

**EPA Superfund
Record of Decision:**

**GRIFFISS AIR FORCE BASE (11 AREAS)
EPA ID: NY4571924451
OU 23
ROME, NY
09/27/2001**

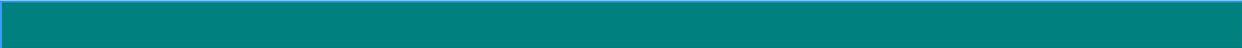
**Final Record of Decision
for the T-9 Storage Area
of Concern (SS-25)
at the Former Griffiss
Air Force Base
Rome, New York**

June 2001

AIR FORCE BASE CONVERSION AGENCY

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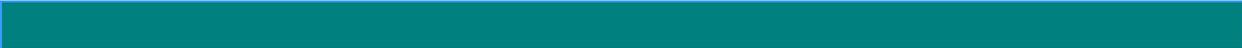
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List of Abbreviations and Acronyms

AFB	Air Force Base
AFBCA	Air Force Base Conversion Agency
AOC	Area of Concern
ARAR	Applicable or Relevant and Appropriate Requirement
AST	aboveground storage tank
ATSDR	Agency for Toxic Substances and Disease Registry
BGS	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COPC	chemicals of potential concern
DFAS	Defense Finance and Accounting Services
DoD	Department of Defense
EPA	United States Environmental Protection Agency
FFA	Federal Facility Agreement
HI	Hazard Index
HQ	Hazard Quotient
IRP	Installation Restoration Program
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NEADS	Northeast Air Defense Sector
NPL	National Priorities List
NYANG	New York Air National Guard
NYSDEC	New York State Department of Environmental Conservation
PCB	polychlorinated biphenyl
PID	photoionization detector
RAB	Restoration Advisory Board
RI	Remedial Investigation
ROD	Record of Decision
SAC	Strategic Air Command
SARA	Superfund Amendment and Reauthorization Act
STARS	Spill Technology and Remediation Series
SVOC	semivolatile organic compound
TBC	To-Be-Considered
UST	underground storage tank
VOC	volatile organic compound

1.1 Site Name and Location

The T-9 Storage Area of Concern (AOC) (side identification designation SS-25) is located at the former Griffiss Air Force Base (AFB) in Rome, Oneida County, New York.

1.2 Statement of Basis and Purpose

This Record of Decision (ROD) presents the no further action for soil with land use restrictions alternative for the T-9 Storage AOC at the former Griffiss AFB. This alternative has been chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 (USEPA 1980), as amended by the Superfund Amendment and Reauthorization Act (SARA) (USEPA 1986), and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (USEPA 1968). The Air Force Base Conversion Agency (AFBCA), the United States Environmental Protection Agency (EPA), and the New York State Department of Environmental Conservation (NYSDEC) have adopted this ROD through joint agreement. This decision is based on the administrative record file for this site.

1.3 Description of Selected Remedy

The selected remedy for the T-9 Storage AOC is no further action for soil with land use restrictions for industrial/commercial use. The agencies will perform joint 5-

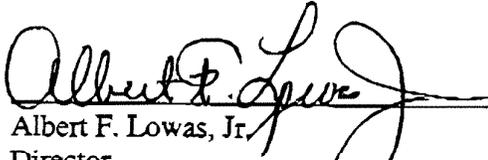
year reviews to ensure that future land use is in compliance with the transfer documents (deed) and consistent with the risk assessment for industrial/commercial use.

1.4 Declaration Statement

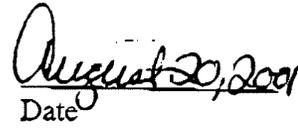
The AFBCA, EPA, and NYSDEC have determined that no further action for soil with land use restrictions are warranted for the T-9 Storage AOC. An interim remedial action was performed at this site in which the majority of soil contamination found during the remedial investigation was removed. The remaining chemicals detected in the soil do not exceed standards and guidance values and the known source of groundwater contamination has been removed. The concentrations of the contaminants remaining in the site soil following the remedial action do not pose a current or potential threat to public health or the environment provided the property is used for industrial/commercial use. Groundwater at the T-9 Storage AOC is being further evaluated under the NYSDEC Spills Program (Spill #9702173). Future landowners will be bound, through transfer documents (deed), to the industrial/commercial reuse of the property.

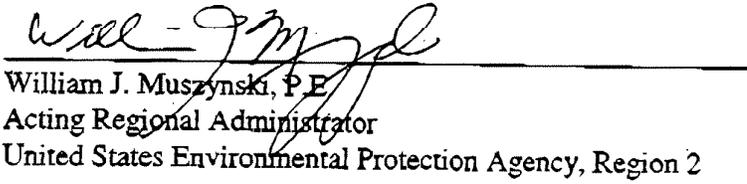
1.5 Signature of Adoption of the Remedy

On the basis of the remedial investigations and a successfully completed Interim Remedial Action performed at the T-9 Storage AOC, there is no evidence that residual contamination at this site poses a current or future potential threat to human health or the environment when used for industrial/commercial purposes. Future landowners will be bound, through transfer documents (deed), to the industrial/commercial reuse of the property. The NYSDEC has concurred with the selected remedial action presented in this Record of Decision.

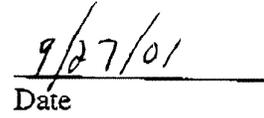


Albert F. Lowas, Jr.
Director
Air Force Base Conversion Agency


Date



William J. Muszynski, P.E.
Acting Regional Administrator
United States Environmental Protection Agency, Region 2


Date

2.1 Site Name, Location, and Brief Description

The T-9 Storage AOC (side identification designation SS-25) is located at the former Griffiss Air Force Base (AFB) in Rome, Oneida County, New York.

The T-9 Storage AOC covers approximately 30,000 square feet and is located in the central industrial portion of the former base at the intersection of Brooks Road and Selfridge Street (see Figure 1). The site is an open grass and gravel lot that was reportedly used for parking heavy equipment and storing herbicides and petroleum-based paving products for grounds and maintenance (see Figures 2 and 3). The property was acquired in 1942 when the area was primarily pasture. Several buildings were constructed in the vicinity of the site after the land was acquired: Buildings 5, 6, 7, 8, 9, and 10, and the Base Gas Station (Building 43). Currently, only Building 43 exists in the vicinity of the site. Building 9, for which Site T-9 is designated, was used as a motor pool area and was demolished in 1997.

2.2 Site History and Investigation Activities

The Former Griffiss AFB Operational History

The mission of the former Griffiss AFB varied over the years. The base was activated on February 1, 1942, as Rome Air Depot, with the mission of storage, maintenance, and shipment of material for the U.S. Army Air Corps. Upon creation of the U.S. Air Force in 1947, the depot was renamed Griffiss Air Force Base. The base became an electronics center in 1950, with the transfer of Watson Laboratory Complex (later Rome

Laboratory). The 49th Fighter Interceptor Squadron was also added in that year. In June 1951, the Rome Air Development Center was established with the mission of accomplishing applied research, development, and testing of electronic air-ground systems. The Headquarters of the Ground Electronics Engineering Installations Agency was added in June 1958 to engineer and install ground communications equipment throughout the world. On July 1, 1970, the 416th Bombardment Wing of the Strategic Air Command (SAC) was activated with the mission of maintenance and implementation of both effective air refueling operations and long-range bombardment capability. Griffiss AFB was designated for realignment under the Base Realignment and Closure Act in 1993 and 1995, resulting in deactivation of the 416th Bombardment Wing in September 1995. Rome Laboratory and the Northeast Air Defense Sector (NEADS) will continue to operate at their current locations; the New York Air National Guard (NYANG) operated the runway for the 10th Mountain Division deployments until October 1998, when they were relocated to Fort Drum; and the Defense Finance and Accounting Services (DFAS) has established an operating location at the former Griffiss AFB.

Environmental Background

As a result of the various national defense missions carried out at the former Griffiss AFB since 1942, hazardous and toxic substances were used and hazardous wastes were generated, stored, or disposed at various sites on the installation. The defense missions involved the procurement, storage, maintenance, and shipping of war materiel; research and development; and aircraft operations and maintenance.

Numerous studies and investigations under the U.S. Department of Defense (DoD) Installation Restoration Program (IRP) have been carried out to locate, assess, and quantify the past toxic and hazardous waste storage, disposal, and spill sites. These investigations included a records search in 1981 (Engineering Science 1981), interviews with base personnel, a field inspection, compilation of an inventory of wastes, evaluation of disposal practices, and an assessment to determine the nature and extent of site contamination; Problem Confirmation and Quantification studies (similar to what is now designated a Site Investigation) in 1982 (Weston 1982) and 1985 (Weston 1985); soil and groundwater analyses in 1986; a base-wide health assessment in 1988 by the U.S. Public Health Service, Agency for Toxic Substances and Disease Registry (ATSDR) (ATSDR

1988); base-specific hydrology investigations in 1989 and 1990 (Geotech 1991); a groundwater investigation in 1991; and site-specific investigations between 1989 and 1993. ATSDR issued a Public Health Assessment for Griffiss AFB, dated October 23, 1995 (ATSDR 1995), and an addendum, dated September 9, 1996.

Pursuant to Section 105 of CERCLA, Griffiss AFB was included on the National Priorities List (NPL) on July 15, 1987. On August 21, 1990, the agencies entered into a Federal Facility Agreement (FFA) under Section 120 of CERCLA. Under the terms of the agreement, the Air Force was required to prepare and submit numerous reports to NYSDEC and EPA for review and comment. These reports address remedial activities that the Air Force is required to undertake under CERCLA and include identification of AOCs on base; a scope of work for a remedial investigation (RI); a work plan for the RI, including a sampling and analysis plan and a quality assurance project plan; a baseline risk assessment; a community relations plan; and the RI report. The Air Force delivered the draft-final RI report covering 31 AOCs to EPA and NYSDEC on December 20, 1996 (Law 1996). The draft No Further Action Proposed Plan was delivered in February, 1998. The draft Closure Certification Report for Interim Remedial Action was delivered on May 24, 2000 (Ocuto 2000).

This ROD for no further action for soil with land use restrictions is based on an evaluation of potential threats to human health and the environment due to contamination in the soil and groundwater and the performance of interim remedial actions at the T-9 Storage AOC. During the RI, a site-specific baseline risk assessment (using appropriate toxicological and exposure assumptions to evaluate cancer risks and non-cancer health hazards) was conducted in order to evaluate the risks posed by detected site contaminants to the reasonably maximally exposed individual under current and future land use assumptions. In the RI report, concentrations of the contaminants were compared to available standards and guidance values using federal and state environmental and public health laws that were identified as potentially applicable or relevant and appropriate requirements (ARARs) at the site. Chemical-specific ARARs are usually health- or risk-based numerical values or methodologies that result in a numerical value when applied to site-specific conditions. Currently, there are no chemical-specific ARARs for soil (other than for PCBs), therefore, other non-promulgated federal and state advisories and guid-

ance values, referred to as To-Be-Considereds (TBCs), and background levels of the contaminants in the absence of TBCs, were considered.

Initial Site Investigations

Previous investigations conducted at the T-9 Storage AOC consisted of a 1986 soil and groundwater study (HET 1986) and four rounds of groundwater sampling conducted in 1992.

Remedial Investigation

In 1994, an RI was performed at the T-9 Storage AOC (Law 1996). The main objective of the RI was to investigate the nature and extent of environmental contamination from historical releases at the AOC in order to determine if any remedial action is necessary to prevent potential threats to human health and the environment that might arise from exposure to site conditions. Field activities included aquifer testing, topographic and location surveys, drilling, monitoring well installation, surface and subsurface soil sampling, and groundwater sampling. The following summarizes the RI field sampling efforts conducted at the T-9 Storage AOC.

Surface and subsurface soil samples were collected from 36 boreholes. Subsurface soil samples were collected at 2-foot intervals from 0 to 12 feet BGS. A total of 106 samples were collected for field screening at an on-site laboratory to determine which samples would be sent for off-site analysis. Forty-six subsurface soil samples (those with the highest concentrations) were then sent for confirmatory analysis to a commercial laboratory. In November 1994, surface soil samples and several confirmatory subsurface soil samples were recollected due to laboratory errors associated with the first sampling round.

Three volatile organic compounds (VOCs) were detected in some of the surface soil samples. All concentrations of VOCs were below soil guidance values. Twenty-eight semivolatile organic compounds (SVOCs), 25 pesticides, 26 polychlorinated biphenyls (PCBs), and 16 metals were detected in surface soil samples. Seven SVOCs, one pesticide, three PCBs, and 12 metals were detected in surface soil samples at concentrations exceeding potential soil guidance values (see Table 1). Petroleum hydrocarbons

were detected in each of the surface soil samples at a mean concentration of 602 mg/kg. Cyanide was detected in two samples at a mean concentration of 1.2 mg/kg.

Field screening results indicated the presence of VOCs, SVOCs, and pesticides in the subsurface soil. Twelve VOCs, 24 SVOCs, 23 pesticides, one PCB, and 24 metals were detected in the confirmatory subsurface soil samples. The most frequently detected VOC was toluene, which was detected in 18 of 43 samples at a mean concentration for all samples of 2.7 µg/kg. Four of the VOCs were petroleum-related constituents. The remaining eight VOCs were chlorinated or nonchlorinated solvents. Of the detected compounds, one VOC, six SVOCs, one PCB, and 18 metals exceeded the most stringent guidance values (see Table 2). The sample locations for the SVOCs where concentrations exceeded the guidance values were widespread rather than being concentrated in one area, which may indicate random contamination associated with small spills or leaks from vehicles. SVOC contamination at this site is limited primarily to surface and shallow subsurface soil. These findings are consistent with the anticipated nature of contamination based on the AOC's history and use.

The groundwater investigation performed during the RI included grab groundwater samples collected from temporary wells installed in 17 of the soil borings and groundwater samples collected from seven monitoring wells at the site. The grab groundwater samples were considered field screening samples and analyzed at an on-site laboratory. These samples indicated the presence of benzene, ethylbenzene, chlorinated solvents, chrysene, benzo(a)anthracene, and several pesticides.

Five VOCs (1,1,1-trichloroethane; 1,1-dichloroethane; acetone; chloroethane; and tetrachloroethylene) were detected at low concentrations in some of the groundwater samples collected from the monitoring wells; all concentrations were below standards and guidance values. Four SVOCs (bis[2-ethylhexyl]adipate; butylbenzylphthalate; di-n-butylphthalate; and diethylphthalate) were detected in groundwater samples at estimated concentrations below the standards and guidance values. Seven pesticides and 20 metals were detected in some of the groundwater samples. One pesticide slightly exceeded the groundwater standard and six metals exceeded the most stringent standards or guidance values (see Table 3). Petroleum hydrocarbons were detected in five of seven samples at concentrations ranging from 0.17 to 0.2 mg/L.

Other previous investigations conducted at the T-9 Storage AOC consisted of a 1986 soil and groundwater study and four rounds of groundwater sampling conducted in 1992. Several contaminants were detected in soil and groundwater during these investigations; however, no remedial actions were performed prior to the RI.

2.3 Highlights of Community Participation

A final proposed plan for the T-9 Storage AOC (AFBCA 2001), indicating no further action for soil with land use restrictions for industrial/commercial use, was released to the public on Friday, February 9, 2001. The document was made available to the public in both the administrative record file located at Building 301 in the Griffiss Business and Technology Park and in the Information Repository maintained at the Jervis Public Library. The notice announcing the availability of this document was published in the *Rome Sentinel* on Friday, February 9, 2001. A public comment period lasting from February 9, 2001 to March 11, 2001, was set up to encourage public participation in the alternative selection process. In addition, a public meeting was held on Thursday, March 1, 2001. The AFBCA and the New York State Department of Health were present at the meeting and the AFBCA answered questions about issues at the AOC and the proposal under consideration. A response to the comments received during this period is included in the Responsiveness Summary, which is part of this ROD (see Section 3).

2.4 Scope and Role of Site Response Action

The scope of the plan for no further action for soil with land use restrictions for the T-9 Storage AOC addresses the soil at the site. The land use restrictions for industrial/commercial use are consistent with the risk assessment performed for occupational workers.

2.5 Site Characteristics

The T-9 Storage AOC covers approximately 30,000 square feet and is located in the central industrial portion of the former base at the intersection of Brooks Road and Selfridge Street (see Figure 1). The site is an open grass and gravel lot that was reportedly used for parking heavy equipment and storing herbicides and petroleum-based paving products for grounds and maintenance (see Figures 2 and 3). The property was ac-

quired in 1942 when the area was primarily pasture. Several buildings were constructed in the vicinity of the site after the land was acquired: Buildings 5, 6, 7, 8, 9, and 10, and the Base Gas Station (Building 43). Currently, only Building 43 exists in the vicinity of the site. Building 9, for which Site T-9 is designated, was used as a motor pool area and was demolished in 1997.

The T-9 Storage AOC formerly contained a 550-gallon kerosene aboveground storage tank (AST) and numerous 55-gallon drums of soil cuttings from previous environmental investigations. It was reported that the AST had leaked on several occasions, and stained soil were observed at the former AST location. In 1991, the 500-gallon tank was replaced with a mobile 275-gallon kerosene tank in the same location. The mobile tank was relocated to Building 8 sometime between 1992 and 1996 (exact time unknown) and was then removed from Building 8 in December 1996. Also, trucks carrying asphalt were reportedly rinsed with kerosene, and the rinsate was reportedly discharged onto the ground. This is suspected of being the primary source of contamination at the T-9 Storage AOC (the length of time this practice continued is unknown).

The former Griffiss AFB covered approximately 3,552 contiguous acres in the lowlands of the Mohawk River Valley in Rome, Oneida County, New York. Topography within the valley is relatively flat, with elevations on the former Griffiss AFB ranging from 435 to 595 feet above mean sea level. Three Mile Creek, Six Mile Creek (both of which drain into the New York State Barge Canal, located to the south of the base), and several state-designated wetlands are located on the former Griffiss AFB, which is bordered by the Mohawk River on the west. Due to its high average precipitation and predominantly silty sands, the former Griffiss AFB is considered a groundwater recharge zone.

Surface water runoff for the T-9 Storage AOC is collected in the base storm drain system, which discharges to Rainbow Creek and the culverted portion of Six Mile Creek. Groundwater flows in a south-to-southeasterly direction and was encountered from 3 feet below ground surface (BGS) in the western portion of the AOC to 12 feet BGS in the northern portion of the AOC. Surface and subsurface soil were characterized in the RI as being brown, sandy, and gravelly silt.

2.6 Current and Potential Future Site Use

The current and future land use designations for the T-9 Storage AOC are industrial/commercial.

2.7 Summary of Site Risks

Site risks were analyzed based on the extent of contamination at the T-9 Storage AOC. As part of the RI, a baseline risk assessment was conducted to evaluate current and future potential risks to human health and the environment associated with contaminants found in the soil and groundwater at the site. The results of this assessment and the interim remedial action were considered when formulating this ROD for no further action for soil with land use restrictions.

Human Health Risk Assessment

A baseline human health risk assessment was conducted during the RI to determine whether chemicals detected at the T-9 Storage AOC could pose health risks to individuals under current and proposed future land use. As part of the baseline risk assessment, the following four-step process was used to assess site-related human health risks for a reasonable maximum exposure scenario:

- # Hazard Identification—identifies the contaminants of concern at the site based on several factors such as toxicity, frequency of occurrence, and concentration;
- # Exposure Assessment—estimates the magnitude of actual and/or potential human exposures, the frequency and duration of these exposures, and the pathway (e.g., ingestion of contaminated soil) by which humans are potentially exposed;
- # Toxicity Assessment—determines the types of adverse health effects associated with chemical exposures and the relationship between magnitude of exposure (dose) and severity of adverse effects (response); and
- # Risk Characterization—summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative (e.g., one-in-a-million excess cancer risk and non-cancer Hazard Index value) assessment of site-related risks and a discussion of uncertainties associated with the evaluation of the risks and hazards for the site.

Chemicals of potential concern (COPCs) were selected for use in the risk assessment based on the analytical results and data quality evaluation. All contaminants detected in the soil and groundwater at the site were considered chemicals of potential concern except for analytes detected in less than 5% of the subsurface soil samples at concentrations below the screening criteria, inorganics detected at concentrations less than twice the mean background concentrations, and essential human nutrients (i.e., iron, magnesium, calcium, potassium, and sodium). As a class, petroleum hydrocarbons were not included as a chemical of concern; however, the individual toxic constituents (e.g., benzene, toluene, ethylbenzene) were evaluated.

The human health risk assessment evaluated potential exposure of occupational workers including utility, construction, and industrial workers. The various exposure scenarios for each population are described in Table 4. Intake assumptions, which are based on EPA guidance, are more fully described in the RI.

Quantitative estimates of carcinogenic and noncarcinogenic risks were calculated for the T-9 Storage AOC as part of a risk characterization. The risk characterization evaluates potential health risks based on estimated exposure intakes and toxicity values. For carcinogens, risks are estimated as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to the potential carcinogen. The risks of the individual chemicals are summed for each pathway to develop a total risk estimate. The range of acceptable risk is generally considered to be 1 in 10,000 (1×10^{-4}) to 1 in 1,000,000 (1×10^{-6}) of an individual developing cancer over a 70-year lifetime from exposure to the contaminant(s) under specific exposure assumptions. Therefore, sites with carcinogenic risk below the risk range for a reasonable maximum exposure do not generally require cleanup based upon carcinogenic risk under the NCP.

To assess the overall noncarcinogenic effects posed by more than one contaminant, EPA has developed the Hazard Quotient (HQ) and Hazard Index (HI). The HQ is the ratio of the chronic daily intake of a chemical to the reference dose for the chemical. The reference dose is an estimate (with uncertainty spanning perhaps an order of magnitude or greater) of a daily exposure level for the human population, including sensitive sub-populations, that is likely to be without an appreciable risk of deleterious effects during a portion of a lifetime. The HQs are summed for all contaminants within an exposure pathway (e.g., ingestion of soil) and across pathways to determine the HI. When the HI

exceeds 1, there may be concern for potential noncarcinogenic health effects if the contaminants in question are believed to cause similar toxic effects.

EPA bases its decision to conduct site remediation on the risk to human health and the environment. Cleanup actions may be taken when EPA determines that the risk at a site exceeds the cancer risk level of 1 in 10,000 (1×10^{-4}) or if the noncarcinogenic HI exceeds a level of 1. Once either of these thresholds has been exceeded, the 1 in 1,000,000 (1×10^{-6}) risk level and an HI of 1 or less may be used as the point of departure for determining remediation goals for alternatives.

Results of Site-Specific Health Risk Assessment

Potential risks from exposure to COPCs at the T-9 Storage AOC were evaluated for utility, construction, and industrial workers during the RI, prior to the interim remedial action. The potential carcinogenic and noncarcinogenic risks from exposure to soil and groundwater are summarized below.

Carcinogenic Risk

The total carcinogenic risk for utility and construction workers exposed to subsurface soil were both calculated as 1 in 1,000,000 (1×10^{-6}), which is within the EPA's target risk range. Of the three potential exposure pathways, the greatest potential carcinogenic hazard was from incidental ingestion of soil for all workers.

The total carcinogenic risk to landscape workers exposed to surface soil was calculated as 7 in 1,000,000 (7×10^{-6}), which is within the EPA's target risk range.

The total carcinogenic risk for industrial workers exposed to groundwater was calculated as 1 in 1,000,000 (1×10^{-6}), which is within the EPA's target risk range.

The contaminant-specific risk calculations were well within EPA's acceptable risk levels, indicating that the chemicals detected in the soil and groundwater at the T-9 Storage AOC do not pose a current or potential carcinogenic risk to human health.

Noncarcinogenic Risk

Total HIs for utility and construction workers exposed to subsurface soil at the site were calculated at 0.04 and 0.6, respectively. The total HI for landscape workers exposed to surface soil was calculated at 0.2. The total HI for industrial workers exposed to

groundwater was 0.3. These results indicate that potential adverse noncarcinogenic health effects to these workers are not expected to occur from exposure to chemical concentrations in the soil and groundwater. All HIs for noncarcinogenic effects are below the benchmark level of 1.

Toxicity values were not available for acenaphthylene, benzo(g,h,i)perylene, dichloroprop, lead, 2-methylnaphthalene, and phenanthrene; thus, a quantitative risk assessment could not be performed. Therefore, a qualitative assessment of the data was performed by comparing the concentrations to soil screening values, if available. Acenaphthylene was detected at estimated concentrations ranging from 0.041 mg/kg to 0.14 mg/kg, well below the most stringent guidance value of 41 mg/kg. Benzo(g,h,i)perylene was detected at concentrations ranging from 0.042 mg/kg to 5.1 mg/kg in 30 of 68 soil samples, well below the soil guidance value of 50 mg/kg. Dichloroprop, an herbicide, was detected at concentrations ranging from 0.00005 mg/kg to 0.0006 mg/kg in six of 92 soil samples, but there are no published standards or guidance values for dichloroprop. Lead was detected in 76 of 77 soil samples at concentrations ranging from 3.0 mg/kg to 204 mg/kg, which is below EPA's recommended guidance value of 400 mg/kg (based on residential soil exposure for children). 2-Methylnaphthalene was detected in 10 of 67 soil samples at concentrations ranging from 0.024 mg/kg to 0.72 mg/kg, well below the most stringent guidance value of 36.4 mg/kg. Phenanthrene was detected in 46 of 67 soil samples at concentrations ranging from 0.043 mg/kg to 11.0 mg/kg, well below the most stringent guidance value of 50 mg/kg.

Groundwater at the T-9 Storage AOC is being further evaluated under the NYSDEC Spills Program (Spill # 9702173).

Uncertainties

Uncertainties exist in many areas of the human health risk assessment process. However, use of conservative variables in intake calculations and conservative assumptions throughout the entire risk assessment process results in an assessment that is protective of human health and the environment. Examples of uncertainties associated with the risk assessment for the T-9 Storage Area include: (1) In quantifying exposure, it was assumed that chemicals are uniformly distributed over a defined area. At this AOC, chemical samples were collected from the suspected source of contamination rather than

through random sampling, and this can result in a potential overestimation of risk; (2) The HIs associated with dermal contact with soil could not be quantified for many of the COPCs due to the lack of dermal absorption factors necessary for the calculation, which may result in a potential underestimation of the risk; (3) When assessing the dermal pathway, it was assumed that workers would come into contact with the soil, although the use of protective clothing is more likely. This assumption would result in a potential overestimation of risk; (4) It was assumed that for the proposed future use scenario, construction would occur over a one-year period, though it will probably require less time to complete due to the small size of this AOC. This assumption would result in a potential overestimation of risk; and (5) It was assumed that groundwater would be used as a potable water source under the industrial use scenario (i.e., showering, ingestion, industrial processes) in the future, which is unlikely since the site has ready access to the existing water supplies at the former base and in the City of Rome. This assumption would result in a potential overestimation of risk.

Ecological Risk Assessment

A baseline ecological risk assessment was conducted during the RI. Ecological risks were assessed for the short-tailed shrew and raccoon through exposure to surface soil through direct (ingestion of or dermal contact with surface soil) and indirect (ingestion of vegetation or other biota) routes.

Hazard quotients were calculated for each of the indicator species. The HIs calculated for the raccoon were less than 1, with the highest value of 0.0046 for vanadium. The HIs for all chemicals were less than 1 for the shrew, with the exception of aluminum, with an HI of 2. This value indicates a slight potential for adverse effects to the shrew. However, due to uncertainties and the conservative nature of the risk assessment methodology, in addition to the location of this AOC in the industrial area of this base, the risks to the ecological receptors are not considered to be significant at this AOC. Modeling of bioaccumulation to higher order species was not performed, nor was the cumulative effect of multiple contaminants considered; this tends to underestimate the risk to ecological receptors.

Although certain state-listed endangered plants and animals have been observed on or in the vicinity of the base, no threatened and/or endangered species have been iden-

tified at this site (Corey 1994). There are no federally listed (U.S. Department of the Interior) threatened or endangered plant or animal species at the former base.

2.8 Interim Remedial Action

In February 1998, a No Further Action Proposed Plan was issued. However, based on public comments on the No Further Action Proposed Plan and the required deed restrictions, the Air Force entered into an agreement with the EPA and NYSDEC to perform contaminated soil removal activities at the site.

In April 1998, the interim remedial actions were carried out at the T-9 Storage Area at three locations: Area A, B, and C (see Figure 4). These locations were identified based on soil contamination data from previous investigations including the RI. Prior to excavation, the horizontal and vertical extent of contamination was further evaluated by advancing Geoprobe soil borings in the vicinity of Areas A, B, and C. Soil samples were collected and screened in the field for the presence of petroleum hydrocarbons using a photoionization detector (PID). Samples were also collected from 20% of the soil borings to confirm the results of the PID. Based on field PID readings, the majority of the contaminated soil was encountered at Area B, and within the boundaries and south of Area C. Additional contamination was found approximately 50 feet outside Area B, and at the southeast corner of Area A.

Remedial action activities that occurred during the excavation of areas A, B, and C included: the excavation and removal of contaminated soil; removal of a 60" diameter storm sewer pipeline in Area B to allow removal of contaminated soil surrounding the pipeline; excavation and removal of an underground storage tank (UST) that was discovered in Area C during contaminated soil removal; collection of confirmation samples from the final excavations to ensure that contaminated soil had been removed; proper disposal of all wastes from the site; and restoration of the site.

The estimated volume of soil removed from Area A was 118 cubic yards. Confirmation samples were collected from the walls and floor of the final excavation in Area A. The Air Force, EPA, and NYSDEC compared the results of the confirmatory soil samples to the NYSDEC Spill Technology and Remediation Series (STARS) guidance values and agreed that the project cleanup goals had been met.

The estimated volume of soil removed from Area B was 2,300 cubic yards taken at depths ranging from 6- to 10-feet BGS. Other activities performed at Area B included the excavation and removal of a 6-inch transite sewer line and temporary removal of sections of a 60-inch storm sewer line so that contaminated soil in the vicinity of the lines could be removed. Twenty-nine confirmatory soil samples were collected from all Area B excavations following contaminated soil removal. The Air Force, EPA, and NYSDEC compared the results of the confirmatory soil samples to the NYSDEC STARS guidance values and agreed that the project cleanup goals had been met.

An estimated volume of 1,620 cubic yards of soil was excavated from Area C to a depth of 1- to 12-feet BGS. During the excavations, a 1,000-gallon UST and an abandoned 12-inch fuel line were excavated and removed. Approximately 900 gallons of water contaminated with petroleum products were pumped from the tank and disposed off site. Approximately 4,000 gallons of petroleum-contaminated water was pumped from the fuel line and disposed off site. Soil in the vicinity of the tank and line were also excavated. Other structures encountered during the investigation include a building foundation with a partial floor, a 6-inch PVC sewer line, and a 4-inch ductile steel line. Soil contamination was found in the vicinity of these structures and was excavated and removed. The foundation and a portion of the 6-inch line were also removed. A 1.5-inch galvanized lateral water line and transite sanitary sewer lines were also discovered. Several feet of each line were removed to allow for excavation of contaminated soil in the area.

A total of 31 confirmation samples were obtained from the Area C excavations; samples were collected from both the bottom and sidewalls. All the samples were analyzed for VOCs and SVOCs. Two confirmation samples indicated the presence of contaminated soil. Contaminated soil in these areas were then over-excavated and a second round of samples was taken. The Air Force, EPA, and NYSDEC compared the results of the confirmatory soil samples to the NYSDEC STARS guidance values and agreed that the project cleanup goals had been met.

The contaminated soil was transported to the Alert Apron and Apron 1 Land Farms on the former Griffiss AFB. All excavated areas were backfilled with clean material after confirmatory sampling verified that the cleanup goals were achieved. The VOCs and SVOCs delineated during the RI were remediated by the interim remedial ac-

tion along with petroleum-contaminated soil associated with the open petroleum spill # 9702173. The groundwater in the area is being further evaluated under this spill number as part of the NYSDEC Spills Program.

2.9 Principal Threat Wastes

There are no principal threat wastes at the T-9 Storage AOC.

2.10 Description of the Preferred Alternative

No further action for soil with land use restrictions for industrial/commercial use is proposed for the T-9 Storage AOC. Five-year reviews will be performed by the Air Force, in conjunction with the EPA and NYSDEC, to ensure that future land use is in compliance with the transfer documents (deed) for industrial/commercial use. The transfer documents will contain the following restrictions to ensure that the reuse of the site is consistent with the risk assessment:

- # The property will be designated for industrial/commercial use unless permission is obtained from the EPA, NYSDEC, and the New York State Department of Health; and
- # The owner or occupant of the property shall not extract, utilize, consume, or permit to be extracted any water from the subsurface aquifer within the boundary of the property unless such owner or occupant obtains prior written approval from the New York State Department of Health.

As a result of the interim remedial action, the majority of soil contamination found during the RI investigations at this AOC was removed. The remaining chemicals detected in the soil do not exceed standards and guidance values and the known source of the groundwater contamination has been removed. In addition, the baseline risk assessment for industrial/commercial use indicated that the levels of contamination present in the soil prior to remediation fell within or below EPA's acceptable carcinogenic risk range and posed no noncarcinogenic risk to utility, construction, landscape, and industrial workers. Therefore, the concentrations of the chemicals remaining in the soil after the completion of the remedial actions, and the results of the baseline risk assessment for the chemicals found in the groundwater, demonstrate that the remaining site contaminants pose no current or potential threat to public health or the environment. Groundwater at

the T-9 Storage AOC is being further evaluated under the NYSDEC Spills Program (Spill #9702173).

2.11 Statutory Determinations

The selected remedy must meet the statutory requirements of CERCLA, Section 121, which are described below.

Protection of Human Health and the Environment

The plan for no further action for soil with land use restrictions for industrial/commercial use will provide adequate protection from exposure to contaminants by limiting the use of the site in accordance with the risk assessment.

Compliance with ARARs

Contaminant concentrations in the soil following the interim remedial action comply with the applicable ARARs. Furthermore, land use restrictions for industrial/commercial use will be consistent with the risk assessment, which was performed for occupational workers.

Cost-Effectiveness

No costs are associated with the selected alternative.

Utilization of Permanent Solutions and Alternative Treatment Technologies to the Maximum Extent Practicable

Treatment technologies are not included in the selected alternative.

Preference for Treatment as a Principal Element

Treatment technologies are not included in the selected alternative.

2.12 Documentation of Significant Changes

No significant changes have been made to the selected alternative from the time the proposed plan was released for public comment.

**Table 1
COMPOUNDS EXCEEDING STANDARDS AND GUIDANCE VALUES
T-9 STORAGE AOC
SURFACE SOIL SAMPLES**

Compound	Range of Detected Concentrations	Frequency of Detection Above Most Stringent Criterion	Most Stringent Criterion
SVOCs (µg/kg)			
Benzo(a)anthracene	55J - 14,000J	17/37	224 ^a
Benzo(a)pyrene	59J - 11,000J	26/37	61 ^a
Benzo(a)fluoranthene	26J - 15,000J	6/37	1,100 ^a
Benzo(k)fluoranthene	44J - 4,200J	3/37	1,100 ^a
Chrysene	94J - 13,000J	11/37	400 ^a
Dibenzo(a,h)anthracene	50J - 1,500J	5/36	14 ^a
Indeno(1,2,3cd)pyrene	54J - 5,500J	2/37	3,200 ^a
Pesticides/PCBs (µg/kg)			
Dieldrin	0.81J - 120J	4/53	40 ^b
PCB-1242	130	1/53	90 ^b
PCB-1248	1,390J	1/53	90 ^b
PCB-1260	19J - 310J	7/53	90 ^b
Metals (mg/kg)			
Antimony	3.8	2/42	3.4 ^c
Arsenic	1 - 7.1	2/42	4.9 ^c
Barium	8.1 - 495	4/42	300 ^a
Cadmium	0.34J - 1.99J	1/42	1.0 ^a
Calcium	1,270J - 171,000	10/42	23,800 ^c
Total chromium	7.3 - 30	4/41	22.6 ^c
Copper	9.6 - 94.3J	5/42	43 ^c
Lead	9.6 - 142	16/42	36.2 ^c
Manganese	242 - 6,550	1/41	2,110 ^c
Potassium	255 - 2,110	1/42	1,990 ^c
Sodium	56J - 2,350	12/42	259 ^c
Zinc	35.5J - 145	5/42	120 ^c

^a NYS soil cleanup objectives.

^b Proposed RCRA corrective action levels.

^c Background screening concentration.

Key:

J = Estimated concentration.*

* Estimated concentrations are typically due to measuring very low levels below the quantitation limit but above the detection limit or due to a quality control concern identified by a data reviewer.

**Table 2
COMPOUNDS EXCEEDING STANDARDS AND GUIDANCE VALUES
T-9 STORAGE AOC, SUBSURFACE SOIL SAMPLES**

Compound	Range of Detected Concentrations	Frequency of Detection Above Most Stringent Criterion	Most Stringent Criterion
VOCs(μg/kg)			
Acetone	2J - 220	1/43	200 ^a
SVOCs (μg/kg)			
Benzo(a)anthracene	71J - 3,100J	5/29	224 ^a
Benzo(a)pyrene	52J - 2,600J	7/29	61 ^a
Benzo(b)fluoranthene	37J - 3,300J	1/29	1,100 ^a
Benzo(k)fluoranthene	46J - 1,500J	1/29	1,100 ^a
Chrysene	49J - 3,900J	3/29	400 ^a
Dibenzo(a,h)anthracene	92J - 560J	2/29	14 ^a
Pesticides/PCBs (μg/kg)			
PCB-1260	17.2J - 540	2/44	90 ^b
Metals (mg/kg)			
Aluminum	2,690 - 42,800	2/35	18,300 ^c
Antimony	3.9	1/35	3.4 ^c
Arsenic	0.86 - 9.4J	3/35	4.9 ^c
Beryllium	0.119J - 2.6	3/35	0.65 ^c
Calcium	1,240 - 52,600	9/35	23,800 ^c
Total chromium	3.4 - 55.1	2/35	22.6 ^c
Cobalt	3.2 - 35.3	1/35	30 ^a
Copper	5.2 - 79.2	3/35	43 ^c
Iron	7,550 - 93,400	1/35	47,400 ^c
Lead	3 - 204	1/35	36.2 ^c
Magnesium	1,390 - 14,100	3/35	7,180 ^c
Manganese	118 - 6,810J	4/35	2,110 ^c
Mercury	0.23	1/35	0.1 ^c
Nickel	8.69 - 74.9	2/35	46.1 ^c
Potassium	268 - 6.32 x 10 ⁶	2/35	1,990 ^c
Selenium	0.28J - 4.5	1/35	2 ^a
Sodium	57 - 1,370	7/35	259 ^c
Zinc	23.4J - 272	1/35	120 ^c

^a NYS soil cleanup objectives.

^b Proposed RCRA corrective action levels.

^c Background screening concentration.

Key:

J = Estimated concentration.*

* Estimated concentrations are typically due to measuring very low levels below the quantitation limit but above the detection limit or due to a quality control concern identified by a data reviewer.

**Table 3
COMPOUNDS EXCEEDING STANDARDS AND GUIDANCE VALUES
T-9 STORAGE AOC, GROUNDWATER SAMPLES**

^a NYSDEC class GA ground water standard.

^b Federal secondary maximum contaminant level.

^c New York primary maximum contaminant level.

^d Federal primary maximum contaminant level.

Key:

J = Estimated concentration.

ND= Nondetect

Compound	Range of Detected Concentrations	Frequency of Detection Above Most Stringent Criterion	Most Stringent Criterion
Pesticides/PCBs (µg/L)			
Dieldrin	0.004J	1/7	ND ^a
Metals (mg/L)			
Aluminum	0.088J - 3.38	4/7	0.05 ^b
Antimony	0.0034	1/7	0.003 ^c
Iron	0.013 - 7.23	5/7	0.3 ^a
Lead	0.00083J - 0.0495	2/7	0.015 ^d
Manganese	0.024 - 0.774	5/7	0.05 ^b
Sodium	10.3 - 242	4/7	20 ^a

**Table 4
T-9 STORAGE AOC
RISK ASSESSMENT EXPOSURE SCENARIOS**

UTILITY AND CONSTRUCTION WORKERS	LANDSCAPE WORKER	INDUSTRIAL WORKER
<ul style="list-style-type: none"> • Incidental ingestion of soil • Inhalation of fugitive dust from soil • Dermal contact with soil 	<ul style="list-style-type: none"> • Incidental ingestion of surface soil • Inhalation of fugitive dust from surface soil • Dermal contact with surface soil 	<ul style="list-style-type: none"> • Ingestion of groundwater • Dermal contact with groundwater (during showering) • Inhalation of VOCs from groundwater (during showering)

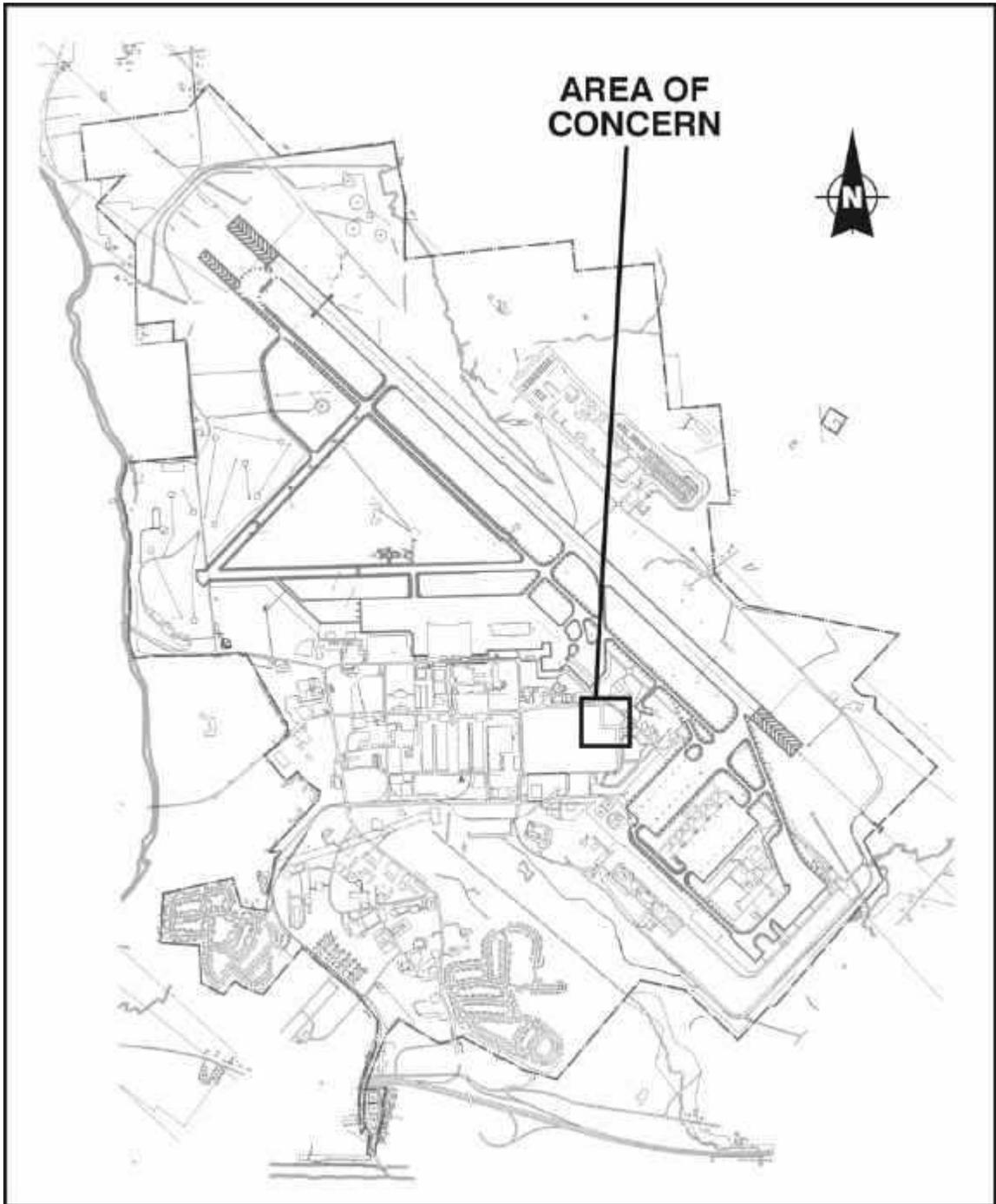


Figure 1 T-9 Storage AOC Location Map

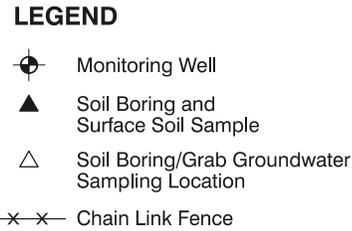
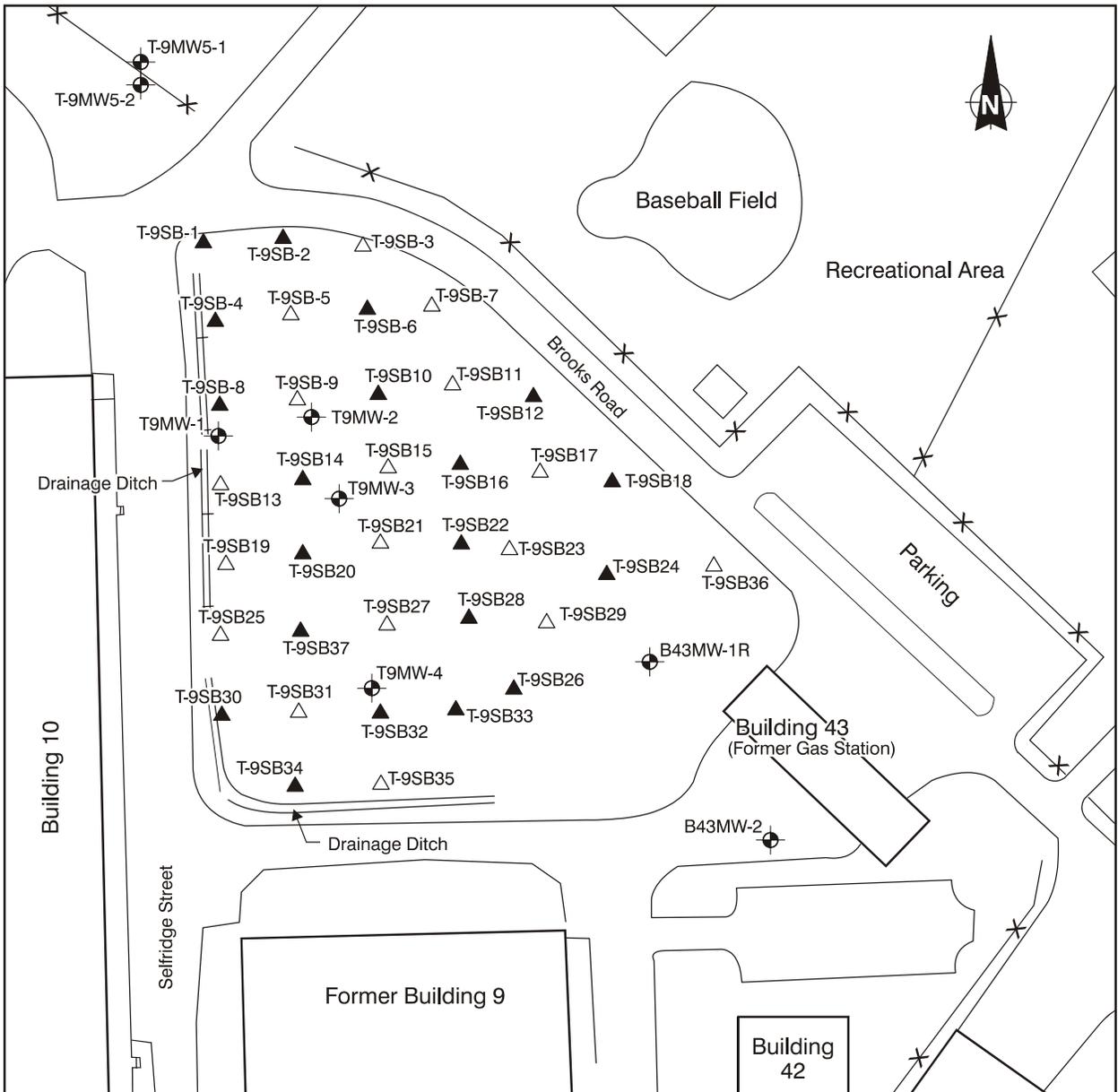


Figure 2 T-9 Storage AOC Site Map

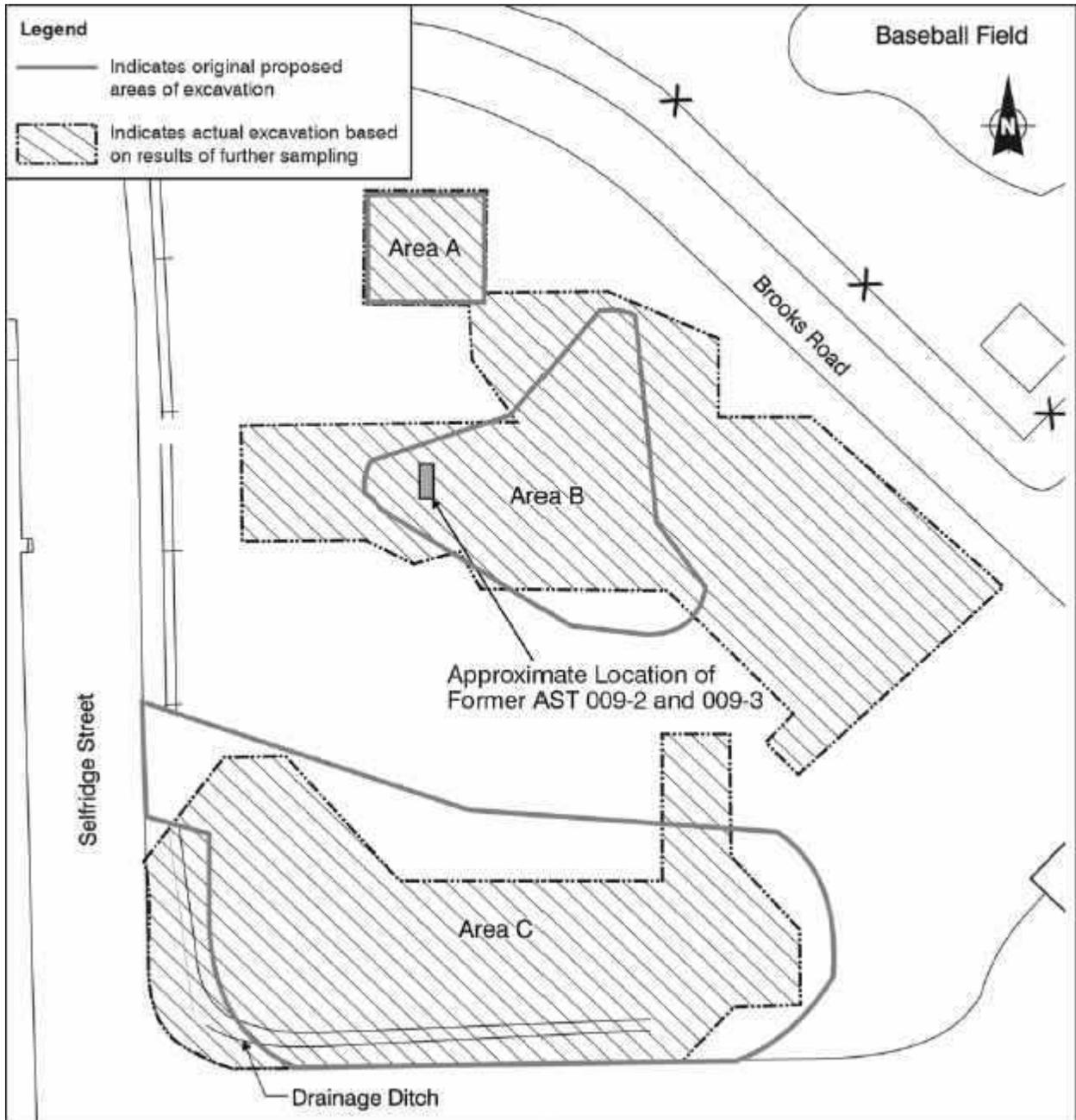


Figure 3 T-9 Storage AOC Interim Remedial Action Locations A, B, and C

On Friday, February 9, 2001, AFBCA, following consultation with and concurrence of the EPA and NYSDEC, released for public comment the proposed plan for no further action for soil with land use restrictions at the T-9 Storage AOC at the former Griffiss Air Force Base. The release of the proposed plan initiated the public comment period, which concluded on March 11, 2001.

During the public comment period, a public meeting was held on Thursday, March 1, 2001, at 5:00 p.m. at the Floyd Town Hall located at 8299 Old Floyd Road, Rome, NY. A court reporter recorded the proceedings of the public meeting. A copy of the transcript and attendance list are included in the Administrative Record. The public comment period and the public meeting were intended to elicit public comment on the proposal to take no further action at this site.

This document summarizes and provides responses to the verbal comments received at the public meeting and the written comments received during the public comment period.

Comment #1 (oral - Carmen Malagisi)

Mr. Malagisi requested an explanation of the five-year review process and whether there was a termination criteria for the five-year review.

Response #1

The five-year review is conducted by the Air Force, in conjunction with the EPA and NYSDEC, to assure that human health and the environment are being protected by the

remedial actions being implemented. In this case, the review will ensure that the land use is in compliance with industrial/commercial use, deed restrictions remain in place and that the cleanup standards used in the ROD are still appropriate. During the first five-year review, and any subsequent review, if it is determined that conditions at a portion of the site have improved such that it meets unlimited and unrestricted use, then that portion of the site can be excluded from future review. However, it is the policy of the EPA that five-year reviews be conducted on a site-wide basis whenever any portion of a site requires a review.

Comment #2 (oral - John Fitzgerald)

Mr. Fitzgerald asked if it was possible to have only one five-year review.

Response #2

At a minimum, one five-year review will be conducted. During that five-year review, it could be decided that no additional reviews are necessary.

Comment #3 (oral - John Fitzgerald)

Mr. Fitzgerald asked if there would be a record of when the five-year reviews will occur.

Response #3

CERCLA regulations do not require that the public be an active participant in the five-year reviews, but they do require that the results of the five-year reviews be made available to the public in the Information Repository. EPA guidance, however, suggests that the public be consulted during the five-year review process. While the Air Force has an active presence at the former Griffiss AFB, the Restoration Advisory Board (RAB) will be informed of and invited to participate in the five-year reviews.

Comment #4 (oral - John Fitzgerald)

For the record, Mr. Fitzgerald noted that he and other residents have concerns about the groundwater, but they understand that those issues will be addressed at a later time.

Agency for Toxic Substances and Diseases Registry (ATSDR), 1995, *Public Health Assessment for Griffiss Air Force Base, Rome, Oneida County, New York*, CERCLIS NY4571924451, prepared for U.S. Department of Health and Human Services, Public Health Service, Albany, New York.

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Hydro-Environmental Technologies (HET), 1986, *Letter Report for Soil Borings, Sample Analysis and Monitoring Well Installation at Various Locations, Griffiss AFB, New York*, Contract No. F30635-86-C-0111, Clarksville, New York.

Law Engineering and Environmental Services, Inc., December 1996, *Draft-Final Primary Report, Volume 21, Remedial Investigation, Griffiss Air Force Base, New York*, Contract No. DACA41-92-D-8001, Kennesaw, Georgia.

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Weston, November 1985, *Installation Restoration Program Phase II - Problem Confirmation and Quantification Study Stage 2, Griffiss Air Force Base, Rome, New York*, prepared for United States Air Force, Brooks AFB, Texas.

_____, December 1982, *Installation Restoration Program Phase II - Problem Confirmation and Quantification Study Stage 1, Griffiss Air Force Base, Rome, New York*, prepared for United States Air Force, Brooks AFB, Texas.