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INSTALLATION RESTORATION PROGRAM

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Preliminary Assessment Report for

Army Aviation Support Facility 2,
Installation 25075,
Westover Air Force Base,
Chicopee, Massachusetts

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Prepared by
Applied Geosciences and Environmental Management Section
Environmental Research Division
Argonne National Laboratory

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**Preliminary Assessment Report for
Army Aviation Support Facility 2,
Installation 25075,
Westover Air Force Base,
Chicopee, Massachusetts**

Prepared for

National Guard Bureau, Army Directorate
Aberdeen, Maryland

August 1993

Prepared by

Applied Geosciences and Environmental Management Section
Environmental Research Division
Argonne National Laboratory

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Notation

Acronyms

AASF	Army Aviation Support Facility
AFB	Air Force Base
AFRES	Air Force Reserve
ARNG	Army National Guard
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
EPA	U.S. Environmental Protection Agency
ESO	environmentally significant operation
IRP	Installation Restoration Program
MAARNG	Massachusetts Army National Guard
NGB	National Guard Bureau, Army Directorate
NPDES	National Pollutant Discharge Elimination System
PA	preliminary assessment
USGS	U.S. Geological Survey
UST	underground storage tank
WMDC	Westover Metropolitan Development Corporation

Units of Measure

ft	foot
gal	gallon
in.	inch
kn	knot
mi	mile

**Preliminary Assessment Report for
Army Aviation Support Facility 2,
Installation 25075,
Westover Air Force Base,
Chicopee, Massachusetts**

Summary

This report presents the results of the preliminary assessment (PA) conducted by Argonne National Laboratory at the Massachusetts Army National Guard (MAARNG) property known as the Army Aviation Support Facility 2 (AASF 2) near Chicopee, Massachusetts. Preliminary assessments of federal facilities are being conducted to compile the information necessary for completing preremedial activities and to provide a basis for establishing corrective actions in response to releases of hazardous substances. The principal objective of the PA is to characterize the site accurately and determine the need for further action by examining site activities, quantities of hazardous substances present, and potential pathways by which contamination could affect public health and the environment. This PA satisfies, for the AASF 2 property, phase I of the Department of Defense Installation Restoration Program (IRP). The scope of this assessment is limited to the facilities under the control of the MAARNG and the past activities contained within that area. Previous IRP assessments conducted by Westover Air Force Base (AFB) address environmental concerns of U.S. Air Force-controlled areas near the MAARNG property and may be used for additional information on remediation activities and contamination in the area.

The AASF 2 is a 10-acre site located in the western portion of Massachusetts, in the town of Chicopee, in the county of Hampden. The facilities included in this PA are Building 7400, adjacent paved areas, grassy areas, and the hazardous waste drum storage buildings. The environmentally significant operations (ESOs) associated with the property are (1) the waste drum storage area, (2) abandoned underground storage tanks (USTs), and (3) refueling activities.

The review of both historical and current practices at the property indicated that the AASF 2 property poses a low level of risk to human health or the environment. Although not necessarily waste sources under the IRP guidelines, Argonne's reviewers noted the following areas of concern which could result in the release of contaminants to the environment:

- The ramp heater contains antifreeze and has been known to leak to the pavement outside Building 7400.

- The 2,000-gal diesel fuel UST is no longer in use; however, it still contains product and creates the potential for a release to the environment.
- Near the leach field area, two standpipes, with liquid visible to the ground level line, come out of the ground on either side of a depressed area which may indicate the presence of an abandoned UST.
- To the north of Building 7400 are two "islands," each with two small standpipes set flush with the ground level; one set is located in the asphalt where fuel trucks are parked and is not capped; a corresponding set is located in the grass approximately 100 ft to the east and is capped; these pipes suggest the possible presence of abandoned USTs.
- The blowdown from the boilers, which contains potassium hydroxide descaler, is rinsed down a drain located in the boiler room; potassium hydroxide is a corrosive with label warnings to avoid public water supplies. Although it appears that Building 7400 is connected to the Chicopee sanitary sewer system, as evidenced by bills issued by Chicopee, it is not ascertainable from site plans if the boiler room drain is also connected or if it continues to drain to the old leach field.

As a result of the findings of this investigation, the following recommendations are offered

- Empty and remove the 2,000-gal diesel fuel UST because it is no longer in use.
- Investigate the two standpipes located near the leach field to the west of Building 7400 to determine if an underground tank is located there and should be removed.
- Investigate the two "islands" located to the north of Building 7400 to determine if underground tanks are present and should be emptied and removed.

- Determine if the drain from the boiler room or any other drains from Building 7450 drain to the leach field; and if so, ensure that no hazardous materials enter these drains, and investigate the leach field to determine if contamination exists.

1 Introduction

This document is a report of the preliminary assessment (PA) conducted by Argonne National Laboratory at the Massachusetts Army National Guard (MAARNG) property known as Army Aviation Support Facility 2 (AASF 2), located on Westover Air Force Base (AFB), Chicopee, Massachusetts.

1.1 Authority for the Preliminary Assessment

The National Guard Bureau, Army Directorate, has engaged Argonne to perform PAs of selected state Army National Guard (ARNG) properties. These assessments are being done in a manner consistent with both the Department of Defense Installation Restoration Program (IRP) and the U.S. Environmental Protection Agency's (EPA's) Potential Hazardous Waste Site Preliminary Assessment Guidance. Preliminary assessments of ARNG properties are conducted under the authority and direction of the IRP; the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or, more commonly, Superfund); and the Superfund Amendments and Reauthorization Act of 1986 (P.L. 99-499).

1.2 Objectives

This PA report is based on existing information from the MAARNG records that were made available to Argonne investigators and from other sources. Although this PA effort did not extend to the generation of new data, it nonetheless identifies areas where existing data are incomplete, unreliable, or ambiguous and recommends ways to address such shortcomings.

The objectives of the PA are to satisfy phase I of the IRP and to

- Identify and characterize the environmentally significant operations (ESOs),
- Identify property areas or ESOs that may require a site investigation,
- Identify ESOs or areas of environmental contamination that may require immediate removal,

- Identify properties for which no further action is needed, and
- Provide information sufficient to prescore the site with the EPA's PA Scoresheets (September 1991).

1.3 Procedures

The PA began with a review of NGB files located at MAARNG Headquarters at Camp Curtis Guild, Reading, Massachusetts, on April 19, 1993. A site visit was conducted on April 20, 1993, to obtain additional information through direct observation and interviews with personnel familiar with the property and its operations. In addition, interviews with personnel from the city of Chicopee (City Engineer, Health Department, and Water Department) were conducted on April 20, 1993. Other relevant information was obtained on April 23, 1993, in the Boston, Massachusetts offices of the Massachusetts Department of Environmental Management, Office of Water Resources, the Massachusetts Division of Fisheries and Wildlife, and the Massachusetts Department of Environmental Protection, Office of Planning and Program Management, Division of Water Supply. Telephone interviews were conducted with the water departments and city clerks of Ludlow, South Hadley, Holyoke, Granby, and Springfield, Massachusetts.

1.4 Report Format

This PA report presents a summary and evaluation of the data relevant to the PA for this property. Section 2 describes the property and its surrounding environment and land uses. Section 3 identifies and characterizes the ESOs at the site. Section 4 discusses known and suspected releases to the environment, and Section 5 discusses potential human and environmental receptors for such releases. Section 6 summarizes the findings and conclusions, discusses the quality and reliability of the supporting information, identifies areas requiring further action, and suggests how such actions can be accomplished. Section 7 lists pertinent materials reviewed. The Appendix contains interview information and lists the Argonne investigators.

2 Property Characterization

2.1 General Property Information

The property is a compound of approximately 10 acres located in the extreme southwest portion of Westover AFB, an active Air Force Reserve (AFRES) base commanded by the 439th Military Airlift Wing. Westover AFB is located in the town of Chicopee, Massachusetts. A map showing the general location for Westover AFB is provided in Figure 1. The location of the MAARNG AASF 2 facility is also designated in Figure 1. Table 1 provides pertinent information about AASF 2. The property on which AASF 2 is located was leased to the Westover Metropolitan Development Corporation (WMDC) in July 1985. The MAARNG occupies the property pursuant to a memorandum of understanding with WMDC dated July 1985. The memorandum covers Building 7400 and some office space in the basement of Building 7450 and extends until alternative facilities are completed for the MAARNG. The office areas have no ESOs and, therefore, are not discussed further in this report.

Since 1982, Westover AFB has had an active IRP to remediate potential sources of contamination resulting from past spills and waste disposal activities. These studies began with a Phase I Records Search and continued through Phase II Confirmation/Quantification, Field Investigations, Final Report Phase II Problem Confirmation Study, Phase I Limited Site Investigation, and a Final Remedial Investigations Report. Fifteen areas were identified as potential sources for contamination. Four of these are near Building 7400, including the Christmas Tree Fire Training Area, Incinerator Landfill B, the demineralizer waste leaching pit, and the former site of an incinerator. A PA was conducted for Westover AFB as a whole in 1991 (NUS Corp. 1991). The current PA is specific to those facilities under MAARNG control.

2.2 Description of Facilities

The only permanent facility located on the property is Building 7400. The AASF 2 serves as a helicopter maintenance facility for the 110th Air Cavalry Squadron and for other fixed-wing aircraft belonging to the MAARNG. Building 7400 contains offices, parts rooms, and maintenance hangars. There are eight bays in all. Bays 1, 2, 7, and 8 were added onto the original building in approximately 1960. Bays 1 and 2 are used for storage. Bays 3, 4, and 5 serve as classrooms, offices, and parts storage. Bays 6, 7, and 8 are operational maintenance bays. Only

FIGURE 1 General Location of AASF 2 (Sources: Chem-Nuclear Geotech, Inc. 1991; Engineering-Science 1988)

TABLE 1 Identifying Information for AASF 2, Westover AFB

Installation address	MAARNG Westover AASF 2 Westover Air Force Base Chicopee, Massachusetts
Property location	
Latitude	42°11'50" N
Longitude	72°33'49" W
County	Hampden
Township	Chicopee
FISP ^a installation number	25075
Commander	LTC William H. Smith, Jr.
Type of facility	Aircraft maintenance and repair hangar
License information	Property leased to WMDC in July 1985; occupied by MAARNG pursuant to memorandum of understanding with WMDC dated July 1985
Principal contact	State Environmental Manager MAARNG Headquarters Camp Curtis Guild 25 Haverhill Street Reading, Massachusetts (617) 944-0500 x 2525

^a Facility Inventory and Stationing Plan.

general engine maintenance takes place in these bays. No painting, sanding, or blasting is performed in Building 7400. Pertinent facility locations are shown in Figure 2. The only area where a potential exists for release of contaminants to the environment is within the vicinity of Building 7400. Under the terms of the lease agreement, MAARNG obtains potable water, sanitary sewer service, and electrical power from the city of Chicopee.

Hazardous wastes are collected in 55-gal drums stored in two enclosed portable buildings with built-in secondary containment located to the south of Building 7400. Liquid hazardous wastes include waste engine oils, synthetic turbine oils, fuels, and hydraulic fluid. Solid hazardous wastes include oily rags, cans, and filters. Waste degreasing solvents are managed through recycling under a contract between MAARNG and Safety-Kleen Corp. Six fuel tanker trucks (five 1,200-gal and one 2,500-gal) containing JP-4 fuel are parked on the asphalt north of Building 7400.

FIGURE 2 Site Plan of AASF 2 (Source: AFRES 1989)

In the past, oily wastes were stored on a grassy area to the west of the building parking area. Approximately 10-11 years ago, a drum leaked in the area, remedial action was taken, and the contaminated soil was removed and sent off-site as hazardous waste. The drum storage area was later moved to an area along the south wall of the building. There were no known releases at this site; however, in 1989, at the request of the Massachusetts Department of Environmental Quality, Western Region, the drums were moved inside bay 1 (except for the waste JP-4 because of fire hazard). The drum storage area was later moved to the current location, in two fabricated portable buildings located south of Building 7400.

Building 7400 is heated with steam generated in two boilers using No. 2 heating fuel. The heating fuel oil is stored in a 6,000-gal UST located to the west of the building. Another 2,000-gal UST is located next to the heating fuel tank. This tank contains approximately 600 gal of diesel fuel for a backup generator; however, the generator has not been used in some time.

2.3 Property History

Westover AFB, upon which the property is located, was activated in 1940 and served as a training center for fighter pilots, antisubmarine crews, and B-17, B-24, and B-26 bomber crews. In 1946, Westover was transferred to the Air Transport Command, which became the Military Air Transport Service in 1948. In 1955, the Strategic Air Command assumed control of the base. A custodian at AASF 2 said that from 1955 to 1956, Building 7400 was used to store armed aircraft, with no maintenance activity. No information exists concerning usage for the period from 1956 to 1974. In 1974, the base was deactivated and became the operating responsibility of the AFRES and is currently engaged in organizing, recruiting, and training U.S. Air Force reservists. The base maintains operationally ready aircraft, crews, and support personnel through the 439th Military Airlift Wing and directs, maintains, and supervises airfield activities through the 439th Combat Support Group. Building 7400 was not really used by the AFRES, and in approximately 1976, the building was transferred to the MAARNG for its present uses.

2.4 Permitting Status

The MAARNG holds a Hazardous Waste Small-Quantity Generator identification number (MAD045324357) from the Massachusetts Department of Environmental Quality. The MAARNG holds no water discharge permits but is included in Westover AFB for the Air Force group

National Pollutant Discharge Elimination System (NPDES) storm water permit application for the base. The MAARNG also holds no air emission permits.

2.5 Surrounding Environment and Land Use

2.5.1 Demographics and Land Use

The area surrounding AASF 2 is a mixture of rural, semirural, residential, and light industrial uses. The towns of Chicopee (population: 56,000), Ludlow (population: 3,424), Granby (population: 5,565), Springfield (population: 150,320), and South Hadley (population: 15,395) lie within a 4-mi radius of AASF 2. Immediately adjacent to the AASF 2 on the southwest is an industrial park, and on the southeast is Chicopee Memorial State Park. Westover AFB and the active runway lie to the north of AASF 2. Westover AFB has a working population of approximately 1,100. There is no military housing at Westover AFB. The AASF 2 itself has a daily working population of 35, with an increase of up to 100 for one weekend per month (Flis 1993).

2.5.2 Climate

The AASF 2 is located in the Connecticut River valley. Meteorologic data have been collected from the Westover AFB weather station since 1941. The average annual temperature is approximately 49°F. The average annual relative humidity is 69% (based on observations at 0400 and 1300 hours). Rainfall and snowfall average 37 and 49 in./yr, respectively. Total precipitation (rainfall plus snowfall) averages 42 in./yr. The prevailing winds are southerly in the summer and in the winter are northerly with a mean speed between 6 and 8 kn. The area may experience hurricane or tornado weather; however, in general, the region is partially sheltered from extremes of weather that occur west of the mountains. Storm systems moving northeast from the Gulf of Mexico or along the Atlantic coast and cold fronts and storms moving over the mountains from the west bring most of the precipitation for the region. In winter, arctic and polar air masses frequently bring snowstorms and very low temperatures. Storms traveling along the Atlantic coast also can bring heavy snowfall.

2.5.3 Surface Water and Physiography

The AASF 2 is located in the Connecticut River valley lowland subdivision of the New England Upland Physiographic Province. The topography of the area consists of bluffs trending north-south, which define the valley walls, and nearly level to gently sloping terraces that are associated with the Connecticut River drainage system. Elevations within Westover AFB are 220-260 ft above mean sea level. Ground surface elevation at the AASF 2 is about 230 ft above mean sea level.

The drainage system on Westover AFB consists of ditches, swales, and storm sewers which convey storm water runoff from the base into three different brooks: Cooley, Stony, and Willamansett. The drainage from AASF 2 is (1) into the storm sewer drains located to the northeast of the building and then through an oil/water separator at the outfall to Cooley Brook, (2) along the watershed to Cooley Brook (CH2M-Hill 1982), or (3) via a drainage swale located west of the building to Cooley Brook downstream of the Chicopee Reservoir.

The water quality of all surface water in the immediate area is designated by the Massachusetts Department of Environmental Quality as class B. Class B is defined as inland water suitable for bathing and other primary contact recreation; suitable for agricultural and certain industrial process cooling uses; suitable as an excellent fish and wildlife habitat; and excellent aesthetic value. Cooley Brook enters Chicopee Reservoir and from there eventually drains into the Chicopee River. The Chicopee Reservoir is located approximately 0.5 mi southeast of the AASF 2. The Chicopee River is located approximately 1.25 mi from AASF 2. The Chicopee River travels approximately 2.5 mi to where it drains into the Connecticut River. The Connecticut River is located approximately 3.5-4 mi west of AASF 2. There are no surface water intakes used for drinking water within 15 mi downstream of AASF 2. Surface waters near AASF 2 are shown on Figure 3.

Soils in the area are generally described as urban and disturbed. Previous investigations at Westover AFB described the soil as being of the Hinckley-Windsor association, friable, brown, loamy sand with subsoil composed of loose, single-grained, brown and/or yellowish-brown and gravelly loam or coarse/loamy sand.

2.5.4 Groundwater and Hydrogeology

2.5.4.1 Local Hydrogeology

There are several water-bearing aquifers in the area of AASF 2. Triassic bedrock shales and sandstones provide the most extensively tapped groundwater resource in the Connecticut Valley. In the western portion of the Connecticut River valley, including AASF 2, the crystalline bedrock is overlain by Triassic age rock of the Portland Formation, consisting primarily of sandstones, siltstones, and minor shales. Triassic bedrock surface elevations average 125-175 ft below the ground surface. The Triassic bedrock is overlain by Pleistocene glacial till deposits. Pleistocene till deposits vary considerably in thickness and composition through the valley but are usually less than 10 ft thick and are relatively impermeable.

Lake-bottom deposits, also of the Pleistocene era, overlie the till in most areas of the Connecticut River valley. In the central portion of the valley, these deposits are relatively continuous and average 80 ft in thickness. The lake-bottom deposits were produced when the Connecticut River valley was dammed by glacial drift near Rocky Hill, Connecticut, resulting in the formation of a glacial lake, Lake Hitchcock, which extended as far north as the Massachusetts-New Hampshire border. The lake-bottom deposits consist primarily of alternating thin layers (or varves) of silt and clay. The lake sediments are continuous and are nominally 80 ft thick in the central part of the Connecticut River valley but taper toward the valley walls. In the westernmost portion of the valley, including Westover AFB, the lake-bottom deposits are further overlain with poorly sorted coarse-grained sand and gravel alluvial terraces and deltas. Therefore, AASF 2 lies on such a delta.

Recent subsurface investigations at Westover AFB, associated with environmental restoration activities, have resulted in the development of the geologic cross section in Figure 4. This study area is approximately 2 mi north of AASF 2 but can be applied in general to the AASF 2 area. A well drilled at Building 1900 on Westover AFB, approximately 1.5 mi north of AASF 2, encountered sand and gravel down to 65 ft, lake-bottom deposits between 65 and 145 ft, till between 145 and 155 ft, and below that, the Triassic shale (CH2M-Hill 1982).

The three major hydrogeologic units at AASF 2 are the surface deltaic outwash aquifer, the lacustrine/till unit, which acts as an aquitard, and the Triassic bedrock aquifer. Previous

FIGURE 4 Geologic Cross Section (Source: Chem-Nuclear Geotech, Inc. 1991)

remediation studies of the Christmas Tree Fire Training Area located just south of AASF 2 determined that the saturated thickness of the unconfined glacial aquifer near AASF 2 is about 40 ft (Chem-Nuclear Geotech, Inc. 1991). The unconfined surficial aquifer is recharged by infiltration and runoff from rain and melting snow.

The varved lacustrine deposits and tightly packed till that underlie the surface deltaic outwash aquifer have low permeability. These units are considered effective aquitards at Westover AFB and separate the surface aquifer from the Triassic bedrock aquifer. The aquitard unit at Westover AFB consists of clays and glaciolacustrine silts and clays as much as 60 ft thick. These low-permeability units are not considered an important source of water. Given the thickness of these deposits below the unconfined aquifer and a low conductivity, the lacustrine varve and glacial till aquitard forms a significant restriction to the vertical flow of groundwater.

Groundwater occurs in the bedrock aquifer mainly in joints, fractures, and fault zones. Previous studies concluded that because of the aquitard below the unconfined glacial aquifer, it is unlikely that contaminants originating from Westover AFB could adversely impact the Triassic bedrock (Chem-Nuclear Geotech, Inc. 1991).

2.5.4.2 Local Groundwater Usage

Local communities within a 4-mi radius of AASF 2 include Chicopee, Ludlow, Granby, South Hadley, Holyoke, and Springfield, Massachusetts. Each community was contacted to determine the source of its population's water supply. Known private wells or areas where private wells are known to exist are shown on Figure 5.

In Chicopee, all municipal drinking water comes from the Quabbin Reservoir located approximately 15 mi from Westover AFB. The water is transferred to a holding reservoir on Nash Hill in Ludlow. According to a recently enacted ordinance (April 5, 1993), all wells in Chicopee must be registered with the Chicopee Water Department; however, only a fraction of the wells have been registered. The Chicopee Water Department serves virtually the entire population of Chicopee (56,000). Although thousands of private wells exist in Chicopee, they are to be used for irrigation and by law are not to be connected to the drinking water of a house served by the Chicopee drinking water system. The Water Department personnel estimated approximately 100-200 homes are solely served by private well water. These wells would probably be shallow

FIGURE 5 Drinking Water Wells and Well Areas (Sources: USGS 1975, 1979a,b,c; Ruszala 1993; Wilczynski 1993; Masiuk 1993)

(20-30 ft) gravel-packed wells. The nearest known private drinking water wells were identified by Water Department personnel and are shown on Figure 5 (Ruszala 1993).

The Chicopee Water Department indicated that it no longer takes water from the Chicopee River or the Connecticut River. Pumping stations on the Connecticut River are only for waste treatment, and the filtration plant south of Westover AFB is not in service.

In the town of Ludlow, 60% to 65% of the population is served by municipal water obtained from the Quabbin Reservoir. The remaining 35% to 40% of the population is served by private wells. The Board of Health now keeps track of new wells, but there is no requirement to register existing wells. The Board of Health personnel indicated that most of the homes served by private wells are in the eastern portion of Ludlow; however, private wells are located at residences on Holyoke Street, Nash Hill Road, Old West Street, and New West Street (Wilezynski 1993). These areas are shown on Figure 5.

The town of Granby does not have a municipal water system. Approximately 95% of the population obtains drinking water from private wells. The other 5% is either served by the South Hadley municipal water system (Amherst Road and New Ludlow Road) or from the Ludlow municipal water system (East Street). Most of the wells in Granby are artesian wells installed in the till layer or underlying the Triassic bedrock formation; however, a significant number of older homes in Granby may still have shallow, point-type wells installed in the near-surface sand and gravel aquifer (Masiuk 1993).

Granby has a wellhead protection area located between Chicopee Street, Carver Street, and Kendell Street. Town ordinances prevent well drilling there unless special criteria are met, including lot size limits. Granby has municipal wells drilled in this area; however, these wells are not in service. The town protects the area for the occasion when the municipal wells will be needed, at which time they could be put into operation. This area is outside the 4-mi radius area of AASF 2.

The town of South Hadley has two separate water departments, Fire District No. 1 and Fire District No. 2. The service territory of Fire District No. 2 is outside the 4-mi radius of AASF 2. Fire District No. 1 obtains its municipal water supply from Quabbin Reservoir. There are no municipal wells. Water Department personnel acknowledged that a few private wells exist; however, they are not registered or permitted (St. Martin 1993).

The city of Springfield obtains its municipal water supply from Cobble Mountain Reservoir located in Westfield, Massachusetts, more than 10 mi from Westover AFB. Springfield does not have municipal water wells and does not take municipal water supplies from the Connecticut or Chicopee rivers. To the knowledge of Water Department personnel, no private drinking water wells are located in Springfield (Turcotte 1993).

The town of Holyoke receives its municipal drinking water supplies from a spring-fed reservoir located in South Hampden, more than 4 mi from Westover AFB. Some private wells exist in the western sections of Holyoke; however, to the knowledge of Water Department personnel, no private drinking water wells are located in the areas of Holyoke along the Connecticut River (Judd 1993).

2.5.6 Sensitive Environments

Wetlands in the Chicopee Memorial State Park contain diverse species of hardwoods, as well as white pine and hemlock, and lie within 2 mi of AASF 2. A marsh along Stony Brook, outside the base boundary, consists of tall grasses, cattails, and sedges and is characteristic of wetlands under the Massachusetts Wetlands Protection Act (Chapter 131, Section 40, as amended [1979]). These marshes are barely within a 4-mi radius of Building 7400, and runoff from AASF 2 is in the opposite direction. Figure 3 shows the sensitive areas near and the watershed from Westover AFB.

Cooley Brook and Chicopee Reservoir both reportedly support trout, and both are considered to be natural brook-trout fisheries (Chem-Nuclear Geotech, Inc. 1991). In the lower section of Cooley Brook, below the Chicopee Reservoir, the Massachusetts Division of Fisheries and Game collected 14 fish species, including brook trout, largemouth bass, bluegill, and pumpkinseed (CH2M-Hill 1982).

A three-year study of Westover AFB, conducted as a part of their Fish and Wildlife Management Plan in conjunction with the Massachusetts Division of Fisheries and Wildlife and the U.S. Fish and Wildlife Service, identified the upland sandpiper (*Bartramia longicauda*) and the grasshopper sparrow (*Ammodramus savannarum*). The upland sandpiper is classified as "state endangered," and the grasshopper sparrow is classified as a "species of special concern" by the Massachusetts Division of Fisheries and Wildlife. Both species nest directly on the ground in low grasses. The upland sandpiper nests in the grasses along the airfield and at the antenna farm near

the north perimeter of the base. The territories of the grasshopper sparrow are also scattered throughout the airfield area and at the antenna farm (Orsillo and Melvin 1989). No indication was found that nesting activities took place on AASF 2.

3 Environmentally Significant Operations

The PA team from Argonne identified three ESOs at AASF 2: (1) the waste drum storage area; (2) possible abandoned USTs, and (3) refueling activities. Figure 6 shows the general locations of the ESOs.

3.1 Waste Drum Storage Area

In the past, oily wastes were stored on a grassy area to the west of the building parking area. Approximately 10-11 years ago, a drum leaked in the area, remedial action was taken, and the contaminated soil was removed and sent off-site as hazardous waste. The drum storage area was later moved to an area along the south wall of the building. There were no known releases at this site; however, in 1989, at the request of the Massachusetts Department of Environmental Quality, Western Region, the drums were moved inside bay 1 (except for the waste JP-4 because of fire hazard). The drum storage area was later moved to the current location, in two fabricated portable buildings located south of Building 7400.

Drums of Resource Conservation and Recovery Act (RCRA) wastes or waste oils are now stored in two enclosed portable buildings within built-in secondary containment. No signs of releases from these buildings were found. However, the buildings are set on a high area overlooking Westover AFB Incinerator Landfill B, and in maneuvering the drums, a spill would enter the soil and could possibly run by existing grade to the adjacent IRP remediation site.

3.2 Abandoned Underground Storage Tanks

To the west of Building 7400, near the old leach field, two standpipes come out of the ground on either side of a 1-ft depression indicating the presence of a UST. The pipes are loosely capped. Liquid is visible in the pipes even with the ground level.

To the north of Building 7400 are two "islands," each with two small standpipes set flush with ground level. One set of pipes is located in the asphalt where fuel trucks are parked, and the pipes are not capped. The other set of pipes is located in the grass, and the pipes are capped. These pipes suggest the possible presence of abandoned USTs.

FIGURE 6 Locations of ESOs at AASF 2 (Source: AFRES 1989)

A 2,000-gal diesel fuel UST located on the west side of Building 7400 has not been used in years yet still contains at least 600 gal of product. The tank has not been tested for tightness.

3.3 Refueling Activities

Tank trucks are driven from the northwest side of the building to the hardstand on the east side of the building to refuel aircraft. No spills have occurred in the last 17-18 years, according to a custodian at AASF 2. A spill from refueling activities would go to the storm drain located northeast of the hardstand, to the oil/water separator located at the Cooley Brook outfall. No secondary containment or nearby spill-containment equipment exists to prevent the influx of a large spill into the storm sewer system.

4 Known and Suspected Releases

4.1 Releases to Groundwater

No releases of contaminants to groundwater are known.

4.2 Releases to Surface Water

No releases of contaminants to surface water are known.

4.3 Releases to Soil

Approximately 10-11 years ago, waste oil was spilled in a grassy area adjacent to the employee parking lot to the west of Building 7400. This area underwent remediation by removing 6-8 in. of dirt, disposing of the dirt as hazardous waste, and backfilling the area with clean fill. No recent releases of contaminants to the soil have occurred.

4.4 Releases to Air

No releases of contaminants to the air are known, except minor volatile organics released during refueling.

4.5 Other Releases

No other significant releases of contaminants to the environment have been identified for AASF 2.

5 Human and Environmental Receptors

5.1 Groundwater

The groundwater system around AASF 2 is defined by a single surface unit consisting of sands and gravels and a deeper bedrock aquifer. The surficial aquifer is an unconfined aquifer that is recharged primarily by infiltration and runoff from rain and melting snow. In some areas, the water table of the surficial aquifer is very shallow. The greatest potential for migration of contaminants is laterally through the surficial sand and gravel aquifer, which is highly permeable and could easily transport contaminants throughout its thickness and areal extent toward surface water bodies off-site. The bedrock aquifer is protected by the thick, low-permeability lacustrine and till deposits and is not susceptible to vertical contamination (Engineering Science 1988).

Previous studies of the contamination from the Christmas Tree Fire Training Area indicate that the hydraulic gradient forces groundwater from the area to flow to the south toward Chicopee Memorial State Park. The studies indicate groundwater contamination of halogenated hydrocarbons and fuel-related materials, as indicated by toluene contamination. Only two monitoring wells contain significant concentrations of contaminants, including acetone, 2-methylphenol, 4-methylphenol, phenol, naphthalene, toluene, ethyl-benzene, and xylene; however, the groundwater contamination appears to be confined to the southeast portion of the site, which is downgradient from AASF 2. The hydraulic gradient is rather steep, and consequently, the groundwater flow velocity may be relatively high; however, on the basis of well samples, it appears that only very low levels of contamination may be migrating off-site. Additional monitoring wells were installed and sampled in the Chicopee Memorial State Park in September 1989 to help define the southern extent of the contamination. No contaminated groundwater was found in either well (Chem-Nuclear Geotech, Inc. 1991). The AASF 2 is upgradient of the Christmas Tree Fire Training Area. Westover AFB civil engineering personnel indicated that the monitoring well located downgradient of Building 7400 and upgradient of the Christmas Tree Fire Training Area of remediation shows no contamination (Kelly 1993).

Previous studies also addressed a demineralizer waste leaching pit. Minerals (calcium, magnesium, etc.) were removed from the potable water system, and the waste brine solution was discharged to an outdoor leaching pit located north of Building 7400. Because there was no known or suspected industrial hazardous waste involved, no further action was recommended for this site (AFRES 1988).

The groundwater discharges toward the southern portion of the town of Chicopee, the Chicopee Reservoir, and the Chicopee River. No documentation exists of private drinking water wells located in this area. No municipal drinking water wells are located in this area.

5.2 Surface Water

No known surface water intakes are within 15 mi downstream of the AASF 2, either along the Chicopee River or the Connecticut River (USGS 1991). In the lower section of Cooley Brook, below the Chicopee Reservoir, the Massachusetts Division of Fisheries and Game collected 14 fish species, including brook trout, largemouth bass, bluegill, and pumpkinseed (CH2M-Hill 1982).

The system of engineering drainage that traverses Westover AFB provides a direct pathway for runoff of potential contaminants to surface waters. No surface water originates at AASF 2; however, the drainage from AASF 2 is (1) into the storm water drains located to the northeast of the building and then through an oil/water separator located at the outfall to Cooley Brook, (2) along the watershed to Cooley Brook (CH2M-Hill 1982), or (3) via a drainage swale located to the west of Building 7400 to Cooley Brook downstream of Chicopee Reservoir. Potential receptors of contaminated surface water include fauna living in or having direct contact with contaminated waters and humans having direct contact with or ingesting contaminated aquatic species.

5.3 Soil

No contaminated soil was documented at AASF 2 (other than the remediated oil spill of 10-11 years ago discussed previously). The surficial soils at AASF 2 are of a sandy or sandy loam variety and are easily subject to fugitive dusting. The prevailing winds are southerly in the summer and in the winter are northerly with a mean speed between 6 and 8 kn. Southerly winds would affect residents of Chicopee. Northerly winds would affect Westover AFB. The facility is a controlled access site, which is locked during the night and occupied during the day, thereby reducing exposure through unknowing entry by the public.

5.4 Air

No releases to the air are known. As stated previously, southerly winds would affect the residents of Chicopee, and northerly winds would affect residents and workers at Westover AFB. Given the limited sources for airborne contamination, no off-base receptors have been identified.

5.5 Other Receptors

No other receptors of contaminants from the AASF 2 have been identified.

6 Preliminary Assessment Findings and Conclusions

6.1 Summary of Preliminary Assessment Findings

The AASF 2 is located in the extreme southwest portion of Westover AFB, an active base commanded by the 439th Tactical Airlift Wing. Westover AFB is in the western Massachusetts community of Chicopee. The primary ESOs at this facility are (1) the waste drum storage area, (2) abandoned USTs, and (3) refueling activities. The locations of these ESOs are shown on Figure 6.

Numerous IRP-related studies have been completed for remediation and restoration of contaminated areas located within Westover AFB. No contaminated areas were identified at AASF 2. The demineralizer waste leaching pit located to the north of Building 7400 was found by these previous studies to have no known or suspected industrial hazardous waste involved, and therefore, no further action was recommended for this site (Engineering Science 1988). The Christmas Tree Fire Training Area and the incinerator and its related landfills (A and B) are currently under study, and monitoring well studies indicate groundwater contamination of halogenated hydrocarbons and fuel-related materials; however, these areas of contaminant releases are downgradient from AASF 2. Westover AFB civil engineering personnel indicated that a monitoring well located between Building 7400 and the Christmas Tree Fire Training Area shows no contamination (Kelly 1993). Therefore, it may be assumed that no contamination from Building 7400 is adding to the Christmas Tree Fire Training Area contamination. Additional monitoring wells installed off-site in the Chicopee Memorial State Park in September 1989 show no contaminated groundwater in that area (Chem-Nuclear Geotech, Inc. 1991).

The Westover AFB studies show that the surficial sand and gravel aquifer, which is highly permeable, could easily transport contaminants through its thickness. The areas located downgradient from AASF 2, as shown by the previous Westover AFB studies, are not known to contain drinking water wells within this aquifer; however, well locations are not well documented in the towns of Chicopee or Ludlow, and some private wells could be located in this surficial aquifer. Currently, no data indicate contamination in this aquifer outside of the Westover AFB sites.

6.2 Recommendations for Further Action

The primary objective of the PA is to identify and evaluate ESOs that would result in (1) immediate action, (2) site investigation, or (3) no further PA/IRP action. Generally, the available information indicates that the AASF 2 presents a minimal level of threat to human health and the environment. No imminent or substantial threat to human health or the environment exists, and no immediate remedial actions are warranted; however, on the basis of the information made available to Argonne, several areas deserve further consideration to ensure protection for the local community and the environment, although these areas are not necessarily waste sources or pathways under the PA scoresheets:

- The ramp heater contains antifreeze and has been known to leak to the pavement outside Building 7400. Determine that no leakage from pipes can enter the environment.
- The 2,000-gal diesel fuel UST is no longer in use; however, it still contains product and creates the potential for a release to the environment. Empty and remove the tank.
- Near the leach field area, two standpipes, with liquid visible to the ground level line, come out of the ground on either side of a depressed area indicating the presence of an abandoned UST. Investigate this area to determine if an underground tank is located there and should be removed.
- To the north of Building 7400 are two "islands," each with two small standpipes set flush with the ground level; one set is located in the asphalt where fuel trucks are parked and is not capped; a corresponding set is located in the grass approximately 100 ft to the east and is capped; these pipes suggest the possible presence of abandoned USTs. Investigate these two areas to determine if underground tanks are present and should be emptied and removed.
- The blowdown from the boilers, which contains potassium hydroxide descaler, is rinsed down a drain located in the boiler room; potassium hydroxide is a corrosive with label warnings to avoid public water supplies. Although it appears that Building 7400 is connected to the Chicopee sanitary sewer system, as evidenced by bills issued by Chicopee, it is not ascertainable from site plans

if the boiler room drain is also connected or if it continues to drain to the old leach field. Determine if the drain from the boiler room or any other drains from Building 7400 drain to the leach field, and if so, ensure that no hazardous materials enter these drains.

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Appendix:
Interview Information

Appendix:

Interview Information

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Westover AFB
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(413) 557-3237

Holyoke Water Department
Holyoke, Massachusetts
(413) 536-0442

Civil Engineering
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(413) 557-2485

Town Clerk
Granby, Massachusetts
(413) 467-7178

Cross Connection Inspector
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27 Tremont St.
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