomplished through process knowledge, analysis and/or supporting documentation such as SDS. The Tinker AFB Waste Analysis Plan provides procedures for identifying waste characteristics necessary for safe storage of waste before shipment off-site for further management. Although not all encompassing, the procedures cover the majority of the waste streams that Tinker AFB generates. The remaining waste streams are generated or are expected to be generated on a one-time or infrequent basis either on-site of off-site. Therefore, additional analytical procedures will need to be added or adapted from existing procedures on a case-by-case basis. This section presents an overview of the Waste Analysis Plan (see Section 1.3.2 below) with specific reference to regulatory requirements. The Waste Analysis Plan, including specific discussion of analytical protocols, is also found in Attachment A1.B-1 HWMP for hazardous waste management.

1.2.2 Overview

1.2.2.1 Responsibilities

The Tinker AFB Asset Management Division (72 ABW/CEA) is responsible for ensuring that proper analysis of waste streams to determine hazardous waste characteristics is accomplished, and that the laboratories that Tinker AFB uses follow acceptable quality control/quality assurance procedures. Wastes submitted to the HWSF for storage, irrespective of whether they are from on-site of off-site sources, will meet the waste characterization requirements of Tinker AFB's Waste Analysis Plan. Waste received from other DOD facilities may require a confirmation fingerprint or characterization analysis. Waste analysis is performed if process knowledge is absent or to supplement process knowledge.

1.2.2.2 Laboratories

72 ABW/CEA is responsible for ensuring that proper analysis of hazardous wastes is accomplished before the handing of waste to the HWSF for storage prior to off-site treatment, storage or disposal. The Tinker Environmental Laboratory is capable of performing all normal operational waste stream analysis requirements including the Toxicity Characteristic Leaching Procedure (TCLP).

72 ABW/CEA maintains a contract with an outside accredited laboratory to provide analysis in case of work overload, an analytical confirmation is needed, or when a special procedure is required.

1.2.2.3 Parameters and Rationale [40 CFR 264.13 (b)(1)]

The hazardous waste analyses performed by Tinker AFB will enable the completion of the Disposal Plan as required by DEQ (see section1.2.2.4 of this attachment). Copies of the Disposal Plan and appended waste analysis reports will be submitted to DEQ and will be kept on file at 72 ABW/CEA. In addition, analyses are required to have a complete Material Profile Sheet per waste stream sampled.

The rationale for selecting parameters for analysis is based on the need to know the chemical characteristics of the waste, so that wastes can be safely stored at the HWSF. The parameters that may be analyzed for are: primary chemical and physical form characteristics, chemical element, composition, percent solids, pH, flash point, organic components, heavy metal, and other inorganic components. The Waste Analysis Plan discusses typical types of wastes and the analyses needed for each. The rationale for selecting the analytical procedures are based on generator's knowledge of the chemicals used, processes performed, and contaminants generated during these processes.

1.2.2.4 Oklahoma Disposal Plan [OAC 252:205-5-1]

- DEQ requires RCRA hazardous waste generators to complete a Disposal Plan for each hazardous waste stream generated. Tinker AFB has been assigned Disposal Number 55066, which applies to all approved waste streams; each waste stream is assigned a

unique number. The provisions listed below will be followed with respect to Disposal Plans. Changes to the Disposal Plan will be submitted to DEQ at least five days before transporting affected hazardous waste off-site.

- Hazardous waste will not be transported until DEQ approves changes to the Disposal Plan.

- Change requests are to include supporting documentation such as laboratory analyses, and process information.

- If emergency clean-up, spill or other unusual hazardous waste is generated that is not covered by an existing Disposal Plan, a one-time Disposal Plan may be issued pursuant to OAC 252:205-5-1, paragraph 2.

1.2.2.5 Test Methods [40 CFR 264.13(b)(2)]

The Waste Analysis Plan identified the test methods to be used to analyze for selected parameters. These methods are those provided in EPA publication SW-846 (SW-846) entitled Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

The SW-846 procedures are designed primarily for trace determinations, and may not always be best suited for a given sample. If a method other than the EPA method is used to analyze a sample; the analytical report will be annotated to indicated the particular method used. Sources of these non-EPA methods will be documented and kept on file by the laboratory.

When necessary to characterize a particular waste or to determine its status under land disposal restrictions, the TCLP method will be used.

1.2.2.6 Sampling Methods [40 CFR 264.13 (b)(3)]

Representative samples of the waste stream will be collected from containers using the sampling procedures recommended by SW-846 and Appendix I to 40 CFR Part 268. Typical methods for common waste types are shown in Table A1.B-1 below.

1.2.2.7 Waste Management

This plan mandated that the individual waste streams be isolated, containerized, and not commingled unless process of knowledge or waste analysis indicates that these streams are compatible. The problems created by commingling are:

- Risk of mixing incompatible materials,

- Increased difficulty in obtaining a representative sample,

- Increased time and costs of analysis,

- Reduction of resale value of potentially recyclable wastes, and

- Additional difficulty and increase in the costs of waste disposal.

1.2.2.8 Frequency of Analysis [40 CFR 264.13 (b)(4)]

Hazardous wastes generated at Tinker AFB will be characterized as often as waste streams or processes change to ensure analysis is accurate and up-to-date. The current set of hazardous wastes analyses will be reviewed annually by the Asset Management Division. Although not required for storage and not applicable to this permit application, additional analyses will be accomplished, when necessary, to determine whether a waste is restricted from land disposal according to 40 CFR Part 268.

1.2.3 Procedures for Analysis

All hazardous wastes generated at Tinker AFB will be characterized as often as waste streams or processes change to ensure analysis is accurate and up-to-date. At the very least, 72 ABW/CEA will review the current set of hazardous waste profiles annually to determine if analyses are required. The analytical procedures discussed herein are to be used by the Tinker Environmental Laboratory as well as by outside laboratories that perform hazardous waste analysis for Tinker AFB. Appendix A1.B-1 contains a list of abbreviations used for various analytical procedures discussed. Elements are identified by standard chemical symbols.

1.2.3.1 Representative Samples, Analyses, and Profile Sheets

When needed for characterization, representative samples will be collected from drums, tanks and vats using the sampling procedures outlined in EPA publication SW-846. Samples will be submitted to the Tinker Environmental Laboratory or to contract laboratories for analysis as required. Tinker's contract laboratories must be certified by DEQ. All certifications must be maintained throughout the contract.

Waste analysis will be accomplished as required by 40 CFR Parts 264.13 and 268.7 using methods outlines in EPA publication SW-846. Quality assurance/quality control procedures will meet or exceed all requirements for waste analysis.

In addition to information for a complete Material Profile Sheet per waste stream sample, all hazardous waste analysis will provide information required for the DEQ Disposal Plan. One or more of the parameters are analyzed; primary chemical and physical form, characteristics, chemical element, composition, percent solids, pH, flash point, organic and inorganic components and heavy metals.

Profile sheets for each waste stream generated will be filed by 72 ABW/CEA.

1.2.3.2 Rationale for Analysis

Section 1.2.5 and Table A1.B-1 "Specific Waste Type Analysis" of this section presents 16 waste streams and one or more of the analytical procedures that may be used for each. The procedures are designed for the effective analysis of the various categories of wastes. Although not all encompassing, the procedures cover the majority of the waste streams that the base

generates. However, additional analytical procedures may need to be added on a case-by case basis.

The rationale for selecting the analytical procedures listed in this waste analysis instruction are based on knowledge of the chemicals used, processes performed, and contaminants generated during these processes. Analytical methods appropriate to the target analytes, matrices, and anticipated concentrations will be used.

The waste stream being analyzed will be isolated, containerized and not commingled prior to analysis. The problems created by comingling are: risk of mixing incompatible materials, increased difficulty in obtaining a representative sample, increased time and cost of analysis, reduction of resale value of the wastes and additional treatment difficulty and cost increase of disposal.

EPA methods are cites for various analytical procedures and designed primarily for trace determinations and may not always be best suited for a given sample. If a method other than the cited EPA method is used for analyze a sample; the analytical report will be annotated to indicate the method used. Non–EPA methods will be documented and kept on file by the Tinker Environmental Laboratory.

1.2.4 Testing for LDRs [40 CFR 264.13 (b)(6)]

In accordance with 40 CFR part 268.7, all waste streams must be characterized to determine if they are subject to land disposal restrictions. The general extraction procedure to be used for this purpose is outlined in Appendix II of 40 CFR Part 261 and is known as the TCLP. After an extract has been obtained, additional analysis as outlined below will be used to test for particular constituents.

1.2.4.1 Metals Analysis

Metals will generally be analyzed by Inductively Coupled Plasma (ICP). EPA methods for Arsenic (As), Barium (Ba), Cadmium (Cd), Chromium (Cr), Mercury (Hg), Lead (Pb), Selenium (Se), and Silver (Ag) as listed in SW846 will be used.

1.2.4.2 Solvents/Oil/Fuel

Solvents can be analyzed by Gas Chromatograph (GC) in either liquid or vapor phase. Infrared Spectroscopy (IR) also can analyze solvents. Either method is acceptable, as long as it is appropriate for the matrix and anticipated concentration range.

1.2.5 Specific Waste Type Analysis

Table 1.B-1 of this section, provides a current listing of routine hazardous waste streams along with the identified visual, physical, and chemical parameters that are capable of being assessed and tested for at the on-site laboratory or a certified contract laboratory.

Appendix A1.B -1 Abbreviations used in the Waste Analysis Plan

Abbreviations Used in the Waste Analysis Plan	
Ag	Silver
As	Arsenic
Ba	Barium
Cd	Cadmium
Cr	Chromium (Total)
Cr(VI)	Hexavalent Chromium
GC	Gas Chromatograph, usually with a capillary column.
HC	Hydrochloric Acid
Hg	Mercury
HS	Hydrogen Sulfide
ICP	Inductively coupled plasma atomic emission spectrophotometry
IR	Infrared spectroscopy, preferably by Fourier transform method
MS	Mass spectrometer detector for GC
Pb	Lead
PCB	Polychlorinated Biphenyls
pH	Hydronium Ion Concentration
PrePreg	Reinforcing fabric pre-impregnated with resin
Se	Selenium
TCLP	Toxicity Characteristic Leaching Procedure

Table A1.B-1: Specific Waste Type Analysis

WASTE STREAM	PARAMETER ANALYSIS		
	VISUAL	PHYSICAL	CHEMICAL
ABSORBENTS	1. Solid, dry or absorbed liquid.	1. Flash point (Free liquid).	1. Volatile by GC – HS organics; identify by GC.
	2. Color of material.		1.1. Transformer oils, PCBs by GC.
	3. Free liquid.		1.2. Fuels/Motor oils, Pb by ICP.
	4. Odor.		2. Solid, for total Pb, Cd, Cr and Ba.
ACIDS / PLATING SHOP	1. Color of solution.	1. pH.	1. Analysis of liquid phase.
	2. Phases: number, type and volume.		1.1. Total Ag, Cd, Cr, and Pb; by ICP.
			2. Analysis of sludge phase.
			2.1. Total Ag, Cd, Cr and Pb; by ICP
CAUSTICS AND ALKALINE CLEANERS	1. Color of solution.	1. pH	1. Analysis of liquid phase.
	2. Phases: number, type and volume.		1.1. Total Cd, Cr and Pb; by ICP.
			2. Analysis of sludge phase.
			2.1. Identify by IR.
			2.2. Cd, Cr, and Pb; by ICP.
PLATING SOLUTIONS (Metals)	1. Color of solution.	1. pH.	1. Analysis of liquid phase.
	2. Phases: number, type and volume.		1.1. Total Ag, Cd, Cr and Pb; by ICP.
CHROMATE SOLUTIONS	1. Color of solution.	1. pH.	1. Analysis of liquid phase.
	2. Phases: number, type and volume.		1.1. Total Cr, Cd and Pb; by ICP.
ELECTROLESS COPPER PLATING	1. Color of solution.	1. pH.	1. Analysis of liquid phase.
	2. Phases: number, type and volume.		

WASTE STREAM	PARAMETER ANALYSIS		
	VISUAL	PHYSICAL	CHEMICAL
ADHESIVES, SEALANTS AND "PREPEGS"	1. Color of material.	1. Flash point.	1. Analysis of volatiles.
	2. Phases: number, type and volume.		1.1. Identify volatiles by GC, GC/MS or IR.
	3. Layers.		
WASTE PAINT: NEW, USED, OR PAINT CONTAMINATED RAGS	1. Color of material.	1. Flash point.	1. Analysis of volatiles.
	2. Phases: number, type and volume.		1.1. Percent of volatiles.
			1.2. Identify volatiles by GC, GC/MS or IR.
			2. Total Cd, Cr, Ba, Hg, etc.
			3. Analysis of contaminated rags.
			3.1. Volatiles by Headspace/GC or GC/MS.
			3.2. Total Cd, Pb, Cr, Ba, by ICP.
PAINT REMOVER	1. Color of material.	1. pH.	1. Analysis of volatiles.
	2. Phases: number, type and volume.	2. Flash point.	1.1. Identify volatiles by GC, GC/MS or IR.
			2. Analysis of nonextractable material.
			2.1. Total Pb, Cd, Cr, etc. by ICP.
PAINT STRIPPER (SOLVENT TANK AND HOT STRIPPERS)	1. Color of material.	1. pH.	1. Analysis of volatiles.
	2. Phases: number, type and volume.	2. Flash point.	1.1. Percent volatiles.
			1.2. Identify volatiles by GC, GC/MS or IR.
			2. Analysis of nonvolatiles.
			2.1. Total Pb, Cd, Cr, by ICP.
DEGREASER SOLVENTS	1. Color of solution.		1. Analysis of liquid phase.
	2. Phases: number, type and volume.		1.1. Percent volatiles.
			1.2. Identify volatiles by GC, GC/MS or IR.
			2. Analysis of sludge.
			2.1. Identify nonextractables by IR.

WASTE STREAM	PARAMETER ANALYSIS		
	VISUAL	PHYSICAL	CHEMICAL
DEGREASING DETERGENTS	1. Color of solution.		1. Analysis of sludge.
	2. Phases: number, type and volume.		1.1. Analysis is of volatiles.
			1.2. Total Ag, Cr, Cd, Pb, by ICP.
OILS NOT COMMINGLED (HYDRAULIC, AIRCRAFT)	1. Color of materials.	1. Flash point.	1. Analysis of oil phase.
	2. Phases: number, type and volume.		1.1. Identify by GC, GC/MS or IR.
			1.2. Percent volatiles by Headspace GC.
			1.3. Identify volatiles by GC, GC/MS.
			1.4. Metals Pb, Cr and Cd by ICP.
			2. Analysis of rags contaminated with oil.
			2.1. Percent extractable organics.
			2.2. Identify extractables by GC, GC/MS or IR.
WASTE FUELS	1. Color of material.	1. Flash point.	1. Identify type of fuel by GC, GC/MS and IR.
	2. Phases: number, type and volume.		2. Percent volatiles.
			3. Identify volatiles by GC, GC/MS and IR.
			4. Identify heavy hydrocarbons by GC, GC/MS and IR.
INDUSTRIAL WASTE TREATMENT SLUDGE	1. Color of materials.	1. pH.	1. Analysis of water.
	2. Phases: number, type and volume.		1.1. Ag, As, Ba, Cd, Cr, Hg, Pb, and Se; by ICP.
			2. Analysis of volatiles.
			2.1. Identify volatiles by GC, GC/MS.
			3. Analysis of nonextractable material.
			3.1. Total Pb, Cd, Cr, etc. by ICP.
LOW-LEVEL MIXED WASTE (LLMW)	1. Color of materials.	1. Radioactivity.	1. TCLP Metals Cd, Cr, and Pb.

Table A1.B-2 Example Hazardous Waste Label

ITEM	EXAMPLE
EPA WORDS	HAZARDOUS WASTE
EPA ADDITIONAL WORDS	FEDERAL LAW PROHIBITS IMPROPER DISPOSAL. IF FOUND ….
DOT SHIPPING NAME	"RQ" WASTE PAINTING RELATED
MATERIAL	HAZARD CLASS: 3
HAZARD CLASS	PACKING GROUP: III
PACKING GROUP	DOT ID NUMBER: UN1263
DOT ID NUMBER	GENERATOR INFO: 72 ABW/CEA TINKER AFB, OKC, OK 73145
GENERATOR INFORMATION	EPA ID # FOR BASE: OK1571724391
EPA ID NUMBER FOR BASE	EPA WASTE #: D001, D035, F005
EPA WASTE #	ACCUMULATION START DATE: 02 JUNE 2014
ACCUMULATION START DATE	MANIFEST DOCUMENT #: 0025858
MANIFEST DOCUMENT #	

See HWMP (contents on CD)

Tinker AFB

HWMP (contents on CD)

Table of contents:

ATTACHMENT 1.C - SECURITY AND SAFETY

[40 CFR 270.14 (b)(4) and (b)(8)]

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ATTACHMENT 1.C – SECURITY AND SAFETY

1.0 SECURITY [40 CFR 270.14 (b)(4)]

This subsection describes the measures in place to prevent the unknowing entry, and to minimize the potential for unauthorized entry, of persons and livestock into the HWSF.

1.1 SAFETY [40 CFR 270.14 (b)(8)]

Tinker Air Force Base

Tinker AFB is an active military installation. As such, access to the base is restricted by fencing, guards, and a 24-hour security patrol. Entry to the base is restricted to a limited number of gates, all manned by armed Air Force Police or other security personnel, (see Figure 1.C-1 Map of Tinker AFB Gates).

1.2 Hazardous Waste Storage Facility (Building 810)

The HWSF, Building #810, is located in the southwestern portion of the base. Building #808, the administrative office for the HWSF and HWFM, is located adjacent to the east.

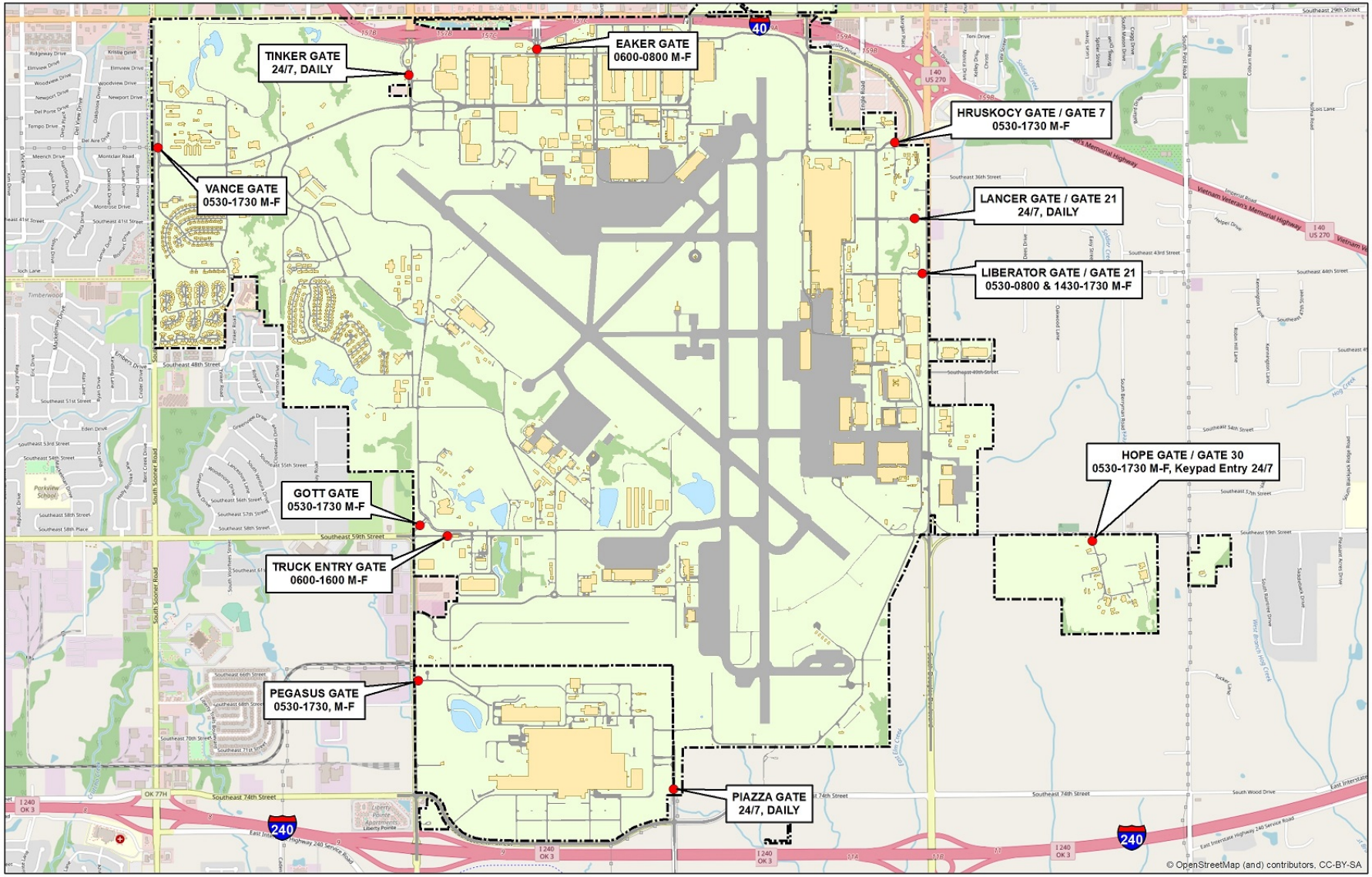
The compound is surrounded by a six-foot high chain link security fence, topped with three-strand barbed wire. Two gates provide access to the compound; one through the access road by Patrol Road north of the facility, and the other is through the HWMF compound. Typically, these gates will be open only during hours of operation, which are normally from 0700 to 1600, Monday through Friday. The gates will be left open while HWSF personnel are working in order to provide easy egress routes from the area in case of fire or other emergency. If HWSF personnel are not working in the compound and must leave the compound unattended for any reason during normal operating hours, the compound gates will be locked. Outside of operating hours, gates will be kept locked.

Visitors to the HWSF will be required to register with HWSF staff in Building #808 before entering the HWSF. Visitors must provide information concerning the organization they represent and the purpose for their visit. No visitors are allowed to enter the HWSF unescorted.

1.3 Warning Signs [40 CFR 264.14(c)]

Warning signs will be affixed to the compound perimeter fence at each gate and at intervals of approximately 50 feet, so that they are visible from any approach to the compound. The signs will be posted at a height of 4-6 feet. The signs will be in English and legible from a distance of at least 25 feet. The signs will carry the legend, “Danger – Unauthorized Personnel Keep Out”, or equivalent language.

Figure A1.C-1: Tinker AFB Gates



ATTACHMENT 1.D - INSPECTION REQUIREMENTS, PLAN AND SCHEDULE

[40 CFR 270.14 (b)(5)]

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ATTACHMENT 1.D – INSPECTION REQUIREMENTS, PLAN AND SCHEDULE

1.0 INSPECTION PLAN AND SCHEDULE [40 CFR 264.15. 270.14 (b)(5)]

The following formal inspection program is designed to monitor compliance with regulations and to occur often enough to prevent threats to human health and the environment. A complete visual inspection of the hazardous property, facility storage areas, and personal protective clothing and equipment will be made weekly. Inspection of hazardous waste containers and their storage sites for leakage is largely qualitative. Visual observations are used by Tinker AFB personnel to detect leaks. However, it is relatively easy to detect whether or not hazardous waste containers are marked and stacked properly and whether the incompatible wastes are segregated from each other. Regular inspection of the hazardous waste storage facility and its contents will ensure the hazardous waste is stored safely.

1.1 Facility and Container Inspections [40 CFR 264.174]

Tinker AFB personnel will conduct general inspections of the hazardous waste storage facility for structural integrity of the facility, secondary containment system, security devices, operating machinery, operating procedures, and evidence of potential leaks or discharges. The inspection of applicable items will reduce the potential for release of hazardous waste constituents that may adversely impact human health and the environment. The frequency of general inspections depends upon equipment malfunctions, incidents of environmental or human health problems, and nature of problems identified. As part of the general inspection, the secondary containment structures will be checked for cracks or gaps.

Weekly inspections of the containers will be conducted using DRMS Form 1713, Inspection Log or equivalent to record comments by an employee trained in hazardous waste management procedures. These visual inspections will concentrate on integrity of containers and their management including labeling, handling, and compatibility issues.

When a container is found to be seriously deteriorated or is leaking, authorized personnel will cleanup any spilled material. As necessary, waste may be transferred to another 55-gallon container that is in good condition, or the leaking container may be placed in an 85-gallon DOT approved overpack drum. Labels and markings identical to those on the leaking container will be placed on the overpack.

Containers will be inspected to ensure proper storage. Pallets and palletiers holding drums of flammable liquid wastes will not be stacked directly one upon another; however, stacking one flammable waste pallet above another on a pallet storage rack will not be considered direct stacking.

Containers with ignitable or reactive hazardous wastes will be stored at least fifty feet from the HWSF property line. This requirement is met for any containers stored within the confines of the HWSF building.

Where forklifts are used, the inspector will ensure that sufficient aisle space (at least ten feet), is provided between stacks or groups of drums within each storage module to allow for the movement of forklifts and personnel.

1.2 Inspection Log

Information gathered during general and container inspections will be recorded on DRMS Form 1713, Inspection Log or equivalent, which will be maintained in the administrative area of the HWMF. Information on these logs includes the name of the inspector, date and time of inspection, item, problems observed, and the date and nature of repairs and remedial action(s).

1.3 Remedial Action

If inspections reveal that non-emergency maintenance is needed, the hazardous waste inspector, hazardous waste program manager, and the facility manager are authorized to initiate immediate action for the correction of the unacceptable condition. If a hazard is imminent, is occurring during the course of an inspection, or has occurred between inspections, remedial action will be taken according to the Contingency Plan as explained in Attachment 1F.

2.0 PREVENTION OF REACTION OF IGNITABLE, REACTIVE AND INCOMPATIBLE WASTE [40 CFR 264.17, 264.176, 264.177, 270.14 (b)(9)]

Container management practices are in place for the prevention of reaction of ignitable, reactive and incompatible waste in accordance with 40 CFR 264.176 and 264.177. Smoking in the staging area and in the HWSF is banned. In addition, before performing hot work (e.g., welding, cutting, etc.) within the HWSF, permission must be obtained from Hazardous Waste Program Manager and the Tinker AFB Fire Department.

2.1 Procedures for Handling Ignitable, Reactive or Incompatible Waste

2.1.1 Management of Ignitable or Reactive wastes in Containers

The HWSF is located at least 50 feet from the nearest property line of the base, and therefore will be in compliance with the recommended National Fire Protection Association (NFPA) standards for container storage holding ignitable or reactive wastes. Also, pallets holding drums of flammable liquid material/wastes are not stacked, except on pallet storage racks. This ensures stability in the event of accidental impact and allows easy inspection for spillage. Visual inspections are conducted weekly in the storage areas to detect spills or leaks, to ensure maintenance of aisle space, and to minimize the potential for accidents.

2.1.2. Precautions to Prevent Ignition or Reaction of Ignitable or Reactive Wastes

Hazardous wastes received at the facility are required to be in non-leaking containers that comply with DOT container regulations (49 CFR Parts 173, 178 and 179). This minimizes the potential for ignition and reaction of hazardous wastes.

The compatibility of wastes with other wastes is determined in accordance with the most current compatibility chart located in Appendix V " Examples of Potentially Incompatible Waste" of 40

CFR 264. Tinker AFB has the option to use a more stringent compatibility comparison if they elect to do so. Other available information to determine hazard characteristics and compatibility are the DOD's Enterprise Environmental Safety and Occupational Health – Management Information System (EESOH-MIS), other standard hazardous material reference data such as Safety Data Sheet (SDS), and/or laboratory analyses. Specific precautions taken to prevent ignition or reaction include the following:

- Incompatible wastes will not be placed in the same container per procedures described in *Hazardous Waste Management Plan (HWMP)* (see Attachment 1.B), Tinker AFB.

- Hazardous wastes will not be placed in an unwashed container that previously held an incompatible waste. Only new or reconditioned DOT approved or equivalent containers will be used to store waste.

- Containers holding incompatible wastes will be separated and protected from nearby wastes by physical means such as a berm or wall. These wastes will be segregated at the storage facility as described in Section 4 of this permit application.

- Incompatible and reactive wastes are protected from sources of ignition or reaction, such as open flames, smoking, cutting and welding, hot surfaces, frictional heat, and sparks (static, electrical or mechanical). An obvious potential cause of accidents associated with handling and storing ignitable waste is facility personnel smoking. For this reason, smoking is prohibited inside the HWSF building and in the staging area. A sign with the legend "NO SMOKING BEYOND THIS POINT" is posted at the entrance to the facility. Areas with drums containing ignitable and reactive wastes prominently display a sign clearly marked with the legend "No Smoking". Spark-proof tools (brass hammers, wrenches) are used in the management of containers storing ignitable/reactive wastes. No welding or other activities that are known to produce open flames, hot surfaces, frictional heat, spontaneous ignition or radiant heat are allowed in the HWSF building or staging area without the prior approval of the Tinker AFB Fire Department.

- Mixing of wastes will not be conducted at this facility. Wastes are not transferred from one container to another on a regular basis at this facility unless previously approved by the Asset Management Division. The transferring of waste is performed only by trained personnel.

Appendix A1.D-1: Example Inspection Log -DRMS Form 1713

INSPECTION LOG

(Prescribing Authority: DRMS-I 4160.14 Sec. 2, Ch. 8)

DATE/TIME | AREA/BLDG *(Specify when HM/HW is stored off-site of DRMO)* | SIGNATURE OF INSPECTOR

ITEM	TYPE OF PROBLEM	SAT	UN-SAT	NA	LOCATION AND PROBLEMS OBSERVED	DATE & NATURE OF CORRECTIVE ACTIONS	FREQUENCY
SAFETY AND EMERGENCY EQUIPMENT							
Face Shield & chemical goggles	Broken, dirty or missing						Weekly
Protective clothing	Holes, worn, missing						Weekly
Absorbents (e.g., sorb-all Vermiculite)	Saturated, contaminated, below minimum quantity						Weekly
Empty drums/containers	Corrosion, structural damage, securely stored						Weekly
Emergency eyewash/shower	Water pressures. leaking, flushed						Weekly
Ventilation systems	Not operating, blocked						Weekly
Shovel nonsparking	Missing, damaged						Weekly
Fire extinguishers	Not charged, not mounted, missing						Monthly
Fire alarm system	Not operating						Monthly
Telephone system	Not operating						Monthly
First Aid equipment & supplies	Items out of stock, outdated, expired supplies						Monthly
Non-sparking bung wrench	Missing, damaged						Weekly
Push broom	Missing, damaged						Weekly
SECURITY							
Warning signs	Illegible, missing						Weekly
Security lights	Not operating						Weekly
Building doors, locks, fence and gates	Locks missing, unlocked, signs of tampering						Weekly*

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*Daily when in use

INSPECTION LOG

ITEM BUILDING LOAD/UNLOAD AREA	TYPE OF PROBLEM	SAT	UN-SAT	NA	LOCATION AND PROBLEMS OBSERVED	DATE & NATURE OF CORRECTIVE ACTIONS	FREQUENCY
General debris & refuse	Orderliness, obstructions, general housekeeping						Weekly*
Odor, fumes	Detectable by smell, eye or nose irritation						Weekly*
Bases or foundation, containment trenches, ramps, roof, walls	Wet spots from containers, evidence of leaking						Weekly*
	Structural integrity, e.g. erosion, uneven settlement, cracks, etc.						Monthly
Battery charging area	Well ventilated, identified, located outside Flammable storage area						Monthly
CONTAINER STORAGE AREA							
Containers	Corrosion, structural defects, serious dents						Weekly*
Sealing of containers	Open lids, leaking contents						Weekly
Labeling of containers	Improper identification; date or waste codes missing; not intact; not readable						Weekly
Housekeeping	Aesthetics, obstruction						Weekly*
Containment area coating/sealeant	Cracks, worn spots, presence of accumulated liquids						Weekly*
Load/unload area and valves	Leaks, incorrect position, spots indicating spills						Weekly*
Container placement and stacking	Insufficient aisle space, heights of stacks excessive						Weekly
Segregation of incompatible wastes	Incompatible wastes in same area Improper dist. between barriers						Weekly
Pallets	Damaged (e.g. broken wood, warping, nails missing)						Weekly
Containment system coating/sealant	Present, cracks, worn spots, presence of liquid						Weekly*
Identification of storage areas (rooms)	Signs posted (e.g., FLAMMABLE, ACID, TOXIC)						Weekly*
Lighting	Bulbs missing, burned out, broken fixtures						Weekly

INSPECTION LOG

ITEM MATERIAL HANDLING EQUIPMENT	TYPE OF PROBLEM	SAT	UN-SAT	NA	LOCATION AND PROBLEMS OBSERVED	DATE & NATURE OF CORRECTIVE ACTIONS	FREQUENCY
Brakes	Worn pads, rotors, bands						PTEU**
Hydraulics	Leaking						PTEU**
Lights-running emergency	Not operational						PTEU**
Horn/sirens	Not operational						PTEU**
Battery	Not operational						PTEU**
Lubrication (oil. grease)	Low level, lack of						PTEU**
Tires	Worn, low pressure						PTEU**
Safety equipment	Not operational, missing						PTEU**
Instruments	Not operational, missing						PTEU**
General condition	Deficiencies						PTEU**
Lift, shift, tilt, control mechanisms	Not functional, loose, worn						PTEU**
Accessories	Missing, inoperative						PTEU**
Fire extinquishers	Missing, serviceable						PTEU**
Rated for area of use	DY, EE, EX for flammable storage areas						PTEU**
Overhead protection (Forklifts)	Missing, damaged						PTEU**

DRMS FORM 1713, DEC 2007 (EF)

**PTEU - Prior to each use but not more often than once per day

ATTACHMENT 1.E - PREPAREDNESS AND PREVENTION

[40 CFR 270.14 (b)(6) and (b)(9)]

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ATTACHMENT 1.E – PREPAREDNESS AND PREVENTION

1.0 PREPAREDNESS AND PREVENTION [40 CFR 270.14 (b)(8)]

The HWSF is designed, constructed, operated, and maintained in a manner to minimize the possibility of fire, explosion or any unplanned sudden or non-sudden releases of hazardous waste or hazardous waste constituents to the environment. This section addresses the appropriate subject areas of 40 CFR 270.14, 264 Subpart C and the corresponding DEQ requirements for the prevention of hazards at the HWSF.

1.1 Equipment Requirements [40 CFR 264.32]

The HWSF is equipped with the emergency response, spill control, and decontamination equipment to respond to a fire, explosion or unplanned release of hazardous waste. This equipment consists of internal and external communication capabilities: alarm system equipment, portable fire extinguishers, fire control equipment, spill control equipment, decontamination equipment and access to an adequate water supply volume and pressure to supply water hose streams or foam producing equipment.

1.1.1 Internal Communication

Personnel within the HWSF carry two-way radios at all times or implement the buddy system. In the event of an emergency, the HWSF personnel will report the emergency by pulling the fire alarm, using two-way radios, or via voice command with the administrative office. Personnel located at the administrative office under the authority of the Incident Command System will summon emergency assistance using a telephone system that can access assistance as outlined in Section 7 of this permit application.

1.1.2 External Communication

If necessary as determined by the Incident Commander, the Incident Commander or his/her designee will activate the Spill Prevention and Response Plan (Contingency Plan) to summon off-site assistance (e.g., local emergency response of fire departments, hospitals, etc.). See Section 7 of this permit application.

1.1.3 Emergency Equipment and Materials

There are portable dry chemical fire extinguishers stored at various convenient locations within the HWSF where a potential for fire hazards could exist, i.e., the flammable and reactive storage areas. Spill control equipment such as absorbers, shovels and brooms, overpack drums, and sodium bicarbonate are located in designated storage closets within the HWSF (see Section 7 of this permit application). Personnel decontamination equipment includes two eyewash/shower stations located within the HWSF building (Figure A1.E-1).

1.1.4 Water for Fire Control

A fire hydrant with adequate volume and pressure is available for the HWSF to combat non-chemical or non-electric fires. A fire hydrant is located within the compound near the front of Building #810. The fire hydrant has a static pressure of 60 psi, a residual pressure of approximately 50 psi and will produce approximately 1,057 gallons per minute (gpm).

1.2 Aisle Space Requirement [40 CFR 264.35]

A minimum of 10 feet of aisle space is maintained in the HWSF storage areas that require the use of a forklift for movement of pallets. A minimum of two feet of aisle space is maintained in all other areas of the HWSF where hazardous waste is stored. This allows the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment in the event of an emergency.

1.3 Preventative Procedures, Structures and Equipment

1.3.1 Unloading Operations

Unloading operations at the HWSF take place at Staging Area 101 which is located within the HWSF. Accidental spills during loading or unloading will be swept up or soaked up using an absorbent material and containerized.

1.3.2 Run On/Run Off [40 CFR 270.15 (a)(4)]

The HWSF building was built on a site graded such that it is slightly higher in elevation relative to the surrounding area, minimizing the possibility of run-on into the building. Run-on is further prevented by the building walls and berms. The HWSF is constructed so that all waste handling, including loading and unloading activities, will be conducted within the covered and diked building. Therefore, any waste that is spilled within the HWSF building will be contained and will not run-off or contact environmental media during routine operations. In the unlikely event of an emergency, the Tinker AFB Fire Department and responders will take necessary measures to contain any run-off that has the potential of being contaminated.

1.3.3 Water Supplies

The HWSF is operated in such a way that it should not release hazardous waste to environmental media. In the unlikely event that a release should occur, the release would be immediately cleaned up and/or contained. The operational practices of the HWSF protect surface water and groundwater supplies from contamination.

1.3.4 Equipment, Instruments and Power Failure

The HWSF relies on the local power company for power to light and ventilate the HWSF. Operations will be shut down when the power supply is interrupted. During a power outage, waste handling will cease, i.e., waste will not be removed or staged.

1.3.5 Personnel Protection Equipment

Personnel are required to wear protective clothing when exposure to waste could occur (e.g., sampling of drums and bulking). Only properly trained and authorized personnel can sample or open waste containers.

Level D personnel protective equipment (PPE), such as coveralls, gloves, chemical resistant disposable overboots, safety glasses or chemical splash goggles and face shields, are maintained and provided to personnel working at the HWSF. Emergency equipment is listed in Section 7.

1.3.6 Prevention of Releases to the Atmosphere

Hazardous wastes that are handled at the HWSF are in containers of 55 gallons or less. The containers remain closed at all times unless the waste must be sampled or transferred to a different container. Transfer of wastes will not be performed regularly. When necessary, it will be performed in the staging area away from sources of heat or ignition. Overpack drums are available for highly volatile waste that must be transferred to a different container. In this case, the waste may be left in its original container and then placed in the overpack drum. The potential of release to the atmosphere is considered minimal due to the small volumes of containers that will be opened or transferred. Waste transfer or handling will only be undertaken by authorized personnel.

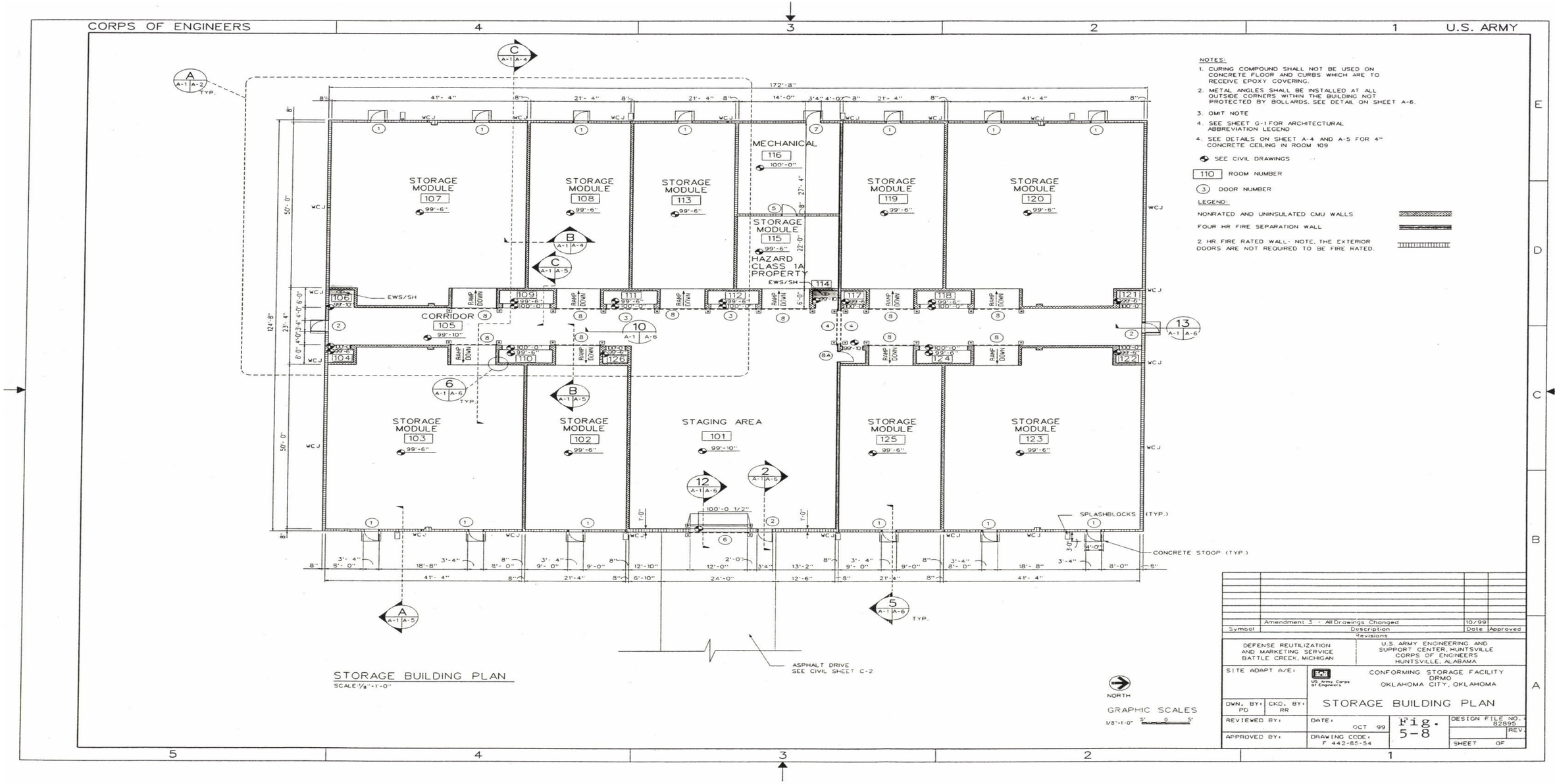

Figure A1.E-1 Building Plan

ATTACHMENT 1.F - CONTINGENCY PLAN

[40 CFR 270.14 (b)(7)]

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ATTACHMENT 1.F – CONTINGENCY PLAN

1.0 CONTINGENCY PLAN [40 CFR 270.14(b)(7)]

The Tinker Air Force Base (AFB) Contingency Plan is outlined in the OC-ALC Plan 19-2 Oil and Hazardous Spill Integrated Contingency Plan (September 2018) which includes the Spill Prevention Control and countermeasures Plan (Attachment A1.F-3 on CD following this section). This Plan is on file at the HWMF and other office where hazardous material spills could occur. A summary of the contingency Plan provisions is presented here. The specifics of this plan are subject to updating and revisions as needed, to address staffing and operational changes, and alterations of the Tinker AFB facilities.

1.1 EMERGENCY COORDINATOR/ON-SCENE INCIDENT COMMANDER (OC-ALC Plan 19.2) (September 2018)

Tinker AFB has identified the contacts listed in Table A1.F-1 as key base personnel and spill response team member who may be notified in the event of a discharge of a hazardous substance.

In the event of a spill, the person recognizing the spill will immediately call 911 and ask for the Tinker AFB Fire Department and will notify the activity supervisor. The Tinker AFB Fire Department will notify the Base Civil Engineer (who will act as the On-Scene Incident Commander [OSIC]), Civil Engineer Contractor Customer Service, and Asset Management Division. The OSIC will coordinate the spill response activities and take action to notify and assemble needed members of the spill response team. Asset Management Division will provide technical support to the OSIC.

Table A1.F-1: Key Base Personnel Facility Response Team Members
Tinker Air Force Base, Oklahoma

Personnel	Team	Phone Number
Colonel Mark Vitantonio Mission Support Group (MSG) Commander	Emergency Operations Center (EOC/QI) (Director)	(405) 739-3256
Lt. Col. Wesley Eagle Deputy Commander 72 MSG	EOC/QI (Alternate Director)	(405) 739-3256
Bill Ward Deputy Base Civil Engineer	EOC/QI (Director)	(405) 736-2319
Susan Blackmore	Environmental Management	(405) 734-4546
TSgt. Marcus Poluos	Bioenvironmental Engineering	(405) 582-6783
Diann Riter	Emergency Management	(405) 734-3515
TSgt. Robert Certeza	Security Forces	(405) 734-3737
Johnny Drew	Liquid Fuels Maintenance	(405) 734-6172
Capt. Josh Bates	Staff Judge Advocate/Legal Officer	(405) 739-8610
Kimberly Woodruff	Public Affairs	(405) 739-2035
Eric Hanninen	Ground Safety	(405) 739-3263
Terry Ford	Chief Incident Commander (IC)	(405) 734-7964

Asset Management Division Natural Infrastructure Branch Operations (72 ABW/CEANO) will notify the off-base agencies identified in Table A1.F-2, in the event of a discharge of hazardous substances. The organizations will be contacted in the order listed.

Table A1.F-2: Spill Notification List
Tinker Air Force Base, Oklahoma

Agency	Number
National Response Center (NRC)	(800) 424-8802
Oklahoma Department of Environmental Quality Hotline	(800) 522-0206
US EPA Region VI	(800) 887-6063

Spill Incident Report Internet System	EASI database
Oklahoma County Local Emergency Planning Committee (LEPC)	(405) 739-1386
Recommended Notifications	
Oklahoma City Dispatch Public Service	(405) 297-3430
Midwest City Communications Dispatch Center	(405) 732-2266
Del City Dispatch	(405) 677-3344
Defense Energy Support Center (for spills from bulk storage sites)	(703) 767-8420
US Fish and Wildlife Service	(405) 608-5251
Air Force Engineering Service Center	(904) 283-6167
Other Assistance	
Oklahoma City Emergency Operation Center	(405) 297-2255
US Fish and Wildlife Regional Spill Response Coordinator – Division of Endangered Species and Habitat Conservation	(505) 346-2525
US Fish and Wildlife – Field Spill Coordinator, Oklahoma Ecological Services Field Office	(918) 581-7458
National Weather Service	(405) 366-6583
Oklahoma Department of Health Emergency Preparedness and Response Service (EPRS)	(405) 271-0900
ODEQ Water Quality Division, Drinking Water	(405) 271-5205
Oklahoma Department of Wildlife Conservation	(405) 521-3851 (day) (405) 737-8692 (night)

Large spills that exceed the installation's capabilities will require support from a spill cleanup contractor or other outside support. Information on hazardous substances is available from the Chemical Transportation Emergency Center (800) 424-9300. Contact information regarding spill cleanup contractors at Tinker AFB is included in Table A1.F-3

Table A1.F-3 Spill Cleanup Contractor List
Tinker Air Force Base, Oklahoma

Entity	Phone number
Gryphon Environmental LLC	(405) 619-5744
72 ABW/CEO Environmental Office (Base Response Resources)	(405) 734-1150
US Navy Supervisor of Salvage (SUPSALV)	(202) 781-3889

1.2 EMERGENCY EQUIPMENT

Table A1.F-4 Emergency Response Equipment List
Tinker Air Force Base, Oklahoma

Item	Location	Responsible organization
Ford Tanker (1,600 gallons)	B62516	Gryphon Environmental
GMC Tanker (1,400 gallons)	B62516	Gryphon Environmental
L800 Vactor (1,000 gallons)	B62516	Gryphon Environmental
Tanker (1,600 gallons)	B62516	Gryphon Environmental
L8000 Tanker (2,600 gallons)	B62516	Gryphon Environmental
Ford F-350 Small Tanker (600 gallons)	B62516	Gryphon Environmental
International Tanker (3,300 gallons)	B62516	Gryphon Environmental
International Tanker (3,300 gallons)	B62516	Gryphon Environmental
International Tanker (5,500 gallons)	B62516	Gryphon Environmental
Frac Tanks (20,000 gallons)	B62516	Gryphon Environmental
Roll-Off boxes (5,000 gallons)	B62516	Gryphon Environmental

Emergency Equipment at the HWSF (B810) includes:

- Fire extinguisher
- Portable fire extinguishers (ABC)
- Portable fire extinguisher (D)
- Shovel
- Containment drum for spill residue
- Absorbent material
- Broom and dustpan
- Recovery drum
- Personal safety equipment: goggles, gloves, full-length apron, boots and respirator

1.3 EVACUATION

The HWSF B810 map is provided in Figure A1-F-1.

1.4 INITIAL SPILL RESPONSE PROCEDURES

Appendix A1.F-1 is the current Contingency Plan for Tinker Air Force Base. This Plan outlines the initial spill response procedures and evaluation routes for the facility.

1.5 REQUIRED REPORTS [40 FR 264.56(i)]

The emergency Coordinator will ensure that the incident reporting requirement identified in the basic plan portion of OC-ALC Plan 19-2 are completed. The coordinator will ensure that the emergency and post-emergency notifications outlined in 40 CFR 264.56 are met. Records of the incidents including initial spill response records will be maintained in the operating record at the facility until closure. Implementation of the contingency plan will be documented in the Tinker command Post log, the Tinker AFB Fire Department log, and the Base Civil Engineer incident log. Also, within 15 days a report will be submitted as required by 40 CFR 264.56(i).

1.6 EMERGENCY COORDINATION [40 CFR 264.37]

Tinker AFB has signed mutual assistance agreements with the Fire Department of the City of Oklahoma City, City of Midwest City, and City of Del City. For medial and ambulance assistance, Tinker AFB has access to a base clinic as well as hospitals and other facilities in the regional area through an arrangement with the Veteran's Affairs Medical Center in Oklahoma City. For support in incidents involving explosive ordinance, agreements have been made with the 61st Ordinance Detachment at Ft. Sill, McAlester Army Ammunition Depot, and with the Oklahoma County Sheriff's Department. Copies of these mutual aid agreements are in Appendix A1.F-2.

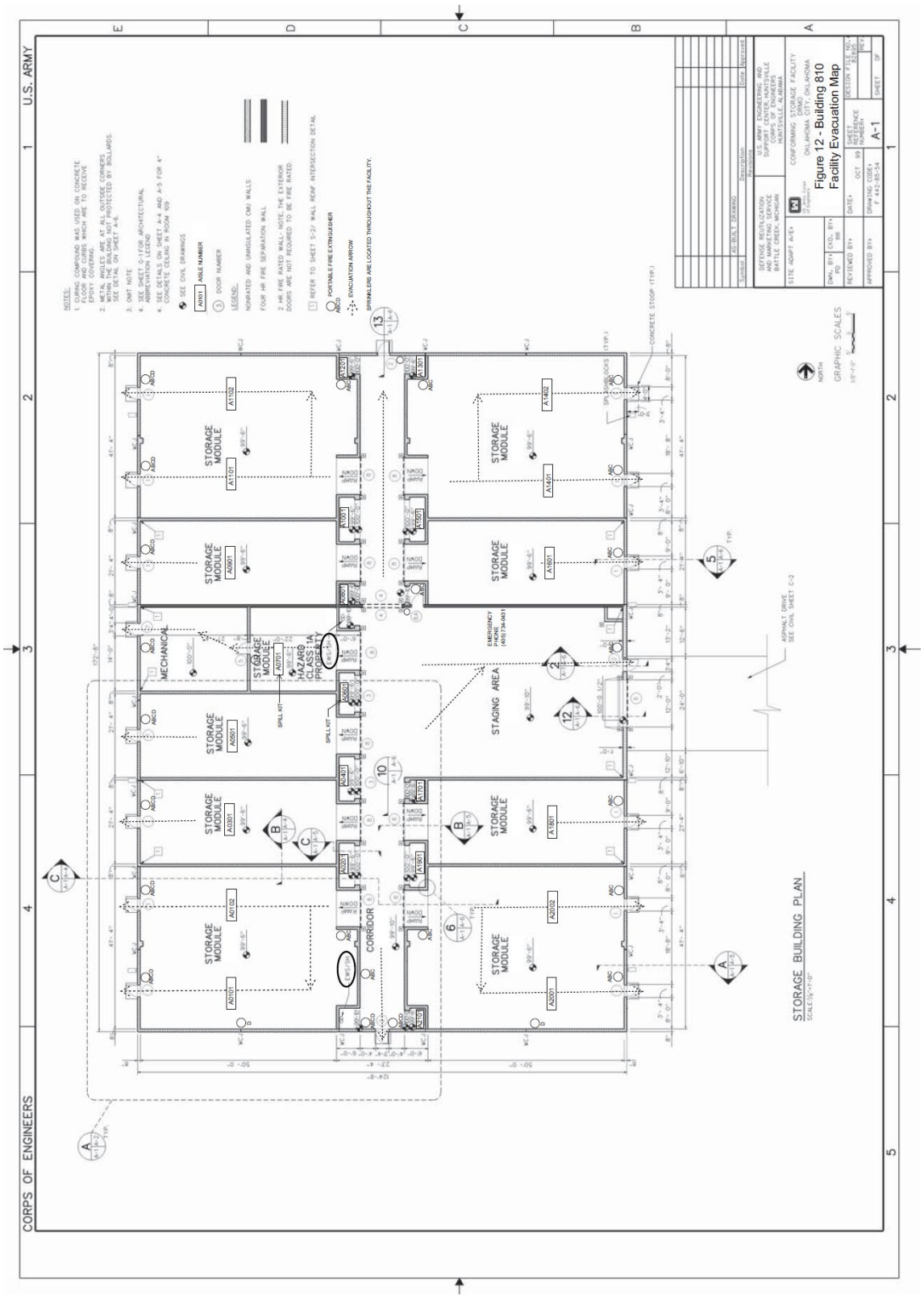

Figure A1.F-1: Building 810 Evacuation Routes

APPENDIX A1.F-1: CONTINGENCY PLAN FOR BUILDING 810 HWSF (CD)

Buildings 810, Hazardous Waste Storage Facility

CONTACT INFORMATION: This shop may be reached by contacting the Hazardous Waste Program Manager at 734-3278, or the HWMF front desk at 734-3285.The contacts may also be notified to obtain a current inventory list.

PURPOSE: This Appendix describes the potential for a spill or discharge associated with this shop and the procedures and prevention measures to be taken to prevent and contain a spill to the maximum extent possible.

GENERAL: The HWSF is utilized to store hazardous wastes generated by Base activities prior to off-site management and also stores hazardous materials. The inventory has a high turnover and Hazardous Waste Program personnel should be contacted to determine the current inventory when needed.

Emergency Response Procedures – In the event of a spill or discharge, the person recognizing the spill shall immediately call 911 asking for Tinker AFB Fire Department and notify the activity supervisor.

The following emergency actions will be taken to the maximum extent possible and, if safe to do so, with the help of other available personnel.

- Stop the Product Flow: Stop transfers, secure pumps, close valves, etc.
- Warn Personnel: Sound alarm, enforce safety/security measures, make site off-limits to unauthorized personnel; initiate evacuation if necessary.
- Secure Ignition Sources: Shut off motors, secure electrical circuits, and extinguish open flames.
- Initiate Containment: Secure drain valves or block drains, deploy absorbent materials, oil boom, or other containment equipment where possible.
- Make Notifications: If not yet contacted, call 911 asking for Tinker AFB Fire Department, the Hazardous Waste Program Manager at 724-3278, HWMF personnel at 734-3285, the activity supervisor and any other installation offices as necessary or as directed.
    - When notifying the Tinker AFB Fire Department, provide as much information about the incident as possible, including the following:
        - Name and contact number for facility

- Date and time of incident
- Location and source of spill
- Substance spilled
- Amount spilled and rate of discharge
- Any damages or injuries involved
- Extent of area impacted
- Potential hazards
- Actions taken
- Organizations which have already been contacted

Special Precautionary Measures - Proper safety equipment shall be worn when handling hazardous substance as prescribed by DRMS-M 6050.1, Chapter 8, Section V, Chemical handling Procedures.

Probable Spill Route - Spills that breach containment and of sufficient quantity will flow to storm drains with runoff leaving Tinker AFB at Outfall A2 as described in the SWPPP.

Evacuation Plan - The signal to begin evacuation will be by voice command as initiated by the person discovering the spill or appropriate supervisor.

Containment and Countermeasures

- If possible, spill will be contained by creating dikes using absorbent material.
- Small spill cleanup of material or waste shall be performed by Tinker AFB personnel, once material/waste is determined to be a level D cleanup by the appropriate office.

Posting Requirements - This site-specific contingency plan shall be posted in a prominent place in Buildings 810, with the responsible organization's supervisor and the site monitor.

APPENDIX A1.F-2: CONTINGENCY AGREEMENTS WITH LOCAL INSTITUTIONS

AGREEMENT FOR MUTUAL AID IN FIRE PROTECTION AND HAZARDOUS MATERIALS INCIDENT RESPONSE

This agreement, entered into this 1st day of May 2009, between the Secretary of the Air Force acting pursuant to the authority of 42 U.S.C. 1856a and the City of Choctaw, Oklahoma is securing to each the benefits of mutual aid in fire prevention and hazardous materials incident response, in the protection of life and property from fire, hazardous materials incident and in fire fighting.

It is agreed that:

a. On request to a representative of the Tinker Air Force Base Fire Department by a representative of the City of Choctaw Fire Department, fire fighting equipment and personnel of the Tinker Air Force Base Fire Department will be dispatched to any point within the area for which the City of Choctaw Fire Department, normally provides fire protection or hazardous materials incident response as designated by the representatives of the City of Choctaw Fire Department.

b. On request to a representative of the City of Choctaw Fire Department by a representative of the Tinker Air Force Base Fire Department, fire fighting equipment or hazardous materials incident response and personnel of the City of Choctaw Fire Department will be dispatched to any point within the fire fighting or hazardous materials incident response jurisdiction of the Tinker Air Force Base Fire Department as designated by the representative of the Tinker Air Force Base Fire Department.

c. Any dispatch of equipment and personnel pursuant to this agreement is subject to the following conditions:

(1) Any request for aid hereunder shall include a statement of the amount and type of equipment and personnel requested and shall specify the location to which the equipment and personnel are to be dispatched, but the amount and type of equipment and the number of personnel to be furnished shall be determined by a representative of the responding organization.

(2) The responding organization shall report to the officer in charge of the requesting organization at the location to which the equipment is dispatched, and shall be subject to the orders of that official.

(3) A responding organization shall be released by the requesting organization when the services of the responding organization are no longer required or when the responding organization is needed within the area for which it normally provides fire protection.

(4) In the event of a crash of an aircraft owned or operated by the United States or military aircraft of any foreign nation within the area for

which the City of Choctaw Fire Department normally provides fire protection, the chief of the Tinker Air Force Base Fire Department or his or her representative may assume full command on arrival at the scene of the crash.

(5) Where local agencies do not assign an incident safety officer, an Air Force representative will be assigned to act as the incident safety officer for Tinker Air Force Base to observe Air Force operations.

d. The City of Choctaw Fire Department may claim reimbursement for the direct expenses and losses that are additional fire fighting or hazardous materials incident costs above the normal operating costs incurred while fighting a fire or hazardous materials incident response under this agreement as provided in 44 CFR Part 151, *Reimbursement for Costs of Fire Fighting on Federal Property*

e. Both parties agree to implement the National Incident Management System during all emergency responses on and off installations in accordance with NFPA 1561.

f. Each party waives all claims against every other party for compensation for any loss, damage, personal injury, or death occurring as a consequence of the performance of this agreement. This provision does not waive any right of reimbursement pursuant to paragraph d above.

g. All equipment used by the City of Choctaw Fire Department in carrying out this agreement will, at the time of action hereunder, be owned by it; and all personnel acting for City of Choctaw Fire Department under this agreement will, at the time of such action, be an employee or volunteer member of the City of Choctaw Fire Department.

For City of Choctaw Fire Department;

For the Secretary of the Air Force

ALLEN J. JAMERSON, Colonel, USAF
Commander, 72nd Air Base Wing

AGREEMENT FOR MUTUAL AID IN FIRE PROTECTION AND HAZARDOUS MATERIALS INCIDENT RESPONSE

This agreement, entered into this 10th day of August 2010, between the Secretary of the Air Force acting pursuant to the authority of 42 U.S.C. 1856a and the City of Del City Fire Department is securing to each the benefits of mutual aid in fire prevention and hazardous materials incident response, in the protection of life and property from fire, hazardous materials incident and in fire fighting. It is agreed that:

1) On request to a representative of the Tinker Air Force Base Fire Department by a representative of the Del City Fire Department, firefighting equipment and personnel of the Tinker Air Force Base Fire Department will be dispatched to any point within the area for which the Del City Fire Department normally provides fire protection or hazardous materials incident response as designated by the representatives of the Del City Fire Department.

2) On request to a representative of the Del City Fire Department by a representative of the Tinker Air Force Base Fire Department fire department, firefighting equipment or hazardous materials incident response and personnel of the Del City Fire Department will be dispatched to any point within the fire fighting or hazardous materials incident response jurisdiction of the Tinker Air Force Base Fire Department fire department as designated by the representative of the Tinker Air Force Base Fire Department fire department.

3) Any dispatch of equipment and personnel pursuant to this Agreement is subject to the following conditions:

   a) Any request for aid hereunder shall include a statement of the amount and type of equipment and personnel requested and shall specify the location to which the equipment and personnel are to be dispatched, but the amount and type of equipment and the number of personnel to be furnished shall be determined by a representative of the responding organization.

   b) The responding organization shall report to the officer in charge of the requesting organization at the location to which the equipment is dispatched and shall be subject to the orders of that official.

   c) A responding organization shall be released by the requesting organization when the services of the responding organization are no longer required or when the responding organization is needed within the area for which it normally provides fire protection.

   d) In the event of a crash of an aircraft owned or operated by the United States or military aircraft of any foreign nation within the area for which the Del City Fire Department normally provides fire protection, the chief of the Tinker Air Force Base Fire Department fire department or his or her representative may assume full command on arrival at the scene of the crash.

   e) Where local agencies do not assign an incident safety officer, an Air Force representative will be assigned to act as the incident safety officer for Tinker Air Force Base Fire Department to observe Air Force operations.

4) The City of Del City Fire Department may claim reimbursement for the direct expenses and losses that are additional fire fighting or hazardous materials incident costs above the normal operating costs incurred while fighting a fire or hazardous materials incident response under this Agreement as provided in 44 CFR Part 151, (*Reimbursement for Costs of Fire Fighting on Federal Property*).

5) Both parties agree to implement the National Incident Management System during all emergency responses on and off installations in accordance with NFPA 1561.

6) Each party waives all claims against every other party for compensation for any loss, damage, personal injury or death occurring as a consequence of the performance of this Agreement. This provision does not waive any right of reimbursement pursuant to paragraph (d) above.

7) All equipment used by Del City Fire Department in carrying out this Agreement will, at the time of action hereunder, be owned by it; and all personnel acting for Del City Fire Department under this Agreement will, at the time of such action, be an employee or volunteer member of the City of Del City Fire Department.

For The City of Del City Fire Department

For the Secretary of the Air Force

ROBERT D. LABRUTTA, Colonel, USAF
Commander, 72d Air Base Wing

AGREEMENT FOR MUTUAL AID IN FIRE PROTECTION AND HAZARDOUS MATERIALS INCIDENT RESPONSE

This agreement, entered into this 1st day of May 2009, between the Secretary of the Air Force acting pursuant to the authority of 42 U.S.C. 1856a and the City of Midwest City, Oklahoma is securing to each the benefits of mutual aid in fire prevention and hazardous materials incident response, in the protection of life and property from fire, hazardous materials incident and in fire fighting.

It is agreed that:

a. On request to a representative of the Tinker Air Force Base Fire Department by a representative of the City of Midwest City Fire Department, fire fighting equipment and personnel of the Tinker Air Force Base Fire Department will be dispatched to any point within the area for which the City of Midwest City Fire Department, normally provides fire protection or hazardous materials incident response as designated by the representatives of the City of Midwest City Fire Department.

b. On request to a representative of the City of Midwest City Fire Department by a representative of the Tinker Air Force Base Fire Department, fire fighting equipment or hazardous materials incident response and personnel of the City of Midwest City Fire Department will be dispatched to any point within the fire fighting or hazardous materials incident response jurisdiction of the Tinker Air Force Base Fire Department as designated by the representative of the Tinker Air Force Base Fire Department.

c. Any dispatch of equipment and personnel pursuant to this agreement is subject to the following conditions:

(1) Any request for aid hereunder shall include a statement of the amount and type of equipment and personnel requested and shall specify the location to which the equipment and personnel are to be dispatched, but the amount and type of equipment and the number of personnel to be furnished shall be determined by a representative of the responding organization.

(2) The responding organization shall report to the officer in charge of the requesting organization at the location to which the equipment is dispatched, and shall be subject to the orders of that official.

(3) A responding organization shall be released by the requesting organization when the services of the responding organization are no longer required or when the responding organization is needed within the area for which it normally provides fire protection.

(4) In the event of a crash of an aircraft owned or operated by the United States or military aircraft of any foreign nation within the area for which the City of Midwest City Fire Department normally provides fire protection, the chief of the Tinker Air Force Base Fire Department or his or her representative may assume full command on arrival at the scene of the crash.

(5) Where local agencies do not assign an incident safety officer, an Air Force representative will be assigned to act as the incident safety officer for Tinker Air Force Base to observe Air Force operations.

d. The City of Midwest City Fire Department may claim reimbursement for the direct expenses and losses that are additional fire fighting or hazardous materials incident costs above the normal operating costs incurred while fighting a fire or hazardous materials incident response under this agreement as provided in 44 CFR Part 151, *Reimbursement for Costs of Fire Fighting on Federal Property*

e. Both parties agree to implement the National Incident Management System during all emergency responses on and off installations in accordance with NFPA 1561.

f. Each party waives all claims against every other party for compensation for any loss, damage, personal injury, or death occurring as a consequence of the performance of this agreement. This provision does not waive any right of reimbursement pursuant to paragraph d above.

g. All equipment used by the City of Midwest City Fire Department in carrying out this agreement will, at the time of action hereunder, be owned by it; and all personnel acting for City of Midwest City Fire Department under this agreement will, at the time of such action, be an employee or volunteer member of the City of Midwest City Fire Department.

For City of Midwest City Fire Department;

Ronnie Allen, Fire Chief

W. D. Bath, Director of Emergency operations.

For the Secretary of the Air Force

ALLEN J. JAMERSON, Colonel, USAF
Commander, 72nd Air Base Wing

AGREEMENT FOR MUTUAL AID IN FIRE PROTECTION AND HAZARDOUS MATERIALS INCIDENT RESPONSE

This Agreement, entered into this 1st day of September 2010, between the Secretary of the Air Force acting pursuant to the authority of 42 U.S.C. 1856(a) and the City of Oklahoma City Fire Department is securing to each the benefits of mutual aid in fire prevention and hazardous materials incident response, in the protection of life and property from fire, hazardous materials incident and in fire fighting. The duration of this contract shall be effective on 1 September 2010 and continue until 31 August 2020, and will be reviewed on a yearly basis, but will be subject to renewal every ten years. It is agreed that:

a. On request to a representative of the Tinker Air Force Base Fire Department by a representative of the Oklahoma City Fire Department, firefighting equipment and personnel of the Tinker Air Force Base Fire Department will be dispatched to any point within the area for which the Oklahoma City Fire Department normally provides fire protection or hazardous materials incident response as designated by the representatives of the Oklahoma City Fire Department.

b. On request to a representative of the Oklahoma City Fire Department by a representative of the Tinker Air Force Base Fire Department, firefighting equipment or hazardous materials incident response and personnel of the Oklahoma City Fire Department will be dispatched to any point within the fire fighting or hazardous materials incident response jurisdiction of the Tinker Air Force Base Fire Department as designated by the representative of the Tinker Air Force Base Fire Department.

c. Any dispatch of equipment and personnel pursuant to this Agreement is subject to the following conditions:

   (1) Any request for aid hereunder shall include a statement of the amount and type of equipment and personnel requested and shall specify the location to which the equipment and personnel are to be dispatched, but the amount and type of equipment and the number of personnel to be furnished shall be determined by a representative of the responding organization.

   (2) The responding organization shall report to the officer in charge of the requesting organization at the location to which the equipment is dispatched, and shall be subject to the orders of that official.

   (3) A responding organization shall be released by the requesting organization when the services of the responding organization are no longer required or when the responding organization is needed within the area for which it normally provides fire protection.

   (4) In the event of a crash of an aircraft owned or operated by the United States or military aircraft of any foreign nation within the area for which the Oklahoma City Fire Department normally provides fire protection, the chief of the Tinker Air Force Base Fire Department or his or her representative may assume full command on arrival at the scene of the crash.

(5) Where local agencies do not assign an incident safety officer, an Air Force representative will be assigned to act as the incident safety officer for Tinker Air Force Base Fire Department to observe Air Force operations.

d. The City of Oklahoma City Fire Department may claim reimbursement for the direct expenses and losses that are additional fire fighting or hazardous materials incident costs above the normal operating costs incurred while fighting a fire or hazardous materials incident response under this Agreement as provided in 44 CFR Part 151, *Reimbursement for Costs of Fire Fighting on Federal Property.*

e. Both parties agree to implement the National Incident Management System during all emergency responses on and off installations in accordance with NFPA 1561.

f. Each party waives all claims against every other party for compensation for any loss, damage, personal injury, or death occurring as a consequence of the performance of this Agreement. This provision does not waive any right of reimbursement pursuant to paragraph (d) above.

g. All equipment used by Oklahoma City Fire Department in carrying out this Agreement will, at the time of action hereunder, be owned by it; and all personnel acting for Oklahoma City Fire Department under this Agreement will, at the time of such action, be an employee or volunteer member of the City of Oklahoma City Fire Department.

For The City of Oklahoma City Fire Department

For the Secretary of the Air Force

ROBERT D. LABRUTTA, Colonel, USAF
Commander, 72d Air Base Wing

APPROVED by the City Council and **SIGNED** by the Mayor of The City of Oklahoma City this **14TH** day of **September**, 2010.

THE CITY OF OKLAHOMA CITY

VICE MAYOR

ATTEST:

CITY CLERK

SEAL OF THE CITY OF OKLAHOMA CITY

REVIEWED for form and legality.

ASSISTANT MUNICIPAL COUNSELOR

ATTACHMENT 1.G - TRAFFIC

[40 CFR 270.14 (b)(10)]

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ATTACHMENT 1.G – TRAFFIC

1.0 TRAFFIC/ACCESS [40 CFR 270.14 (b)(19)]

1.1 ROUTES

The primary route for the transportation of hazardous waste generated at Tinker AFB into the HWSF compound is through a gate located along the east side of the compound, which provides access from the HWMF Building #809.

Hazardous waste transported from other DOD facilities enter the Tinker AFB through Gate 34 (SE 59th and S. Air Depot Road) then travel east on Patrol Road to the HWSF (see the Location Map with buildings #809 and #810, Figure A1.G-1). Hazardous waste transported from Tinker AFB for re-utilization, transfer, donate, or sale (RTDS) or disposal may exit the HWSF compound and travel west on Patrol Road and depart Tinker AFB through Gate 34. Vehicles transporting hazardous waste to and from Tinker AFB will utilize Tinker AFB's Gate 34 and access the southern interstate highway system by traveling on Air Depot Boulevard, past southeast of 74th Street, at the railroad overpass, to I-240, or the northern interstate highway system by traveling on Southeast 59th Street to Sooner Road and Sooner Road to I-40. (See Regional Map with Highways, Figure A1.G-2)

1.2 TRAFFIC CONTROL [40 CFR 270.14 (b)(10)]

Traffic controls along the access routes consist of traffic signal lights at the intersections of the following: Southeast 59th Street and Air Depot Boulevard, Southeast 59th Street and Sooner Road, Southeast 74th Street and Air Depot Boulevard, on Air Depot Boulevard between Southeast 59th Street and Southeast 74th Street by Building #9001, at the Sooner Road gate south of 29th Street, Sooner Road and I-40, and Southeast 29th Street and Sooner Road. All other major intersections are controlled by stop signs or traffic signals.

1.2.1 ROAD SURFACING/LOAD BEARING CAPACITY

[40 CFR 270.14 (b)(10)]

All of the off-base streets that will be used for the transportation of hazardous waste are asphalt or concrete surfaces meeting DOT roadway design standards. The quantitative load bearing capacity of the off-base streets is not known, but the streets are approved for three-axle vehicle and five-axle vehicle capacities of up to 54,000 pounds and 80,000 pounds, respectively.

Tinker AFB location of Buildings 809 (HWMF) & 810 (HWSF)

Figure A1.G-1 Location of Buildings 809 and 810

Figure A1.G-2: Regional Map with Highways

ATACHMENT 1.H – PERSONNEL TRAINING

[40 CFR 270.14 (b)(12)]

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ATTACHMENT 1.H PERSONNEL TRAINING

1.0 PERSONNEL TRAINING PLAN [40 CFR 270.14(b)(12)]

Training requirements, as mandated by AFI 32-7042 *Waste Management* dated November 7, 2014 states "All personnel whose work involves HW and their immediate supervisors, must receive and successfully complete HW training appropriate to their job responsibilities."

1.1 General Roles and Responsibilities [Chapter 4 of the HWMP]

Industrial Training Branch (72 FSS/FSDT) will:

Provide initial and annual training classes for all persons involved in hazardous waste management and their direct supervisors, enabling them to perform their duties in a manner that meets Federal, State, DoD, Air Force, local statutes, regulations and requirements. EPA requirements are outlined in 40 CFR 264.16 for permitted management sites. Hazardous waste generators are include by reference at 40 CFT 262.34(a)(4). The following elements of training are required:

- Introduction to the Resource Conservation and Recovery Act
- Identification of Hazardous Waste
- Accumulation Point Management
- Container use, marking and labeling and on-base transportation
- Waste Turn-In Procedures
- Manifesting and off-base Transportation of Hazardous Waste
- Spill Prevention and Emergency Response
- Waste reduction
- Personnel safety and health and fire safety

Provide instructors who have attended formal instruction that in the initial phase acquaints the student with the details of the RCRA regulations in 40 CFR 260 through 279; applicable State Laws and regulations; DoD, Air Force and local requirements and in annual refresher classes, updates the student on changes to those rules. Instructor's training must give priority to using HAF-approved HW education/training sources such as AFIT Civil Engineer School HW Course WENV 521 and WESS 010 HW Accumulation Satellite seminar, and the Air Force HW web-based training available from AFCEC.

1.2 Training [Chapter 5 of the HWMP]

HW awareness training is provided to satisfy regulatory requirements and needs.

Personnel involved in hazardous waste management at Tinker AFB must complete a program of instruction that enables them to perform their duties in a manner that meets Federal, State, DoD, Air Force and local laws, regulations and requirements. EPA requirements are outlined in 40 CFR 264.16 for permitted management sites. Hazardous waste generators are included by reference at 40 CFR 262.34(a)(4).

All personnel who work involves hazardous waste as well as their immediate supervisors must receive and successfully complete hazardous waste training appropriate to their job responsibilities. Training will occur within three months of an employee's arrival or assignment to HW-related duties. Until the employee has received the appropriate HW training, the employee may only handle HW under the supervision of a HW trained individual. Supervisors and personnel must also complete annual refresher training. Those working at TSDFs and cleanup sites also need to adhere to Occupational Safety and Health Administration (OSHA) Hazardous Waste Operations and Emergency Response (HAZWHOPER) requirements.

1.3 Recordkeeping and Reporting [Chapter 6 of the HWMP]

Training requirements for Tinker AFB personnel are documented in the Tinker AFB Attachment A1.B-1 Waste Analysis Plan for Hazardous Waste Management, HWMP (March 2019). Job descriptions and training records for HWSF employees are maintained at the HWMF Administration Building #808. DEQ requirements are outlined in 40 CFR 264.16 for HWSF workers and staff managers, and 40 CFR 264.34 for a less than 90-day storage facility (i.e., the HWMF) and other generator accumulation areas. The HW Manager, or other designated personnel, generate needed reports from EESOH-MIS.

1.3.1 Personnel Records:

- Supervisors shall maintain job descriptions and training records for their employees. The supervisors shall maintain a tracking list of personnel who need training for their organization. The supervisor shall coordinate with their Unit Environmental Coordinators (UEC) on training.

- Records should at a minimum include student's name, job title, job description, previous HW training, dates of training, training provider and date of annual refresher course.

Training records must be maintained as long as the individual is associated with, or for three years after the individual is no longer working with, hazardous waste. The records may be kept in hard copy or electronic format.

ATTACHMENT 1.I - CLOSURE PLAN

[40 CFR 270.14 (b)(13)]

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ATTACHMENT 1.I - CLOSURE PLAN

1.0 CLOSURE PLAN [40 CFR 270.14 (b)(13)]

This section is submitted in accordance with the requirements of 40 CFR 270.14(b)(13), 264.110 through 264.115, and 264.178. This Plan identifies steps that will be necessary to completely close the hazardous waste management facility, located in Building #810 near the southwest corner of Tinker AFB, at the end of its intended operating life. A copy of the approved Closure Plan and all revisions to the plan will be maintained onsite. Revisions will be made whenever any modifications are made to the existing equipment, structures, instruments, or procedures related to the management of the facility. Revisions will be subject to DEQ's permit modification procedures.

1.1 Closure Performance Standard [40 CFR 264.111]

This Closure Plan is designed to ensure that the facility will not require further maintenance and controls, and to eliminate threats to human health and the environment upon completion of closure.

1.2 Partial Closure Activities

The need for partial closure activities is not anticipated over the life of the permit.

1.3 Maximum Waste Inventory [40 CFR 264.112 (b)(3)]

At a maximum, there will be 158,796 gallons of hazardous waste stored in containers at Building #810 at any one time during its operational life.

1.4 Inventory Disposal, Removal or Decontamination of Equipment

[40 CFR 264.112 (b)(4)]

Upon formal notification to proceed with facility closure, no additional hazardous waste will be accepted at the HWSF. Furthermore, all hazardous waste remaining in inventory will be removed in accordance with contractual agreements to permitted TSDFs or recycling site(s). If this process cannot be accomplished within 90 days after starting closure activity, the hazardous waste will be transferred to another DOD owned location with a valid approved TSDF permit. After the final inventory of waste has been removed, the hazardous waste storage facility will be inspected for loose items (i.e., paper, pallets, or empty containers. These items will be removed and disposed of properly).

Trained personnel wearing appropriate protective equipment (rubber gloves, rubber boots, and coveralls) will remove and clean-up all visible signs of contamination. The building (modules, closets, staging area, and other areas that stored hazardous waste or had the potential to come into direct contact with hazardous wastes or solid wastes) will be power washed or steam cleaned. Samples of the washwater will be analyzed for appropriate parameters to determine if

the washwater meets any definition of hazardous waste outlined in 40 CFR 261 Subparts C and D. If the analysis indicates that the washwater is hazardous, it will be collected in drums and disposed of as hazardous waste. If the analysis shows no evidence of contamination, the washwater will be discharged into the base's Industrial Wastewater Treatment Plant after approval has been received from DEQ. If DEQ does not give approval, the washwater will be collected in drums and transferred off-site to an approved disposal facility.

Unless the equipment will continue to be used at some new on-base HWSF, the equipment that has come into contact with hazardous waste will be decontaminated at closure, or shipped off-site to a permitted hazardous waste disposal site. Decontamination will be performed last in an enclosed area where washing, scrubbing or triple rinsing can be performed and the washwater collected.

The facility as a whole, along with each individual storage module and closet, is designed to prevent contamination of the surrounding soil if there is an accidental spill inside the building. If an accident occurs involving release of hazardous waste in or adjacent to the HWSF in such a quantity that cannot be safely handled by HWSF personnel, the Contingency Plan will be followed and any soil contamination will be thoroughly cleaned up.

The above procedures should ensure that no releases have occurred prior to closure. To test the possibility that releases could have occurred, soil samples will be taken around the HWSF and analyzed for the same parameters as the washwater. If preliminary results indicate contamination, further sampling may be conducted to identify the extent of contamination, assess risk, and determine if remedial action is required.

Facility decontamination procedures will be conducted by trained personnel. The services of these personnel will be obtained at the time of closure notification, under contractual procedures established by DOD. DOD will prescribe requirements for decontamination and will require the contractor to provide all necessary equipment and protective clothing. As appropriate, swipe tests could be performed to ensure proper decontamination.

1.5 Closure of Containers [40 CFR 264.112 (b)(4)]

Containers remaining at the time of facility closure (in the event that another HWSF does not exist at Tinker AFB) will be sealed and labeled prior to shipment in accordance with 40 CFR 262 and applicable DOT regulations. Manifests for container removal will be maintained by the Air Force in the event closure involves the whole of Tinker AFB. If closure merely involves relocating the HWSF on Tinker AFB, manifests will be maintained at the Directorate of Civil Engineering.

1.6 Schedule of Closure [40 CFR 264.112 (b)(6)]

Tinker AFB is an integral part of the Defense system of the United States. It is not anticipated that closure of the entire base will occur in the foreseeable future. However, an arbitrary future estimated closure date of 2050 is provided for the HWSF to meet regulatory requirements for closure plans. This corresponds to the default estimated life span for the HWSF building. It is

likely that the existing HWSF will be closed at the end of its useful life and a new facility constructed at a different location on Tinker AFB.

Notification of intent to close will be sent to the Executive Director of DEQ at least 45 days before beginning final closure. Upon receipt of the final volume of hazardous wastes, closure activities will be initiated. Table A1.I-1 below, presents an estimated schedule for closure which gives an estimate of the total time required to close the facility. The schedule may be affected by the terms of the Anti-Deficiency Act, 31 U.S.C. 1341. Any payment or obligation of funds in the absence of appropriated funds would be a violation of this act.

Final closure will be supervised and certified by an independent registered professional engineer. Within 60 days after completion of final closure, a certification that the facility has been closed will be submitted to DEQ.

1.7 Extensions for Closure Time [40 CFR 264.113]

No extension for closure time is anticipated. If, however, an extension would be necessary to properly close the facility, a petition will be sent amending the closure schedule listed in Table A1-I-1. This petition will demonstrate one or more of the following:

- The need for more than 90 days to remove all hazardous waste inventory, or more than 180 days to complete all closure activities.
- There is a reasonable likelihood that a person other than the owner/operator will recommence operation of the facility within one year.
- Closure would be incompatible with continued operation.
- Steps have and will be taken to prevent threats to human health and the environment from the unclosed but inactive facility.

Table A1.I-1: Estimated Closure Schedule

Activity	Elapsed Days
Receipt of final volume of hazardous waste	0
Conduct final drum inventory, inspect and repack drums (if needed), prepare waste manifest, prepare drums for shipment	1-15
Removal/disposal of final waste inventory	15-45
Solvent wash and decontamination of drum storage areas	45-50
Removal, manifesting and disposal of solvent washing	50-85
Soil sampling and analysis (if needed)	80-110
Removal, manifesting and disposal of contaminated soil (if needed)	110-140
Accounting of all waste shipment manifests	170
Completion of all closure activity and performance of closure inspection by a Professional Engineer	180
Submittal of closure certification	240