Final Records of Decision for Areas of Concern (AOCs)

Former Griffiss Air Force Base
Rome, New York

November 2004

- Building 3 (DP-11)
- Lot 69 (SS-17)
- Electrical Power Substation (SS-44)

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

MAR 17 2005

Ms. Kathryn M. Halvorson
Director
AFBCA/DR
1700 North Moore Street, Suite 2300
Arlington, VA 22209-2802

Re: Records of Decision - Building 3, Lot 69 & Electric Power Substation
Griffiss Air Force Base, Rome, New York

Dear Ms. Halvorson:

This is to inform you that after considering public comments on the Proposed Plans, Griffiss Air Force Base's responsiveness summary to those comments, the Draft Records of Decision and other supporting documents, the U.S. Environmental Protection Agency (EPA) concurs with the Records of Decision for Building 3, Lot 69 and the Electric Power Substation. I have co-signed the copies of the Records of Decision on behalf of EPA and have mailed the signed Records of Decision to the New York State Department of Environmental Conservation and to Griffiss AFB.

The Records of Decision for the sites require the following: 1) institutional controls restricting the use of the site to industrial/commercial; 2) prohibiting the use of groundwater unless approval from the New York State Department of Health is received; and 3) joint 5-year reviews of the remedy.

These Records of Decision address only the above mentioned areas of concern. All other areas of Griffiss Air Force Base are being addressed under separate operable units.

If you have any questions regarding the subject of this letter, please contact me at (212) 637-4405 or have your staff contact Douglas Pocze at (212) 637-4432.

Sincerely,

William McCabe,
Acting Director,
Emergency and Remedial Response Division

cc: Mr. Dale A. Desnoyers, Director, NYSDEC w/encl.

DEPARTMENT OF THE AIR FORCE
AIR FORCE REAL PROPERTY AGENCY

AFRPA/DR
1700 North Moore Street, Suite 2300
Arlington, VA 22209-2802

Mr. William McCabe
Acting Director
Emergency & Remedial Response Division
U.S. EPA, Region II
290 Broadway - 26th Floor
New York, NY 10007-1866

Dear Mr. McCabe,

We are pleased to forward for your signature the Records of Decision (RODs) for the Building 3 Drywell Area of Concern (DP-11), the Lot 69 Area of Concern (SS-17), and the Electrical Power Substation Area of Concern (SS-44) at the former Griffiss Air Force Base (AFB), New York. These RODs represent another milestone in the successful clean up of Griffiss AFB and is a result of our partnership with the State of New York and U. S. Environmental Protection Agency. We would like to thank Mr. Douglas Pocze for his assistance in accomplishing these RODs.

After signature, please retain one copy of each ROD for your records. Forward one copy of each ROD to New York State Department of Environmental Conservation, Attn: Ms. Heather Bishop, Bureau of Eastern Remedial Action, 625 Broadway, 11th Floor, Albany, NY 12233-7015, and send the final copy of each ROD to the Air Force Real Property Agency/Griffiss, Attn: Mr. Michael F. McDermott, 153 Brooks Road, Rome, NY 13441-4105.

Our point of contact for this effort is Mr. James Waldron, our Environmental Coordinator for Griffiss who can be reached at (703) 696-5243.

Sincerely

Kathryn M. Halvorson

KATHRYN M. HALVORSON
Director

Attachment:
RODs, Building 3 (DP-11), Lot 69 (SS-17), and
Electrical Power Substation (SS-44)

DEPARTMENT OF THE AIR FORCE
AIR FORCE REAL PROPERTY AGENCY

November 5, 2004

MEMORANDUM FOR Mr. James Waldron
AFRPA/DA-EC
1400 Key Blvd., 4th Floor
Arlington, VA 22209

FROM: AFRPA/DA-Griffiss
153 Brooks Road
Rome, NY 13441-4105

SUBJECT: Submittal - Final Records of Decision for Area of Concern Sites
Building 3, Lot 69, Electrical Power Substation

1. Enclosed, please find the final Records of Decision (RODs) for Area of Concern Sites (AOCs) Building 3 Drywell (DP-11), Lot 69 (SS-17) and Electrical Power Substation (SS-44). Please forward to the Acting Director for her signature and send three (3) signed copies to the U.S. Environmental Protection Agency, Region II.

2. If you have any questions, please contact Cathy Jerrard at (315) 330-2275.

for MICHAEL F. MCDERMOTT
Site Manager/BRAC Environmental Coordinator

Enclosure: Final RODs for AOCs Building 3 Drywell, Lot 69, Electrical Power Substation

New York State Department of Environmental Conservation
Division of Environmental Remediation, 12th Floor
625 Broadway, Albany, New York 12233-7011
Phone: (518) 402-9706 • **FAX:** (518) 402-9020
Website: www.dec.state.ny.us

Erin M. Crotty
Commissioner

SEP 10 2004

Mr. George Pavlou
Director
Emergency & Remedial Response Division
US Environmental Protection Agency
Floor 19 - #E38
290 Broadway
New York, New York 10007-1866

RE: Former Griffiss Air Force Base, Site #633006
August 2004 Records of Decision (RODs):
Record of Decision Lot 69 Area of Concern
Record of Decision Building 3 Drywell Area of Concern
Record of Decision Electrical Power Substation Area of Concern

Dear Mr. Pavlou:

The New York State Department of Environmental Conservation and the New York State Department of Health have reviewed the three August 2004 Record of Decision (ROD) documents for the above Areas of Concern at the Former Griffiss Air Force Base. The State concurs with the selected actions in each of the RODs involving the application of industrial / commercial land use and groundwater use restrictions.

If you have any questions, please contact Dr. Chittibabu Vasudevan at (518) 402-9625.

Sincerely,

Dale A. Desnoyers
Director
Division of Environmental Remediation

cc: J. Malleck, USEPA
D. Pocze, USEPA
M. McDermott, AFRPA/DA

Final
Record of Decision for the Building 3 Drywell Area of Concern (DP-11) at the Former Griffiss Air Force Base Rome, New York

November 2004

AIR FORCE REAL PROPERTY AGENCY

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List of Abbreviations and Acronyms

AFB	Air Force Base
AFRPA	Air Force Real Property Agency (formerly Air Force Base Conversion Agency)
AOC	Area of Concern
ARAR	Applicable or Relevant and Appropriate Requirements
ATSDR	Agency for Toxic Substances and Disease Registry
BGS	below ground surface
BRAC	Base Realignment and Closure Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COPCs	chemicals of potential concern
DBCRA	Defense Base Closure and Realignment Act
DoD	United States Department of Defense
EIS	Environmental Impact Statement
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
NPL	National Priorities List
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
PCB	polychlorinated biphenyl
RI	remedial investigation
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act
SVOC	semivolatile organic compound
VOC	volatile organic compound

1 Declaration

1.1 Site Name and Location

The Building 3 Drywell Area of Concern (AOC) (site identification designation DP-11) 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 land and groundwater use restrictions as the Selected Remedy for the Building 3 Drywell 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, as amended by the Superfund Amendments and Reauthorization Act (SARA), and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The remedy has been selected by the United States Air Force (Air Force), in conjunction with the United States Environmental Protection Agency (EPA), and with the concurrence of the New York State Department of Environmental Conservation (NYSDEC) pursuant to the Federal Facility Agreement (FFA) among the parties under Section 120 of CERCLA. This decision is based on the administrative record file for this site.

1.3 Assessment of the Site

The response action selected in this ROD is necessary to protect the public health or welfare or the environment from actual or threatened release of hazardous substances from the AOC into the environment.

1.4 Description of Selected Remedy

The Selected Remedy for the Building 3 Drywell AOC is land use restrictions for industrial/commercial use and groundwater use restrictions. Land and groundwater use restrictions will be implemented to minimize the exposure of any future users of the property including Air Force personnel, lessees/sublessees, transferees, and construction workers to any remaining hazardous substances located on the property encompassed by the Building 3 Drywell AOC. Under the Base Realignment and Closure Act (BRAC) 1993 realignment, this site is located on property that is being retained by the United States Department of Defense (DoD) and is being utilized by the Air Force Research Laboratory Information Directorate as a research and development facility. The following use restrictions and controls will be placed on the property to ensure that use of the property is consistent with the risk assessment:

- Development and use of the entire Building 3 AOC property for residential housing, elementary and secondary schools, childcare facilities and playgrounds will be prohibited unless prior approval is received from the Air Force, EPA, and NYSDEC; and

- The owner or occupant of this site shall not extract, utilize, consume, or permit to be extracted, any water from the subsurface aquifer within the boundary of the site (see Figure 3) unless such owner or occupant obtains prior written approval from the NYSDOH.

The baseline risk assessment indicated that the concentrations of contaminants present in the groundwater were within or below EPA's acceptable carcinogenic risk range and posed no noncarcinogenic risk to utility, construction, and industrial workers.

A qualitative risk assessment of soil indicated that the potential risk to utility and construction workers from exposure to soil at the site are expected to be minimal. Therefore, the concentrations of the contaminants in the groundwater and any potential remaining contaminants in the soil, and the results of the baseline risk assessment demonstrate that site contaminants, in conjunction with the land and groundwater use restrictions mentioned earlier, pose no current or potential threat to public health or the environment.

The Air Force is responsible for implementing, maintaining, monitoring, and enforcing the land and groundwater use restrictions. The above restrictions will be maintained until the concentrations of hazardous substances in the soil and groundwater have been reduced to levels that allow for unlimited exposures and unrestricted use. It is anticipated that successful implementation, operation, maintenance, and enforcement of these land use restrictions in accordance with the terms of this ROD will achieve protection of human health and the environment and compliance with all legal requirements. Approval by the Air Force and EPA, with concurrence from NYSDEC, is required for any modification or termination of land use or groundwater use restrictions.

To ensure implementation of land use restrictions, the Air Force has administrative procedures that require project approvals for projects that require construction or subsurface soil disturbance (for example, Air Force Instruction [AFI] 32-1021, Planning and Programming of Facility Construction Projects, and work request procedures under AFI 32-1001, Operations Management, or their equivalents as they may be amended). Air Force instructions and procedures require coordination with and prior approval by environmental personnel if a proposed project is located on or near an environmental restoration project (ERP) site. The Air Force will ensure that these or equivalent instructions, processes, and/or requirements will be complied with for all proposed construction or subsurface soil-disturbing activities at the Building 3 Drywell site.

In the future, if this property is transferred to a non-federal entity, the deed from the United States will contain the above restrictions to ensure that the reuse of the site is consistent with the risk assessment. The Air Force will notify the EPA and NYSDEC prior to such transfer.

1.5 Statutory Determinations

It has been determined that no additional removal action is necessary at the Building 3 Drywell AOC. The Air Force Real Property Agency (AFRPA) and EPA, with concurrence from NYSDEC, have determined that land use restrictions for industrial/commercial use and groundwater use restrictions are warranted at this site. Future landowners will be bound, through the property deed, to the industrial/commercial reuse of the area and groundwater use restrictions within the Building 3 Drywell AOC boundary.

Five-year reviews will be performed by the Air Force, in conjunction with the EPA and NYSDEC, to ensure that (1) the Selected Remedy is protective of public health and the environment, (2) land use is in compliance with the deed restrictions for industrial/commercial use, and (3) any groundwater use has been approved by the NYSDOH prior to use.

1.6 ROD Data Certification Checklist

The following information is included in the Decision Summary section of this ROD. Additional information can be found in the Administrative Record for this site.

- The chemicals of potential concern (COPCs) and their respective concentrations are presented in Section 2.5, Site Characteristics.
- Current and reasonably anticipated future land and groundwater use assumptions used in the baseline risk assessment and ROD are presented in Section 2.6, Current and Potential Future Site and Resource Uses.
- The baseline risk represented by the COPCs is presented in Section 2.7, Summary of Site Risks.

1.7 Authorizing Signatures

On the basis of the remedial investigation performed at the Building 3 Drywell 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 and when groundwater use is restricted. Future landowners will be bound, through the property deed, to the industrial/commercial reuse of the property. The New York State Department of Environmental Conservation has concurred with the Selected Remedy presented in this Record of Decision.

Kathryn M. Halvorson
Director
Air Force Real Property Agency

DEC 2 0 2004
Date

William McCabe
Acting Director, Emergency and Remedial Response Division
United States Environmental Protection Agency, Region 2

March 17, 2005
Date

2 Decision Summary

2.1 Site Name, Location, and Brief Description

The Building 3 Drywell AOC (site identification designation DP-11) is located at the former Griffiss AFB in Rome, Oneida County, New York. Pursuant to Section 105 of CERCLA, Griffiss AFB was included on the NPL on July 15, 1987. On August 21, 1990, the EPA, NYSDEC, and the Air Force entered into a FFA under Section 120 of CERCLA.

The Building 3 Drywell AOC is located in the central industrialized portion of the former Griffiss AFB (see Figure 1). Building 3 was the location of a former industrial shop. The drywell was located on the east side of Building 3 (see Figure 2).

2.2 Site History and Enforcement 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 Air Development Center [1951], Rome Laboratory, and then the Air Force Research Laboratory Information Directorate, established with the mission of accomplishing applied re-

search, development, and testing of electronic air-ground systems). The 49th Fighter Interceptor Squadron was also added. The Headquarters of the Ground Electronics Engineering Installations Agency was established in June of 1958 to engineer and install ground communications equipment throughout the world. On July 1, 1970, the 416th Bombardment Wing of the Strategic Air Command 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. The Air Force Research Laboratory Information Directorate and the Northeast Air Defense Sector will continue to operate at their current locations; the New York Air National Guard 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 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, among others, procurement, storage, maintenance, and shipping of war materiel; research and development; and aircraft operations and maintenance.

Numerous studies and investigations under the 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 basewide health assessment in 1988 performed 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; a groundwater investigation in 1991 (Geotech 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. A remedial investigation (RI) was conducted in 1994 and the draft-final RI report covering 31 AOCs was delivered to EPA and NYSDEC in December 1996 (Law 1996). A Supplemental Investigation Report was delivered in July 1998 (E & E 1998).

2.3 Community Participation

A proposed plan for the Building 3 Drywell AOC (AFRPA 2002), indicating land and groundwater use restrictions was released to the public on Wednesday, January 23, 2002. The document was made available to the public in both the administrative record file located at 153 Brooks Road 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 Monday, January 21, 2002. A public comment period lasting from January 23, 2002 to February 21, 2002 was set up to encourage public participation in the alternative selection process. In addition, a public meeting was held on Thursday, February 7, 2002. The AFRPA, NYSDEC, and the NYSDOH held an information session at the beginning of the public meeting and 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 land and groundwater use restrictions for the Building 3 Drywell AOC addresses the concerns for human health and the environment. The land use restrictions for industrial/commercial use are consistent with the risk assessment performed for occupational workers.

2.5 Site Characteristics

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 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.

The Building 3 Drywell AOC is located in the central industrialized portion of the base (see Figure 1). Surface water runoff in the area of the former drywell drains to Six Mile Creek. Groundwater flows in an easterly direction at this location and is at a depth of 8 to 8.5 feet below ground surface (BGS). Subsurface soil in the area of Building 3 is silty sands from 2 to 4 feet BGS and sandy gravel to gravelly sand from 4 to 12 feet BGS.

Building 3 was the location of a former industrial shop. The drywell was located on the east side of Building 3 next to an aboveground storage tank for liquid nitrogen (see Figure 2).

Usage of the drywell began in the 1960s and continued through 1984. The drywell was an open-bottom, earthen pit with a 5-gallon capacity. Materials disposed of included cleaning solvents, etching acids with metal salts, and paint thinner, methanol, acetone, and trichloroethylene. The drywell and contaminated soil were removed in June 1987. The former drywell area is now covered with gravel. The site boundary is illustrated in Figure 3. The following actions were taken during removal of the drywell:

- The existing exterior waste line was disconnected;
- The 5-gallon earthenware acid retention tank was removed;
- The contaminated area was excavated to a depth of 10 feet;
- Post-excavation soil samples were collected and analyzed for metals (organic compounds were not analyzed for);

- The exterior waste line at the building exterior wall was capped; and
- The area was backfilled with clean soil.

Site Investigations

In June 1987, the drywell and surrounding contaminated soil were excavated to 10 feet BGS. Subsurface soil sampling was conducted in August 1987 after excavation of the drywell. The soil samples were analyzed for metals and all of the results were nondetect using the toxicity characteristic leaching procedure (TCLP) extraction process. The soil was not analyzed for organic compounds.

In 1994, an RI was performed. 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 was necessary to prevent potential threats to human health and the environment that might arise from exposure to site conditions. Subsurface soil sampling was attempted in 1994 as part of the RI to confirm whether any residual soil contamination remained below the depth of the original drywell. However, the presence of gravel and cobbles prevented collection of the subsurface samples at the desired depth.

Two groundwater samples, one from each soil boring were collected and designated B3HP-1 and B3HP-2. Analysis of the samples indicated the presence of four volatile organic compounds (VOCs), seven semivolatile organic compounds (SVOCs), and 21 metals. The concentrations of 11 metals and total recoverable petroleum hydrocarbons exceeded the most stringent criterion for groundwater (see Table 1). Groundwater samples from soil borings are typically more turbid than groundwater samples from a monitoring well because they are not collected from a well that has been developed and purged prior to sampling. Due to this turbidity, concentrations of metals in soil boring groundwater samples are often elevated above concentrations in groundwater samples from monitoring wells.

An RI supplemental investigation was performed for the Building 3 Drywell in 1997. A single new vertical profile well was installed (B3VMW-1) because the RI groundwater sample results indicated the presence of low levels of chlorinated VOCs (be-

low most stringent criteria but detected at less than 2 µg/L). The samples were collected at 10-foot intervals beginning at the top of the water table (11 feet) to the top of bedrock and analyzed in the field. Five samples were collected to a depth of 48 feet. The well screen was then placed in the zone with the highest concentration of contaminants. Trichloroethylene was detected at the first screening interval only, and no other VOCs were detected. Therefore, the well screen was placed at the 8- to 18-foot depth interval. The groundwater sample indicated the presence of four VOCs and one SVOC (see Table 1A). None of the concentrations exceeded the most stringent criterion.

2.6 Current and Potential Future Site and Resource Uses

Griffiss AFB was designated for realignment under the Defense Base Closure and Realignment Act (DBCRA) in 1993 and 1995, resulting in deactivation of the 416th Bombardment Wing in September 1995. As a result of the realignment, a Master Reuse Strategy was developed by the Griffiss Local Development Corporation to provide the framework for reuse of the base after realignment and closure. The proposed reuse plan recommended in the final Master Reuse Strategy was evaluated in the Final Environmental Impact Statement (EIS) dated November 1995. As outlined in the Master Reuse Plan and EIS, the current land use designation for the Building 3 AOC is industrial. Following base realignment, this building was retained as part of an Air Force research and development complex with a land use designation of commercial/administrative. Currently, groundwater at the site is not being used as a resource. In the future, if this property is transferred to a non-federal entity, the deed from the United States will designate the use of the property for industrial/commercial use only and will prohibit the use of groundwater at the site unless prior written approval is granted by the NYSDOH. The Air Force will notify the EPA and NYSDEC prior to such transfer.

2.7 Summary of Site Risks

Site risks were analyzed based on the extent of contamination at the Building 3 Drywell 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 groundwater and any potential remaining contaminants in the soil at the site. The results of this assessment were considered when formulating this land and groundwater use restrictions proposal.

2.7.1 Human Health Risk Assessment

A baseline human health risk assessment was conducted during the RI to determine whether chemicals detected at the Building 3 Drywell 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 noncancer Hazard Index [HI] 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 COPCs with the exception of metals detected at concentrations less than twice the mean background concentrations; iron, magnesium, calcium, potassium, and sodium, which are essential human nutrients; and compounds detected in less than 5% of the total samples (unless they were known

human carcinogens). 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 the effects of exposure of potential future utility, construction, and industrial workers that may be exposed to chemicals detected in site media. The various exposure scenarios for each population are described in Table 2. The soil exposure scenarios were evaluated qualitatively due to the lack of analytical data to support a quantitative assessment. Intake assumptions, which are based on EPA guidance, are more fully described in the RI report.

Quantitative estimates of carcinogenic and noncarcinogenic risks from exposure to groundwater were calculated for the Building 3 Drywell 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 increase in the probability of an individual developing cancer over a lifetime as a result of exposure to the potential carcinogen. The risks associated with exposure to 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 less than 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 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. If either of these thresholds is 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.

Potential risks from exposure to COPCs at the Building 3 Drywell AOC were evaluated for utility, construction, and industrial workers during the RI. Metals were not included as COPCs in the groundwater because the sample was from a soil boring. The potential carcinogenic and noncarcinogenic risks from exposure to soil and groundwater are summarized below and in Table 3.

Carcinogenic Risk

The total carcinogenic risk from exposure to contaminants in groundwater by industrial workers was 2×10^{-7}, which is below the EPA's target risk range. The pathway-specific risks from ingestion and inhalation of VOCs released from groundwater, and dermal exposure to groundwater were 2×10^{-7}, 1×10^{-8} and 2×10^{-8}, respectively.

Utility and construction workers could be exposed to potential residual contamination in subsurface soil during excavation activities at the site. During the removal of the drywell and the upper 10 feet of soil at the drywell location in 1987, the water table was encountered between 8 and 8.5 feet BGS in the soil borings at the site. Thus, it is unlikely that any residual contamination remains in the soil above the water table. Therefore, the potential risks to utility and construction workers from exposure to soil at this site are expected to be minimal.

Noncarcinogenic Risk

The total HI for industrial workers exposed to groundwater was 0.006, which is significantly less than the benchmark value of 1. The total individual HIs for ingestion of

groundwater, dermal exposure to groundwater, and inhalation of VOCs released from groundwater were 0.005, 0.0005, and 0.000002 respectively.

Summary

The results of the human health baseline risk assessment indicate that contaminants found in the groundwater and any potential remaining contaminants in the soil should not present a risk to current and future utility, construction, and industrial workers. Quantitative evaluation of risk is subject to several conservative assumptions and should not be considered an absolute measure of risk.

2.7.2 Uncertainties

Uncertainties exist in many components of the human health risk assessment process. However, use of conservative variables in intake calculations and health-protective 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 this AOC include (1) Chemical samples were collected from the suspected source of contamination rather than through random sampling, which may result in a potential overestimation of risk; (2) Subsurface soil samples could not be collected from the two soil borings due to excessive cobblestones at the AOC. This data gap could potentially cause an underestimate of risk; (3) A toxicological criterion was not available for one chemical found at the site (phenanthrene), which may result in a potential underestimation of risk; (4) It was assumed that groundwater would be used in the future 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 existing water supplies at the former base and in the city of Rome. This would result in a potential overestimation of risk; and (5) Grab groundwater samples are typically very turbid, which results in reported chemical concentrations that are most likely elevated, and potentially results in an overestimation of risk.

2.7.3 Ecological Risk Assessment

A baseline risk assessment for ecological receptors at the Building 3 Drywell AOC was conducted during the RI. Since Building 3 Drywell is located in a highly developed portion of the base, no complete exposure pathways for ecological receptors were identified. Contamination that may be associated with the site is expected to be well below ground surface and ecological receptors are not expected to be found at these depths. In addition, the future land use designation is industrial/commercial. Therefore, potential exposures related to this AOC are not expected to exist.

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 on or in the vicinity of the base, no threatened and/or endangered species have been identified 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 Remedial Action Objectives

The following are the remedial action objectives developed for this site based upon the site data presented in the RI and Supplemental Investigation reports:

Restrict Exposure to Contamination

Land and groundwater use restrictions within the site boundary (see Figure 3) will be implemented to restrict site use to industrial/commercial use only and restrict use of the groundwater.

The following are the goals and objectives of the use restrictions:

- Prevent the use of the contaminated groundwater for drinking water or any other purposes that could result in the inhalation of vapors from, dermal absorption of, or ingestion of the contaminated groundwater.

- Prevent the discharge of the contaminated groundwater withdrawn during construction dewatering activities to the ground or surface water, without prior

concurrence of the NYSDEC, since this discharge could exacerbate the spreading of the contamination and may require a discharge permit.

- Prevent residential housing, elementary and secondary schools, childcare facilities and playgrounds on Building 3 AOC since the risk assessment was evaluated for only non-residential use scenarios (future use) and not for unrestricted use.

Evaluate Effectiveness of the Remedy

Five-year reviews will be performed by the Air Force, in conjunction with the EPA and NYSDEC, to ensure that (1) the Selected Remedy is protective of public health and the environment, (2) land use is in compliance with the deed restrictions for industrial/commercial use, and (3) any groundwater use has been approved by the NYSDOH prior to use.

2.9 Description of Alternatives

CERCLA regulations mandate that a remedial action must be protective of human health and the environment, cost effective, and utilize permanent solutions and treatment technologies to the maximum extent practicable. This ROD evaluates a No Action scenario as dictated by CERCLA, and compares it to the land use and groundwater use restrictions alternative. A summary of the two alternatives is presented below.

No Action Alternative

CERCLA requires that the No Action alternative be compared with other alternatives. Under the No Action alternative, no remedy would be implemented at the Building 3 Drywell AOC. The site would remain as it is presently and no land use restrictions would be established. Costs and construction time are not associated with this alternative.

Land Use Restrictions for Industrial/Commercial Use and Groundwater Use Restrictions Alternative

This alternative includes land use restrictions for industrial/commercial use and groundwater use restrictions. If the property is transferred to a non-federal entity in the

future, the deed from the United States, which includes property within the boundary of the Building 3 Drywell AOC, will contain the following elements to ensure that the reuse of the site is consistent with the risk assessment:

- Development and use of the entire Building 3 AOC property for residential housing, elementary and secondary schools, childcare facilities and playgrounds will be prohibited unless prior approval is received from the Air Force, EPA, and NYSDEC; and

- The owner or occupant of this site shall not extract, utilize, consume, or permit to be extracted, any water from the subsurface aquifer within the boundary of the site (see Figure 3) unless such owner or occupant obtains prior written approval from the NYSDOH.

Five-year reviews will be performed by the Air Force, in conjunction with the EPA and NYSDEC, to ensure that (1) the Selected Remedy is protective of public health and the environment, (2) land use is in compliance with the deed restrictions for industrial/commercial use, and (3) any groundwater use has been approved by the NYSDOH prior to use. Costs will range between $2,000 and $5,000 per review and construction time is not associated with this alternative.

2.10 Comparative Analysis of Alternatives

Remedial alternatives are assessed on the basis of both a detailed and a comparative analysis pursuant to the NCP. The analysis of the Building 3 Drywell AOC consisted of (1) an assessment of the individual alternatives against nine evaluation criteria and (2) a comparative analysis focusing upon the relative performance of each alternative against the criteria. In general, the following "threshold" criteria must be satisfied by an alternative for it to be eligible for selection:

1. Overall protection of human health and the environment addresses whether a remedy provides adequate protection and describes how risks posed through each exposure pathway (based on a reasonable maximum exposure scenario) are eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls.

2. Compliance with Applicable or Relevant and Appropriate Requirements (ARARs) addresses whether a remedy would (a) meet all of the ARARs or (b) provide grounds for invoking a waiver.

In addition, the following "primary balancing" criteria are used to make comparisons and identify the major trade-offs among alternatives:

3. Long-term effectiveness and permanence refers to the ability of a remedy to maintain reliable protection of human health and the environment over time once cleanup goals have been met. It also addresses the magnitude and effectiveness of the measures that may be required to manage the risk posed by treatment residuals and/or untreated wastes.

4. Reduction of toxicity, mobility, or volume via treatment refers to a remedial technology's expected ability to reduce the toxicity, mobility, or volume of hazardous substances, pollutants, or contaminants at the site.

5. Short-term effectiveness addresses (a) the period of time needed to achieve protection and (b) any adverse impacts on human health and the environment that may be posed during the construction and implementation periods until cleanup goals are achieved.

6. Implementability refers to the technical and administrative feasibility of a remedy, including the availability of materials and services needed.

7. Cost includes estimated capital, operation and maintenance, and present-worth costs.

Finally, the following "modifying" criteria are considered fully after the formal public comment period on the Proposed Plan is complete:

8. State acceptance indicates whether, based on its review of the RI and the Proposed Plan, the State supports or opposes the preferred alternative and/or has identified any reservations with respect to the preferred alternative.

9. Community acceptance refers to the public's general response to the alternatives described in the Proposed Plan and the RI reports. Factors of community acceptance include support, reservation, or opposition by the community.

A comparative analysis of the two alternatives based on the nine evaluation criteria follows.

1. Overall Protection of Human Health and the Environment

   The No Action alternative would potentially not provide adequate protection of human health and the environment since no remedy would be implemented at the Building 3 Drywell AOC to restrict its use. Based on the concentrations of contaminants in the groundwater, however, the results of the baseline risk assessment indicate that, although the concentrations of some chemicals exceed the groundwater standards, Building 3 Drywell poses no unacceptable health risk from exposure to the groundwater for utility, construction, and industrial workers. The potential risks to utility and construction workers from exposure to soil are expected to be minimal because the contaminated soil around the drywell was removed and it is unlikely that any residual contamination remains in the soil above the water table.

   The proposed alternative will prevent unnecessary exposure to the soil and groundwater (not evaluated for residential use scenarios) by limiting the future use of the site and through the implementation of land use restrictions for industrial/commercial use.

2. Compliance with ARARs

   Contaminant concentrations will not immediately comply with the ARARs under the No Action alternative or the Selected Remedy alternative. Currently there are no chemical specific ARARs for soil (other than for polychlorinated biphenyls [PCBs]). Therefore, other non-promulgated federal and state advisories and guidance values, referred to as To-Be-Considereds and background levels of the contaminants were used.

   The Selected Remedy alternative applies to soil and groundwater at the site. The Selected Remedy alternative will limit exposure to soil and groundwater through the implementation of land use and groundwater use restrictions. There is no evidence that chemical concentrations in the soil or in the groundwater at this site pose a current or future potential threat to human health or the environment when used for industrial/commercial purposes and when groundwater use is restricted. Further, five-year reviews will be performed by the Air Force, in conjunction with the EPA and NYSDEC, to ensure that (1) the Selected Remedy is protective of public health and the environment, (2) future land use is in compliance with the deed restrictions for industrial/commercial use, and (3) any groundwater use has been approved by the NYSDOH prior to use.

3. Long-term Effectiveness and Permanence

   The No Action alternative would not allow for reliable protection of human health and the environment in the long term due to the potential for future ingestion of groundwater and exposure to potentially contaminated soil by portions of the human population other than utility, construction, and industrial workers.

   For the Selected Remedy alternative, the implementation of land use and groundwater use restrictions will eliminate human contact with any potentially contaminated soil and groundwater. This action, coupled with the five-year reviews, provides reliable long-term protection of human health and the environment.

4. Reduction of Toxicity, Mobility, or Volume through Treatment

   The No Action alternative provides no treatment or containment of contaminants, and therefore does not result in any reduction of toxicity, mobility, or volume.

   The Selected Remedy alternative provides no treatment or containment of contaminants, and therefore, does not result in any reduction of toxicity, mobility, or volume. However, the levels of contamination found in the soil and groundwater do not warrant treatment. Although treatment will not be employed, this alternative will eliminate potential exposures to the soil and groundwater.

5. Short-term Effectiveness

   The No Action alternative would not be an effective alternative because the potential for human exposure to contaminated soil and ingestion of groundwater would continue to exist.

   For the Selected Remedy alternative, land use and groundwater use restrictions would be implemented if the property were transferred to a non-federal entity. The present and immediate future use of the property is industrial/commercial (under 1993 BRAC realignment, this site is located on property that is being retained by the DoD) with no utilization of groundwater. Any future deed restrictions will ensure that these controls remain intact.

6. Implementability

   There would be no limitations to implementing the No Action alternative.

There would be no limitations to implementing the Selected Remedy alternative. Implementation of land use and groundwater use restrictions is feasible and has been incorporated into other property transfers.

7. Cost

   There would be no costs associated with the No Action alternative.

   There are no capital costs or project construction durations associated with the Selected Remedy. Reviews to ensure that the remedy is still performing as planned will cost between $2,000 and $5,000 per review.

8. Agency Acceptance

   AFRPA, NYSDEC, and EPA have mutually agreed to select the land use and groundwater use restrictions alternative. The Selected Remedy satisfies the threshold criteria and ensures compliance with applicable regulations.

9. Community Acceptance

   Community acceptance of the Selected Remedy was assessed at the public meeting and during the public comment period.

2.11 Principal Threat Wastes

There are no principal threat wastes at the Building 3 Drywell AOC.

2.12 Selected Remedy

The Selected Remedy for the Building 3 Drywell AOC is land use restrictions for industrial/commercial use and groundwater use restrictions. Land and groundwater use restrictions will be implemented to minimize the exposure of any future users of the property including Air Force personnel, lessees/sublessees, transferees, and construction workers to any remaining hazardous substances located on the property encompassed by the Building 3 Drywell AOC (see Figure 3).

The Air Force is responsible for implementing, maintaining, monitoring, and enforcing the land and groundwater use restrictions. It is anticipated that successful implementation, operation, maintenance, and enforcement of these land use restrictions in accordance with the terms of this ROD will achieve protection of human health and the environment and compliance with all legal requirements. Approval by the Air Force and

EPA, with concurrence from NYSDEC, is required for any modification or termination of land use or groundwater use restrictions.

The following are the goals and objectives of the land and groundwater use restrictions:

- Prevent the use of the contaminated groundwater for drinking water or any other purposes that could result in the inhalation of vapors from, dermal absorption of, or ingestion of the contaminated groundwater.

- Prevent the discharge of the contaminated groundwater withdrawn during construction dewatering activities to the ground or surface water, without prior concurrence of the NYSDEC, since this discharge could exacerbate the spreading of the contamination and may require a discharge permit.

- Prevent residential use of Building 3 AOC since the risk assessment was evaluated for only non-residential use scenarios (future use) and not for unrestricted use.

To achieve these goals and objectives, the Air Force is requiring that use restrictions and controls be placed on the property to ensure that reuse is consistent with the risk assessment. The following are the corresponding use restrictions and controls on the property:

- Development and use of the entire Building 3 AOC property for residential housing, elementary and secondary schools, childcare facilities and playgrounds will be prohibited unless prior approval is received from the Air Force, EPA, and NYSDEC; and

- The owner or occupant of this site shall not extract, utilize, consume, or permit to be extracted, any water from the subsurface aquifer within the boundary of the site (see Figure 3) unless such owner or occupant obtains prior written approval from the NYSDOH.

The baseline risk assessment indicated that the concentrations of contaminants present in the groundwater were within or below EPA's acceptable carcinogenic risk range and posed no noncarcinogenic risk to utility, construction, and industrial workers. A qualitative risk assessment of soil indicated that the potential risk to utility and construction workers from exposure to soil at the site are expected to be minimal. Therefore,

the concentrations of the contaminants in the groundwater and any potential remaining contaminants in the soil, and the results of the baseline risk assessment demonstrate that site contaminants, in conjunction with the land and groundwater use restrictions mentioned earlier, pose no current or potential threat to public health or the environment.

The above restrictions shall be maintained until the concentrations of hazardous substances in the soil and groundwater has been reduced to levels that allow for unlimited exposures and unrestricted use. Approval by the Air Force and EPA with concurrence from NYSDEC is required for any modification or termination of land use or groundwater use restrictions. Under the Base Realignment and Closure Act (BRAC) 1993 realignment, this site is located on property that is being retained by the United States Department of Defense (DoD) and is being utilized by the Air Force Research Laboratory Information Directorate as a research and development facility. To ensure implementation of land use restrictions, the Air Force has administrative procedures that require project approvals for projects that require construction or subsurface soil disturbance (for example, Air Force Instruction [AFI] 32-1021, Planning and Programming of Facility Construction Projects, and work request procedures under AFI 32-1001, Operations Management, or their equivalents as they may be amended). Air Force instructions and procedures require coordination with and prior approval by environmental personnel if a proposed project is located on or near an environmental restoration project (ERP) site. The Air Force will ensure that these or equivalent instructions, processes, and/or requirements will be complied with for all proposed construction or subsurface soil-disturbing activities at the Building 3 Drywell site.

If this property is transferred to another federal entity or a non-federal entity in the future, the EPA and NYSDEC will be notified at least six months prior to such transfer. If the six-month notification is not possible, the EPA and NYSDEC will be notified no later than 60 days prior to such transfer.

The Air Force will take the following actions to ensure that the aforementioned use restrictions and the controls are effective in eliminating the exposure scenario and protecting human health and the environment:

Deed Restrictions: The transfer of fee title from the United States will include a CERCLA 120(h)(3) covenant which will contain a description of the residual contamination on the property and the environmental use restrictions, described above, expressly prohibiting activities inconsistent with the performance measure goals and objectives.

The environmental restrictions will be included in the deed for any property that has had hazardous substances stored for one year or more, known to have been released or disposed of on the property. The Air Force will consult with the EPA and NYSDEC on the deed restriction language. The deed will contain appropriate provisions to ensure that the restrictions continue to run with the land. The deed will also contain a reservation of access to the property for the Air Force, EPA, and the NYSDEC, and their respective officials, agents, employees, contractors, and subcontractors for purposes consistent with the Air Force IRP and the FFA.

Lease Restrictions: Prior to conveyance by deed of property where the residual contamination is located, and when such property is leased, the Air Force will include in the lease a description of the residual contamination and language explicitly prohibiting activities inconsistent with such goals and include lease terms that are equivalent to the use restrictions and controls described in this ROD. The lease restrictions will be operational and will remain in place until the property is transferred by deed. At the moment of deed transfer, the lease restrictions will be superseded by the restrictions in the federal deed, which will include lease terms that are equivalent to the use restrictions and controls described in this ROD.

Notice: Concurrent with the transfer of fee title, information regarding the environmental use restrictions controls will be communicated in writing to the property owners and to appropriate state and local agencies to ensure such agencies can factor such conditions into their oversight and decision-making activities regarding the property. The Air Force will also provide a copy of the deeds to the regulatory agencies as soon as practicable after the transfer of fee title.

Monitoring and Enforcement:

Monitoring: Monitoring of the environmental use restrictions will be conducted on an annual basis. The monitoring results will be included in a separate report or as a section in another environmental report, if appropriate, and provided to EPA and NYSDEC. The environmental use monitoring reports will be used in the preparation of the five-year reviews to evaluate the effectiveness of the remedy. Five-year review reports will make recommendations on the continuation or modification of the monitoring reports and environmental use monitoring frequencies. The Five-year review reports will be submitted to the regulatory agencies in accordance with the FFA.

The environmental use monitoring report, submitted to the regulatory agencies by the Air Force, will evaluate the status of the land and groundwater use restrictions and how any use restriction deficiencies have been addressed. The annual evaluation will address whether the use restrictions were communicated in the deed(s), whether the owners and state and local agencies were notified of the use restrictions affecting the property, and whether use of the property has conformed to such restrictions.

Response to Violations: The Air Force will notify EPA and NYSDEC via e-mail or telephone as soon as practicable, but no later than 10 days after discovery of any activity that is inconsistent with the land and groundwater use objectives or use restrictions, exposure assumptions, or any action that may interfere with the effectiveness of the land and groundwater use restrictions. Any violations that breach federal, state or local criminal or civil law will be reported to the appropriate civilian authorities, as required by law.

Enforcement: Any activity that is inconsistent with the land and groundwater use objectives or use restriction or any action that may interfere with the effectiveness of the land and groundwater use restrictions will be addressed by the Air Force as soon as practicable (but in no case more than 10 days) after the Air Force becomes aware of the violation. The Air Force will notify EPA and NYSDEC regarding how the breach has been addressed within 10 days of sending EPA and NYSDEC notification of the breach. The Air Force will exercise such rights as it retained under the transfer documents to direct that activities in violation of the controls be immediately halted. To the extent necessary, the Air Force will engage the services of the Department of Justice to enforce such rights.

Notification of Land Use Modification: The recipient of the property will obtain approval from the Air Force, EPA, and NYSDEC for any proposals for a land use change at a site inconsistent with the use restrictions described in this ROD.

State Land Use Notification Requirements: Consistent with the stated purposes of recent amendments to the New York Environmental Conservation Law enacting Section 27-1318, Institutional and Engineering Controls, the Air Force will meet the annual certification of Section 27-1318(C) through the annual monitoring report described above. Prior to property transfer, any grantee will be notified of any state land use control notification or reporting requirements.

The Air Force may arrange for third parties or other entities to perform any and all of the above actions. Any such arrangement shall be undertaken and executed in accordance with all applicable legal requirements, to include the Air Force's functions, obligations, and responsibilities under CERCLA. However, the Air Force shall retain ultimate responsibility for remedy integrity.

2.13 Statutory Determinations

It has been determined that no additional removal action is necessary at the Building 3 Drywell AOC. The AFRPA and EPA, with concurrence from NYSDEC, have determined that land use restrictions for industrial/commercial use and groundwater use restrictions are warranted for this site. Future landowners will be bound, through the property deed, to the industrial/commercial reuse of the area within the Building 3 Drywell AOC boundary and groundwater use restrictions.

Five-year reviews will be performed by the Air Force, in conjunction with the EPA and NYSDEC, to ensure that (1) the Selected Remedy is protective of public health and the environment, (2) land use is in compliance with the deed restrictions for industrial/commercial use, and (3) any groundwater use has been approved by the NYSDOH prior to use.

2.14 Documentation of Significant Changes

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

Table 1
COMPOUNDS EXCEEDING STANDARDS AND GUIDANCE VALUES
BUILDING 3 DRYWELL AOC
RI GROUNDWATER SAMPLES

Compound	Range of Detected Concentrations	Frequency of Detection Above Most Stringent Criterion	Most Stringent Criterion
Metals (mg/L)			
Aluminum	3.3 J - 140 J	2/2	0.05 [a]
Arsenic	0.005 - 0.027	1/2	0.025 [a]
Barium	0.073 - 1.2	1/2	1.0 [b]
Beryllium	0.005	1/2	0.003 [b]
Chromium	0.27	1/2	0.05 [b]
Copper	0.039 - 1.1	1/2	0.2 [b]
Iron	11.7 - 613	2/2	0.3 [b]
Lead	0.014 - 0.26	1/2	0.015 [d]
Manganese	2.8 - 58	2/2	0.05 [a]
Mercury	0.00075	1/2	0.0007 [b]
Nickel	0.66	1/2	0.1 [b]
Wet Chemistry (mg/L)			
Petroleum Hydrocarbons	1.1 J - 10.1 J	2/2	0.1 [a]

[a] Federal secondary maximum contaminat level

[b] NYSDEC Class GA groundwater standard; June 1998

[c] NYSDEC Class GA groundwater guidances; June 1999

[d] Federal primary maximum contaminat level

Key:
J = Estimated concentration

Table 1A
FREQUENCY OF DETECTION
SI GROUNDWATER SAMPLE

Compound	Range of Detected Concentrations	Frequency of Detection Above Most Stringent Criterion	Most Stringent Criterion
VOCs (µg/L)			
1,1,1Trichloroethane	0.83	0	5 [a]
Chloroform	1.0	0	7 [a]
Tetrachloroethene	0.36 J	0	5 [a]
Trichloroethene	2.7	0	5 [a]
SVOCs (µg/L)			
Bis(2-ethylhexyl)phthalate	5.7	0	6 [b]

[a] NYSDEC Class GA groundwater standard; June 1998

[b] Federal primary maximum contaminant level

Key:
J = Estimated concentration

Table 2
BUILDING 3 DRYWELL AOC
RISK ASSESSMENT
EXPOSURE SCENARIOS

UTILITY AND CONSTRUCTION WORKERS	INDUSTRIAL WORKER
• Incidental ingestion of soil • Inhalation of fugitive dust • Dermal contact with soil	• Ingestion of groundwater • Dermal contact with groundwater (during showering) • Inhalation of VOCs from groundwater (during showering)

Table 3
BUILDING 3 DRYWELL AOC
RI SUMMARY OF RISKS

HUMAN HEALTH RISKS

Pathway	Receptor	Site Condition	Cancer Risk	Noncancer Risk
Subsurface Soil (ingestion, inhalation, dermal contact)	Utility worker	Future	Qual*	Qual*
	Construction worker	Future	Qual*	Qual*
Groundwater (ingestion, inhalation of VOCs, dermal)	Industrial workers	Future	2×10^{-7}	0.006

* Evaluated qualitatively due to presence of gravel and cobbles, which prevented collection of samples.

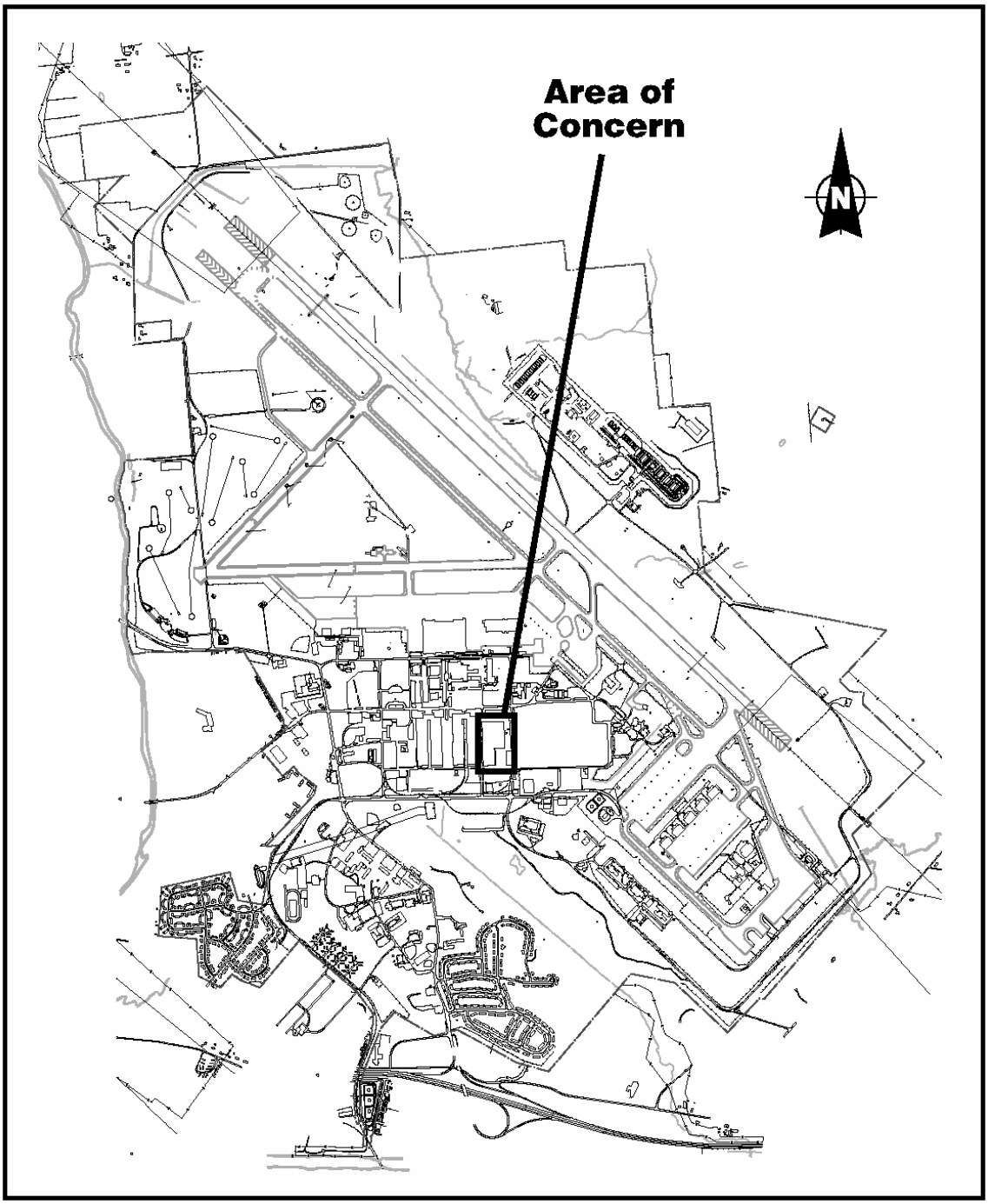

Figure 1 Location of Building 3 Drywell AOC

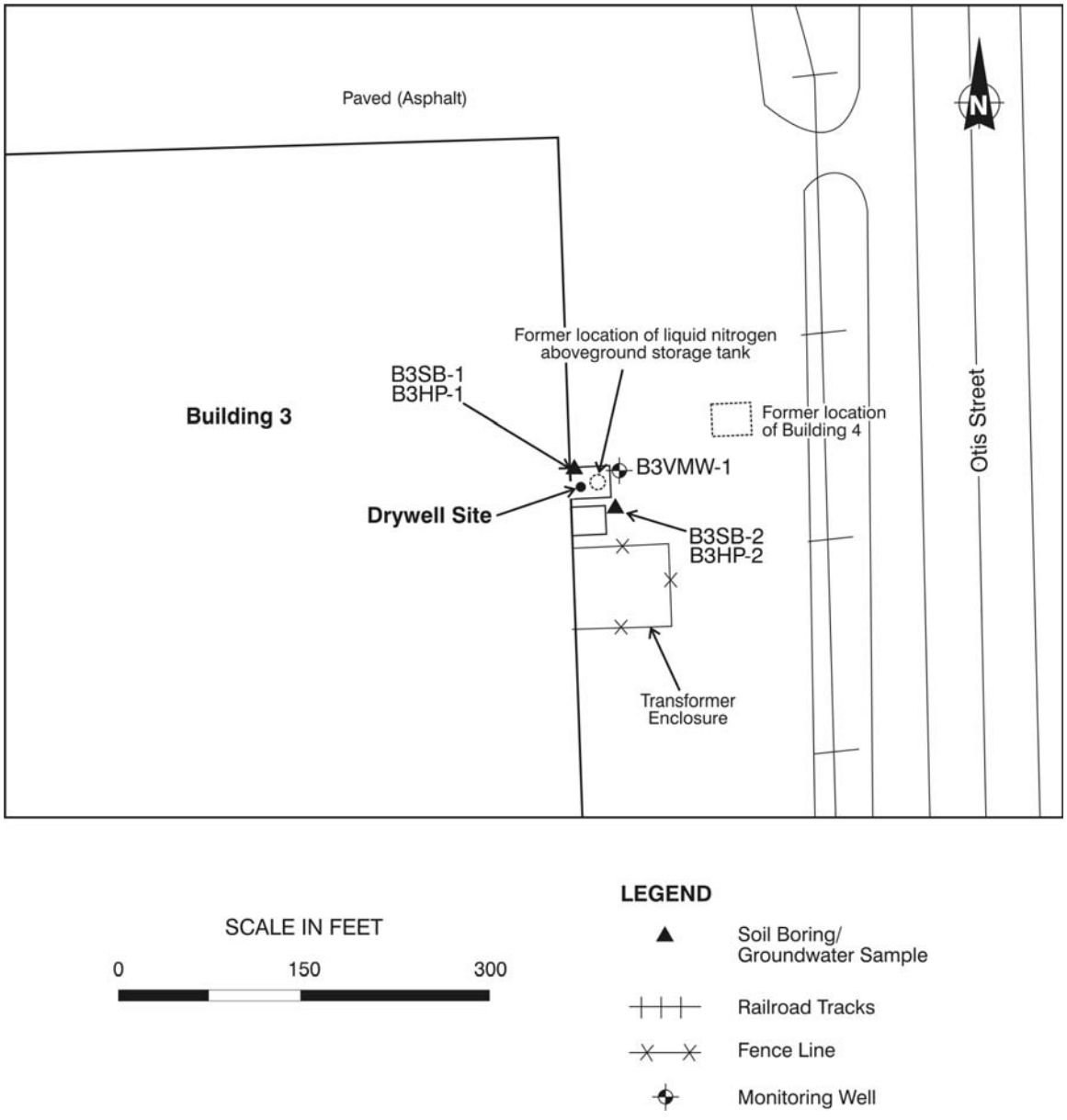

Figure 2 Building 3 Drywell AOC Site Map

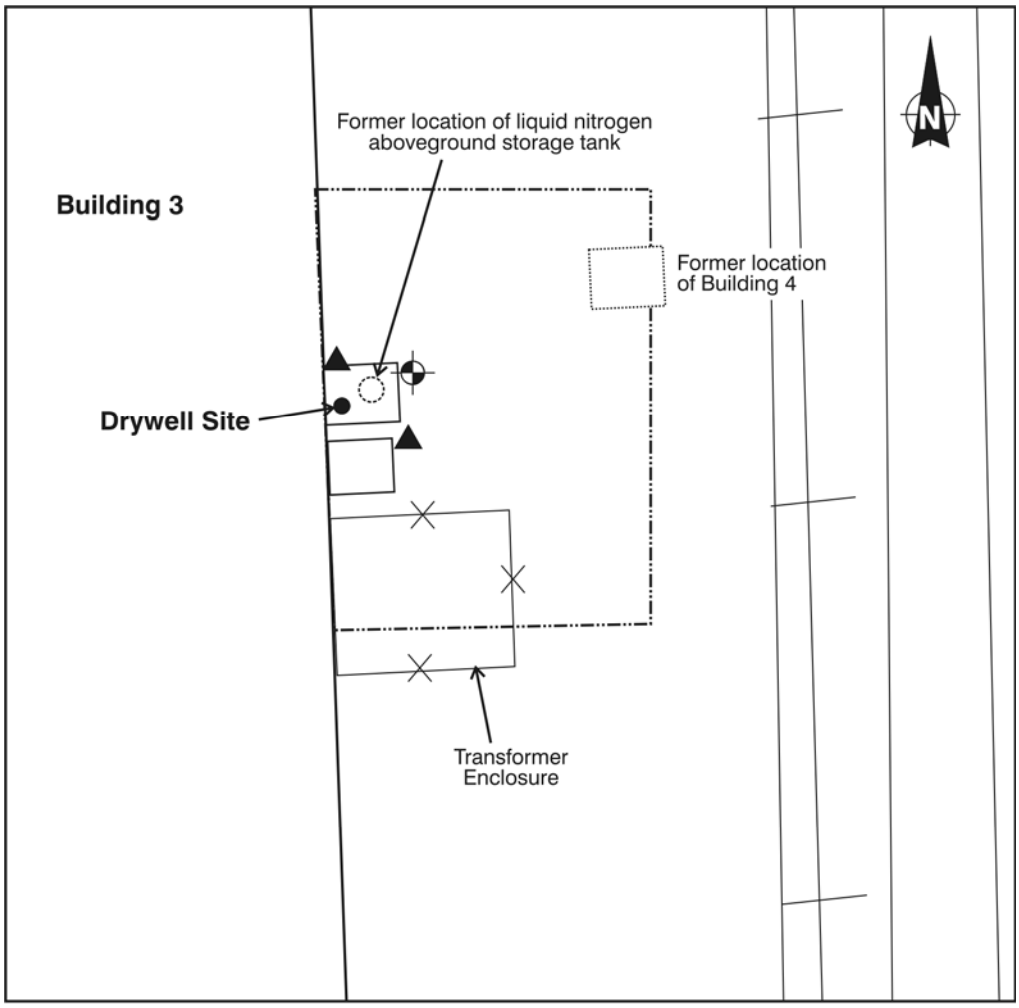

Figure 3 Site Boundary/Land Use Control Boundary

3 Responsiveness Summary

On Wednesday, January 23, 2002, AFRPA, following consultation with and concurrence of the EPA and NYSDEC, released for public comment the proposed plan for land use and groundwater use restrictions at the Building 3 Drywell AOC at the former Griffiss AFB. The release of the proposed plan initiated the public comment period, which concluded on February 21, 2002.

During the public comment period, a public meeting was held on Thursday, February 7, 2002, at 5:00 p.m. at the Floyd Town Hall located at 8299 Old Floyd Road, Rome, New York. A court reporter recorded the proceedings of the public meeting. Copies 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 proposed plan for 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. Several of the oral and written comments do not pertain to the six proposed plans that were issued for public comment but do relate to the base closure in general. Responses to such general comments, however, are also provided in this Responsiveness Summary.

ORAL COMMENTS

Comment #1 (Freda Melkun)

Mrs. Melkun inquired as to why there was no mention of groundwater contamination and contamination in the air in Building 3. She also asked if chemical vapors could rise up through the soil to the air and whether TCE could seep down into the soil.

Response #1

Groundwater samples were taken near the location of the former drywell. The results from sampling efforts in 1994 and 1997 are presented on page 6 of the proposed plan. The 1997 groundwater sampling indicated the presence of four VOCs and one SVOC, however, none of the concentrations exceeded the most stringent criterion. The risk assessment associated with the chemical concentrations found during the Remedial Investigations (RI) is presented on page 10 of the proposed plan. The results of the human health baseline risk assessment indicate that chemicals in the soil and groundwater should not present a risk under the current and future scenarios. The drywell and surrounding soil were totally removed in 1987. There is no contamination present to move from soil to air or soil to groundwater. The most recent groundwater sampling detected concentrations of TCE less than the most stringent drinking water standards. Contamination at levels equal to or less than the drinking water standards should not pose a significant threat to indoor air quality.

Comment #2 (Freda Melkun)

a) Mrs. Melkun asked a general question regarding potential movement of contamination off base and asked if any off-base investigations will take place.

b) She stated that Three Mile Creek and Six Mile Creek are contaminated, so their groundwater wells should be contaminated, and asked what the chemical effects are when you start mixing everything together.

c) She stated that ethylene glycols were found in some of the off-base wells and her well was supposed to be tested and it never was.

d) She stated that children are still swimming in the creeks.

Response #2

a) Several off-base investigations have been completed and it has been determined that there is no contamination at levels of health concern affecting off-base property, with the possible exception of Three Mile and Six Mile Creeks. Twenty-seven monitoring wells were sampled as part of the Off-Base Groundwater Contamination Area of Concern. Also, more than 300 domestic wells were sampled.

Reference report: Volume 32 of the Draft-final Remedial Investigations Report dated December 1996.

b) There has been contamination found in both Six Mile and Three Mile Creeks. As part of our assessment of the creeks, we have evaluated the effects of individual and combined chemicals on various receptors. However, such chemical effects, whether dealing with one or several chemicals, are unique and must be evaluated on a case-by-case basis. For the off-base portion of Six Mile Creek, the contaminants include low-level concentrations of polycyclic aromatic hydrocarbons (PAHs) and PCBs in the surface water and sediments. For the off-base portion of Three Mile Creek, the contaminants include moderate level concentrations of VOCs, SVOCs, metals, PAHs and PCBs in the surface water and sediments. Remedies are being evaluated for these sites and proposed plans will be issued within the next year. Several of the off-base monitoring wells and private wells that were sampled were adjacent to the creeks. The results showed that contamination has not traveled from the creeks to the wells. Furthermore, during the investigations, it was found that groundwater in the area south and southeast of the base flows into Six Mile Creek and not from the creek into the surrounding groundwater, therefore, it is extremely unlikely that contaminants in the creek would be transferred to adjacent homeowner wells. Proposed plans for Three Mile Creek (Remedial Action with Long-term Monitoring) and Six Mile Creek (source Control and Long-term Monitoring) were issued for public review and comment on July 24, 2003. A public meeting was held on August 5, 2003, to present the proposed alternatives. A final Record of Decision was signed by the EPA on March 26, 2004.

Reference reports: Volumes 6 and 11 of the Draft-final Remedial Investigations Report dated December 1996; Draft Feasibility Study Report for Three Mile Creek AOC and Six Mile Creek AOC dated January 1999; Six Mile Creek Summary Report dated March 2000; Final Three Mile Creek and Final Six Mile Creek Records of Decision dated December 2003.

c) The off-base investigations that sampled monitoring wells and private wells concluded that there is no evidence that people were exposed to ethylene glycol in drinking water at levels of health concern in the Griffiss area. The results of the investigations were well publicized. Several fact sheets were issued and several public meetings were held. Although NYSDOH acknowledges that Mrs. Melkun's well was not tested, it was not a deliberate oversight. Results of the sampling in the early 1980s in the vicinity of Mrs. Melkun's home did not indicate any pattern of groundwater contamination, nor were results above drinking water standards and, therefore, the sampling effort was discontinued. As a result, further testing of wells, including Mrs. Melkun's well, was not performed.

Reference reports: Volume 32 of the Draft-final Remedial Investigations Report dated December 1996; Public Health Assessment Addendum for Griffiss AFB, dated September 9, 1996 (Agency for Toxic Substances and Disease Registry).

d) The water and the sediments of Six Mile and Three Mile Creeks were thoroughly tested. The results analyzed under the CERCLA program showed that there is no significant risk to adults or children when playing or fishing in the creeks. However, NYSDOH does include statewide fish advisories for all stream, creeks and water bodies. These restrictions known as the NYSDOH Fish Consumption Advisories provide general warnings or restrictions for recreational fishers who may eat the fish. The NYSDOH Fish Consumption Advisories are provided to all individuals who seek a NYS fishing license and a copy can be obtained by contacting the NYSDOH. The NYSDOH Fish Consumption Advisories are issued independent of the CERCLA process.

Reference reports: Volumes 6 and 11 of the Draft-final Remedial Investigations Report dated December 1996, Draft Feasibility Study Report for Three Mile Creek AOC and Six Mile Creek AOC dated January 1999, Six Mile Creek Summary Report dated March 2000.

Comment #3 (Paul Landry)

Mr. Landry asked for a summary of the overall status of base cleanup.

Response #3

A brief summary was provided after the meeting. The status will be documented and passed out at the next Restoration Advisory Board meeting.

WRITTEN COMMENTS

One letter was received during the public comment period. That letter was sent by Mrs. Freda Melkun and was dated February 14, 2002. The comments in the letter are summarized below. Many of the comments are general comments not related to a specific proposed plan. Two comments, however, are related to specific proposed plans that were presented at the February 7, 2002, public meeting.

Comment #1

Mrs. Melkun stated that her well was not tested, although she requested the Health Department to sample.

Response #1

The NYSDOH acknowledges that Mrs. Melkun's well was not tested. It was not a deliberate oversight. Results of the sampling in the early 1980s in the vicinity of Mrs. Melkun's home did not indicate any pattern of groundwater contamination, nor were results above drinking water standards and the sampling effort was discontinued.

Comment #2

Mrs. Melkun reported suspecting chemical contamination to be the source of an illness in 1980 and also reported green bath water, dead fish and animals.

Response #2

There are reports that occasionally the green dye used to mark the runways in winter appeared in Six Mile Creek. NYSDOH and the Air Force have no records of reports of dead fish and animals in the vicinity of the base. As stated above, the off-base investigations that sampled monitoring wells and private wells concluded that there is no evidence that people were exposed to ethylene glycol or other contaminants in drinking water at levels of health concern in the Griffiss area.

Comment #3

Mrs. Melkun witnessed run-off from spraying planes going into the ground along with trichloroethylene.

Response #3

A comprehensive environmental investigation has been completed at Griffiss Air Force Base and no records exist of trichloroethylene being sprayed on the planes. De-icing sprays comprised of glycols were used at various parts of the base. The status of the projects and maps of the contaminated areas are regularly reported at Restoration Advisory Board Meetings. The Apron areas where planes were parked do have petroleum and solvent contamination and these areas of contamination have been defined. However, please note that these areas are located well within the base boundary and are being addressed by the Air Force.

Comment #4: **Comment on Building 3 Drywell Proposed Plan**

Mrs. Melkun repeated her concern with contamination from the drywell moving to the air or groundwater.

Response #4

Groundwater samples were taken near the location of the former drywell. The results from sampling efforts in 1994 and 1997 are presented on page 6 of the proposed plan. The 1997 groundwater sampling indicated the presence of four VOCs and one SVOC, however, none of the concentrations exceeded the most stringent criterion. The risk assessment associated with the chemical concentrations found during the Remedial Investigations is presented on page 10 of the proposed plan. The results of the human health baseline risk assessment indicate that chemicals in the soil and groundwater should not present a risk under the current and future scenarios. The drywell and surrounding soil were totally removed in 1987. There is no contamination present to move from soil to air or soil to groundwater. The most recent groundwater sampling detected concentrations of TCE less than the most stringent drinking water standards. Contamination at levels equal to or less than the drinking water standards pose no threat to indoor air quality.

Comment #5

Mrs. Melkun stated her disappointment that no further sampling will be performed as contamination has shifted from Griffiss to her area.

Response #5

As stated above, extensive off-base investigations have been completed and it has been determined that there is no contamination at levels of health concern affecting off-base property, with the possible exception of Three Mile and Six Mile Creeks. Twenty-seven monitoring wells were sampled as part of the Off-Base Groundwater Contamination Area of Concern. Also, more than 300 domestic wells were sampled.

Comment #6

Mrs. Melkun repeated her concern for swimmers in Six Mile Creek and requested the posting of notices.

Response #6

The water and the sediments of Six Mile and Three Mile Creeks were thoroughly tested. The results were analyzed and showed that there is no significant risk to adults or children when playing or fishing in the creeks provided adherence to the NYSDOH Fish Consumption Advisories. Therefore, there are no additional restrictions or warnings beyond the fishing health advisory required for recreational use of the creeks.

Comment #7

Mrs. Melkun stated there should have been compensation for the health problems resulting from contaminated water.

Response #7

There is no documentation that contamination released by Griffiss AFB has caused health problems to off-base residents.

Comment #8: **Comment on Electrical Power Substation Proposed Plan**

Mrs. Melkun is concerned about the dioxins and furans and wants to know the cause.

Response #8

When transformer fluids get extremely hot, dioxins and furans are released. They are also associated with PCBs. Therefore, the dioxins and furans were associated with PCB transformer spills. Dioxin (2,3,7,8-TCDD) concentrations did not exceed the 40 nanograms per kilogram (ng/kg) soil guidance value in any sample. There were no high levels detected.

4 References

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Final
Record of Decision for the Lot 69 Area of Concern (SS-17) at the Former Griffiss Air Force Base Rome, New York

November 2004

AIR FORCE REAL PROPERTY AGENCY

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List of Abbreviations and Acronyms

AFB	Air Force Base
AFRPA	Air Force Real Property Agency (formerly Air Force Base Conversion Agency)
AOC	Area of Concern
ARAR	Applicable or Relevant and Appropriate Requirement
ATSDR	Agency for Toxic Substances and Disease Registry
BGS	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COPCs	chemicals of potential concern
DBCRA	Defense Base Closure and Realignment Act
DoD	Department of Defense
EIS	Environmental Impact Statement
EPA	United States Environmental Protection Agency
FFA	Federal Facility Agreement
GLDC	Griffiss Local Development Corporation
HI	Hazard Index
HQ	Hazard Quotient
IRP	Installation Restoration Program
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
PCB	polychlorinated biphenyl
RI	remedial investigation
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act
SVOC	semivolatile organic compound
VOC	volatile organic compound

1 Declaration

1.1 Site Name and Location

The Lot 69 Area of Concern (AOC) (site identification designation SS-17) 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 institutional controls alternative for the Lot 69 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, as amended by the Superfund Amendments and Reauthorization Act (SARA), and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The remedy has been selected by the United States Air Force (Air Force) in conjunction with the United States Environmental Protection Agency (EPA) and with the concurrence of the New York State Department of Environmental Conservation (NYSDEC) pursuant to the Federal Facility Agreement (FFA) among the parties under Section 120 of CERCLA. This decision is based on the administrative record file for this site.

1.3 Assessment of the Site

The response action selected in this ROD is necessary to protect the public health or welfare, or the environment, from actual or threatened release of hazardous substances from the AOC into the environment.

1.4 Description of Selected Remedy

The Selected Remedy for the Lot 69 AOC is institutional controls in the form of land use restrictions for industrial/commercial use and groundwater use restrictions. Institutional controls will be implemented to minimize the exposure of any future users of the property including Air Force personnel, lessees/sublessees, transferees, and construction workers to any remaining hazardous substances located on the property encompassed by the Lot 69 AOC. Each deed from the United States, which includes property within the boundary of the Lot 69 AOC, will contain the following restrictions to ensure that the reuse of the site is consistent with the risk assessment:

- Development and use of the entire Lot 69 AOC property for residential housing, elementary and secondary schools, childcare facilities and playgrounds will be prohibited unless prior approval is received from the Air Force, EPA, and NYSDEC; and

- The owner or occupant of this site shall not extract, utilize, consume, or permit to be extracted, any water from the subsurface aquifer within the boundary of the site (see Figure 2) unless such owner or occupant obtains prior written approval from the NYSDOH.

The baseline risk assessment indicated that the levels of contaminants present in the soil and groundwater fell within or below EPA's acceptable carcinogenic risk range and posed no noncarcinogenic risk to utility, construction, and industrial workers, with the exception of groundwater ingestion by the industrial worker, which will be restricted as described above. Therefore, the concentrations of chemicals in the soil and groundwater and the results of the baseline risk assessment demonstrate that site contaminants, in conjunction with the institutional controls mentioned earlier, pose no current or potential threat to public health or the environment.

The Air Force is responsible for implementing, maintaining, monitoring, and enforcing the institutional controls. The above restrictions will be maintained until the concentrations of hazardous substances in the soil and groundwater have been reduced to levels that allow for unlimited exposures and unrestricted use. It is anticipated that successful implementation, operation, maintenance, and enforcement of these institutional

controls in accordance with the terms of this ROD will achieve protection of human health and the environment and compliance with all legal requirements. Approval by the Air Force and EPA with concurrence from NYSDEC is required for any modification or termination of institutional controls.

1.5 Statutory Determinations

The Air Force Real Property Agency (AFRPA) and EPA, with concurrence from NYSDEC, have determined that institutional controls in the form of land use restrictions for industrial/commercial use and groundwater use restrictions are warranted for this site. Future landowners will be bound, through the property deed, to the industrial/commercial reuse of the area within the Lot 69 AOC boundary and groundwater use restrictions.

Five-year reviews will be performed by the Air Force, in conjunction with the EPA and NYSDEC, to ensure that (1) the Selected Remedy is protective of public health and the environment, (2) future land use is in compliance with the deed restrictions for industrial/commercial use, and (3) any groundwater use has been approved by the NYSDOH prior to use.

1.6 ROD Data Certification Checklist

The following information is included in the Decision Summary section of this ROD. Additional information can be found in the Administrative Record for this site.

- The chemicals of potential concern (COPCs) and their respective concentrations are presented in Section 2.5, Site Characteristics.
- Current and reasonably anticipated future land and groundwater use assumptions used in the baseline risk assessment and ROD are presented in Section 2.6, Current and Potential Future Site and Resource Uses.
- The baseline risk represented by the COPCs is presented in Section 2.7, Summary of Site Risks.

1.7 Authorizing Signatures

On the basis of the remedial investigation (RI) performed at the Lot 69 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 and when groundwater use is restricted. Future landowners will be bound, through the property deed, to the industrial/commercial reuse of the property and groundwater use restrictions. The NYSDEC has concurred with the Selected Remedy presented in this Record of Decision.

Kathryn M. Halvorson
Director
Air Force Real Property Agency

DEC 2 0 2004
Date

William McCabe
Acting Director, Emergency and Remedial Response Division
United States Environmental Protection Agency, Region 2

March 17, 2005
Date

2 Decision Summary

2.1 Site Name, Location, and Brief Description

The Lot 69 AOC (site identification designation SS-17) is located at the former Griffiss Air Force Base (AFB) in Rome, Oneida County, New York. Pursuant to Section 105 of CERCLA, Griffiss AFB was included on the NPL on July 15, 1987. On August 21, 1990, the EPA, NYSDEC, and the AFRPA entered into an FFA under Section 120 of CERCLA.

Lot 69 is located in the south central industrialized portion of the former Griffiss AFB base (see Figure 1). The site contains a Vehicle Maintenance Facility, including Buildings 11 and 15, and an asphalt-covered vehicle parking and storage area.

From 1965 to 1982, this AOC was used as an unrestricted interim drum storage area for containers of liquid and solid hazardous wastes generated on the base. Based on aerial photographs, the location of Building 11 was the original storage area (see Figure 2). Drums were stored outside on raised pallets in an open grass and gravel lot. The primary wastes managed at the site included soot from No. 6 fuel oil, flammable liquids, spent corrosives, spent solvents, neutralized acids, fuel spill residues, and waste oils.

2.2 Site History and Enforcement 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 Air Development Center [1951], Rome Laboratory, and then the Air Force Research Laboratory Information Directorate, established with the mission of accomplishing applied research, development, and testing of electronic air-ground systems). The 49th Fighter Interceptor Squadron was also added. The Headquarters of the Ground Electronics Engineering Installations Agency was established in June of 1958 to engineer and install ground communications equipment throughout the world. On July 1, 1970, the 416th Bombardment Wing of the Strategic Air Command 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. The Air Force Research Laboratory Information Directorate and the Northeast Air Defense Sector will continue to operate at their current locations; the New York Air National Guard 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 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, among others, procurement, storage, maintenance, and shipping of war materiel; research and development; and aircraft operations and maintenance.

Numerous studies and investigations under the 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 performed 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. An RI was conducted in 1994 and the draft-final RI report covering 31 AOCs was delivered to the EPA and NYSDEC in December 1996 (Law 1996). The final Supplemental Investigation Report was delivered in July 1998 (E & E 1998).

2.3 Community Participation

A proposed plan for the Lot 69 AOC (AFRPA 2002), indicating institutional controls for industrial/commercial use, was released to the public on Wednesday, January 23, 2002. The document was made available to the public in both the administrative record file located at 153 Brooks Road 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 Monday, January 21, 2002. The public comment period lasted from January 23, 2002 to February 21, 2002, and was set up to encourage public participation in the alternative selection process. In addition, a public meeting was held on Thursday, February 7, 2002. The AFRPA, NYSDEC, and the NYSDOH held an information session at the beginning of the public meeting and 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 institutional controls for the Lot 69 AOC addresses the concerns for human health and the environment. The land use restrictions for industrial/commercial use are consistent with the risk assessment performed for occupational workers. The groundwater use restriction addresses the concern of the Hazard Index (HI) of 3 for the industrial workers exposed to groundwater (ingestion) and minor exceedences

of applicable or relevant and appropriate requirements (ARARs) for one pesticide and six metals (see Table 1).

2.5 Site Characteristics

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 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.

Lot 69 lies within the level, south central industrialized area of the former base close to the surface and groundwater drainage divide between Rainbow Creek and Three Mile Creek. East-west hydraulic gradients are extremely low partly because the site is traversed by a storm drain with a very low gradient leading to Rainbow Creek. Surface water runoff from the site is channeled into the base storm drain system and some runoff drains to Rainbow Creek. The storm sewer system empties into the culverted portion of Six Mile Creek. Groundwater was encountered at this AOC at depths of approximately 5 to 9 feet below ground surface (BGS). Soil in the area of Lot 69 are tan to brown, silty, fine to coarse sand with little or no gravel from 0 to 2 feet BGS; and silty, fine to coarse sand with gravel below 2 feet.

Lot 69 currently contains a Vehicle Maintenance Facility, including Buildings 11 and 15, and an asphalt-covered vehicle parking and storage area. From 1965 to 1982, this AOC was an unrestricted interim drum storage area for containers of liquid and solid hazardous wastes generated on the base. Based on aerial photographs, the location of Building 11 was the original storage area (see Figure 2). Drums were stored outside on raised pallets in an open grass and gravel lot. The primary wastes managed at the site included soot from No. 6 fuel oil, flammable liquids, spent corrosives, spent solvents, neutralized acids, fuel spill residues, and waste oils. During this period, spills were reported to have occurred.

In 1982, when the present Vehicle Maintenance Facility was constructed on the lot, the stored wastes were relocated temporarily to a location near Building 15. After approximately six months, the stored wastes were transferred to the Building Pad 6 (Lot 11) storage site (closed under RCRA in December 1995) located to the north of this AOC. No spills were reported to have occurred at Lot 11.

Site Investigations

In 1982, prior to closure of Lot 69 and construction of the Vehicle Maintenance Facility, an analysis of soil from the site was conducted (the sample location is not known). The analyses indicated the presence of several organic contaminants including trichloroethylene, toluene, xylenes, and polychlorinated biphenyls (PCBs).

In 1994, an RI was performed. The main objective of the RI was to investigate the nature and extent of potential environmental contamination from historical releases in order to determine if any remedial action was necessary to prevent potential threats to human health and the environment that might arise from exposure to site conditions. During the RI, a geophysical survey was performed to locate buried objects that might be potential sources of contamination. Interference from surface and near surface objects (i.e., fence, vehicles, rebar-reinforced concrete), however, made it difficult to distinguish any subsurface anomalies. Other field activities conducted during the RI included installation of five groundwater monitoring wells; the collection of soil and groundwater samples; on-site soil sample screening; aquifer testing; and a topographic survey.

Groundwater samples collected from the five wells during the RI indicated the presence of nine volatile organic compounds (VOCs), six semivolatile organic compounds (SVOCs), 12 pesticides/PCBs, and 21 metals. The concentrations of one pesticide and six metals exceeded the most stringent criterion (see Table 1). During an RI supplemental investigation performed for the Lot 69 AOC in 1997, monitoring well L69MW-4 was resampled and a temporary well (L69TW-5) was installed and sampled at a location between L69MW-4 and the storm drain that is believed to be intercepting groundwater. Very low levels of 1,1,1-trichloroethane, carbon tetrachloride, and chloroform were present in water collected from L69MW-4, and 2-butanone was detected in the temporary well. None of these concentrations exceeded the most stringent criterion (see Table 1A).

In 1994, subsurface soil samples were collected during the RI from eight boreholes and five monitoring wells. A total of 53 samples were screened for VOCs at an on-site laboratory. Based on field screening results, approximately 10% of the positive "hits" and one "clean" sample per boring were submitted to the off-site laboratory for confirmatory analyses. Five VOCs, 21 SVOCs, and 32 pesticides were detected in the confirmatory soil samples. The concentrations of four SVOCs, one PCB, and eight metals exceeded the most stringent criterion (see Table 2).

2.6 Current and Potential Future Site and Resource Uses

Griffiss AFB was designated for realignment under the Defense Base Closure and Realignment Act (DBCRA) in 1993 and 1995, resulting in deactivation of the 416th Bombardment Wing in September 1995. As a result of the realignment, a Master Reuse Strategy was developed by the Griffiss Local Development Corporation (GLDC) to provide the framework for reuse of the base after realignment and closure. The proposed reuse plan recommended in the final Master Reuse Strategy was evaluated in the Final Environmental Impact Statement (EIS) dated November 1995. As outlined in the Master Reuse Plan and EIS, the current and proposed future land use designations for the Lot 69 AOC are industrial/commercial. Currently, the site is being used for industrial development and the groundwater at the site is not being used as a resource. The property associated with a portion of this site has been transferred and the deed contains covenants that restrict the land use to industrial/commercial and restricts the use of groundwater at the site unless prior written approval is granted by the NYSDOH.

2.7 Summary of Site Risks

Site risks were analyzed based on the extent of contamination at the Lot 69 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 were considered when formulating the alternative for institutional controls in the form of land use restrictions for industrial/commercial use and groundwater use restrictions.

2.7.1 Human Health Risk Assessment

A baseline human health risk assessment was conducted during the RI to determine whether chemicals detected at the Lot 69 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 HI 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 COPCs with the exception of inorganics detected at concentrations less than twice the mean background concentrations; iron, magnesium, calcium, potassium, and sodium, which are essential human nutrients; and compounds detected in less than 5% of the total samples (unless they were known human carcinogens). 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 the effects of potential exposure of future utility and construction workers to chemicals detected in the soil and industrial workers that may be exposed to groundwater. The various exposure scenarios for each

population are described in Table 3. Intake assumptions, which are based on EPA guidance, are more fully described in the RI report.

Quantitative estimates of carcinogenic and noncarcinogenic risks from soil and groundwater were calculated for the Lot 69 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 increase in the 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 acceptable 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 the 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 subpopulations, 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. If either of these thresholds is 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.

Potential risks from exposure to COPCs at the Lot 69 AOC were evaluated for utility, construction, and industrial workers during the RI. The potential carcinogenic and

noncarcinogenic risks from exposure to soil and groundwater are summarized below and in Table 4.

Carcinogenic Risk

The total carcinogenic risk associated with exposure of utility workers to subsurface soil was 9×10^{-7}, which is below the EPA's target risk range. The pathway-specific risks for utility workers from incidental ingestion of soil, inhalation of fugitive dust, and dermal contact were 6×10^{-7}, 2×10^{-8}, and 3×10^{-7}, respectively.

The total carcinogenic risk associated with exposure by construction workers to soil was 9×10^{-7}, which is within EPA's target risk range. The pathway-specific risk for construction workers from incidental ingestion of soil, inhalation of fugitive dust, and dermal contact were 8×10^{-7}, 4×10^{-9}, and 7×10^{-8}, respectively.

The total carcinogenic risk from exposure to contaminants in groundwater by industrial workers was 2×10^{-6}, which is within EPA's target risk range. The pathway-specific risks from ingestion, inhalation of VOCs released from groundwater, and dermal exposure to groundwater were 2×10^{-6}, 4×10^{-8}, and 3×10^{-7}, respectively.

Noncarcinogenic Risk

The total HI for utility workers exposed to soil at the Lot 69 AOC was 0.003, which is below the benchmark value of 1. Of the three potential exposure pathways, the greatest potential noncarcinogenic hazard was from the incidental ingestion of soil (HI of 0.002).

The total HI for construction workers exposed to subsurface soil at the Lot 69 AOC was 0.07, which is less than the benchmark value of 1. Of the three potential exposure pathways, the greatest potential noncarcinogenic hazard was from the incidental ingestion of soil (HI of 0.06).

The total HI for the industrial workers exposed to groundwater was 3, which exceeds the benchmark value of 1. The calculated individual HIs for ingestion of groundwater, dermal exposure to groundwater, and inhalation of VOCs released from groundwater were 3, 0.02, and 0.002, respectively. The ingestion of groundwater containing manganese was the major contributor to this risk. None of the other COPCs had a hazard quotient greater than 1.

Summary

The results of the human health baseline risk assessment indicate that chemicals in soil should not present a risk to current and future occupational workers. The only potentially unacceptable risk was to industrial workers from incidental ingestion of groundwater (HI equal to 3), which is an unlikely scenario. Quantitative evaluation of risk is subject to several conservative assumptions and should not be considered an absolute measure of risk.

2.7.2 Uncertainties

Uncertainties exist in many components of the human health risk assessment process. However, use of conservative variables in intake calculations and health-protective 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 this AOC include (1) Chemical samples were collected from the suspected source of contamination rather than through random sampling, which may result in a potential overestimation of risk; (2) The HIs associated with dermal contact with soil were not quantified for the majority of COPCs, which may lead to underestimation of the overall risk due to dermal contact; (3) The models used in the RI are likely to overestimate exposure point concentrations in air, which would cause a potential overestimation of risk for the inhalation pathway; (4) Toxicological criteria were not available for all chemicals found at the site, which may result in an underestimation of risk; (5) Construction at the site was assumed to occur over a one year period. Since construction may take less time to complete, this would result in a potential overestimation of risk; (6) 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 existing water supplies at the former base and in the city of Rome. This would result in a potential overestimation of risk.

2.7.3 Ecological Risk Assessment

A baseline risk assessment for ecological receptors at the Lot 69 AOC was conducted during the RI. Since Lot 69 is located in a highly developed portion of the base, no complete exposure pathways for ecological receptors were identified. Contamination that may be associated with the site is expected to be well below ground surface and ecological receptors are not expected to be found at these depths. In addition, the future land use designation is expected to remain industrial/commercial. Therefore, potential exposures related to this AOC are not expected to exist.

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 on or in the vicinity of the base, no threatened and/or endangered species have been identified 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 Remedial Action Objectives

The following are the remedial action objectives developed for this site based upon the site data presented in the RI and Supplemental Investigation reports:

Restrict Exposure to Contamination

Institutional controls in the form of land use restrictions (see land use control boundary in Figure 2) will be implemented to restrict site use to industrial/commercial use only and restrict use of the groundwater.

The following are the goals and objectives of the ICs:

- Prevent the use of the contaminated groundwater for drinking water or any other purposes that could result in the inhalation of vapors from, dermal absorption of, or ingestion of the contaminated groundwater.

- Prevent the discharge of the contaminated groundwater withdrawn during construction dewatering activities to the ground or surface water, without prior concurrence of the NYSDEC, since this discharge could exacerbate the spreading of the contamination and may require a discharge permit.

- Prevent residential housing, elementary and secondary schools, childcare facilities and playgrounds on Lot 69 since the risk assessment was evaluated for only non-residential use scenarios (future use) and not for unrestricted use.

Evaluate Effectiveness of the Remedy

Five-year reviews will be performed by the Air Force, in conjunction with the EPA and NYSDEC, to ensure that (1) the Selected Remedy is protective of public health and the environment, (2) future land use is in compliance with the deed restrictions for industrial/commercial use, and (3) any groundwater use has been approved by the NYSDOH prior to use.

2.9 Description of Alternatives

CERCLA regulations mandate that a remedial action must be protective of human health and the environment, cost effective, and utilize permanent solutions and treatment technologies to the maximum extent practicable. This ROD evaluates a No Action scenario as dictated by CERCLA, and compares it to the institutional controls in the form of land use restrictions for industrial/commercial use and groundwater use restrictions alternative. A summary of the two alternatives is presented below.

No Action Alternative

CERCLA requires that the No Action alternative be compared with other alternatives. Under the No Action alternative, no remedy would be implemented at the Lot 69 AOC. The site would remain as it is presently and there would be no monitoring of contaminants in the groundwater. No institutional controls restricting habitation or use would be established. Costs and construction time are not associated with this alternative.

Institutional Controls in the Form of Land Use Restrictions for Industrial/Commercial Use and Groundwater Use Restrictions Alternative

The institutional controls alternative includes land use restrictions for industrial/commercial use and groundwater use restrictions. Each deed from the United States, which includes property within the boundary of the Lot 69 AOC, will contain the following elements to ensure that the reuse of the site is consistent with the risk assessment:

- Development and use of the entire Lot 69 AOC property for residential housing, elementary and secondary schools, childcare facilities and playgrounds will be prohibited unless prior approval is received from the Air Force, EPA, and NYSDEC; and

- The owner or occupant of this site shall not extract, utilize, consume, or permit to be extracted, any water from the subsurface aquifer within the boundary of the site (see Figure 2) unless such owner or occupant obtains prior written approval from the NYSDOH.

Five-year reviews will be performed by the Air Force, in conjunction with the EPA and NYSDEC, to ensure that (1) the Selected Remedy is protective of public health and the environment, (2) future land use is in compliance with the deed restrictions for industrial/commercial use, and (3) any groundwater use has been approved by the NYSDOH prior to use. Costs will range between $2,000 and $5,000 per review and construction time is not associated with this alternative.

2.10 Comparative Analysis of Alternatives

Remedial alternatives are assessed on the basis of both a detailed and a comparative analysis pursuant to the NCP. The analysis of Lot 69 consisted of (1) an assessment of the individual alternatives against nine evaluation criteria and (2) a comparative analysis focusing upon the relative performance of each alternative against the criteria. In general, the following "threshold" criteria must be satisfied by an alternative for it to be eligible for selection:

1. Overall protection of human health and the environment addresses whether a remedy provides adequate protection and describes how risks posed through each exposure pathway (based on a reasonable maximum exposure scenario) are eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls.

2. Compliance with ARARs addresses whether a remedy would (a) meet all of the ARARs or (b) provide grounds for invoking a waiver.

In addition, the following "primary balancing" criteria are used to make comparisons and identify the major trade-offs among alternatives:

3. Long-term effectiveness and permanence refers to the ability of a remedy to maintain reliable protection of human health and the environment over time once cleanup goals have been met. It also addresses the magnitude and effectiveness of the measures that may be required to manage the risk posed by treatment residuals and/or untreated wastes.

4. Reduction of toxicity, mobility, or volume via treatment refers to a remedial technology's expected ability to reduce the toxicity, mobility, or volume of hazardous substances, pollutants, or contaminants at the site.

5. Short-term effectiveness addresses (a) the period of time needed to achieve protection and (b) any adverse impacts on human health and the environment that may be posed during the construction and implementation periods until cleanup goals are achieved.

6. Implementability refers to the technical and administrative feasibility of a remedy, including the availability of materials and services needed.

7. Cost includes estimated capital, operation and maintenance, and present-worth costs.

Finally, the following "modifying" criteria are considered fully after the formal public comment period on the Proposed Plan is complete:

8. State acceptance indicates whether, based on its review of the RI and the Proposed Plan, the State supports or opposes the preferred alternative and/or has identified any reservations with respect to the preferred alternative.

9. Community acceptance refers to the public's general response to the alternatives described in the Proposed Plan and the RI reports. Factors of community acceptance include support, reservation, or opposition by the community.

A comparative analysis of the two alternatives based on the nine evaluation criteria follows.

1. Overall Protection of Human Health and the Environment

   The No Action alternative would potentially not provide adequate protection of human health and the environment since no remedy would be implemented at the Lot 69 AOC. Based on the concentrations of contaminants in the surface and subsurface soil, the results of the baseline risk assessment (for industrial, utility and construction workers) indicates that, although the concentrations of some chemicals exceed soil guidance values, Lot 69 poses no unacceptable risk from exposure to the soil. However, there is a potential risk to industrial workers from incidental ingestion of groundwater and groundwater

contamination is above the ARARs, which could pose potential health risks to individuals under current and proposed future land uses.

The proposed alternative will prevent unnecessary exposure to the soil and groundwater (not evaluated for residential use scenarios) by limiting the future use of the site and groundwater use through the implementation of institutional controls in the form of land use restrictions for industrial/commercial use and groundwater use restrictions.

2. Compliance with ARARs

Contaminant concentrations will not immediately comply with the ARARs under the No Action alternative or the Selected Remedy alternative. Currently there are no chemical specific ARARs for soil (other than for PCBs). Therefore, other non-promulgated federal and state advisories and guidance values, referred to as To-Be-Considereds and background levels of the contaminants were used.

The Selected Remedy alternative addresses soil and groundwater at the site. The Selected Remedy alternative will limit exposure to groundwater and soil through the implementation of institutional controls in the form of deed restrictions. There is no evidence that the chemical concentrations in the surface and subsurface soil, or that the chemical concentrations in the groundwater pose a current or future potential threat to human health or the environment when used for industrial/commercial purposes with groundwater use restrictions. Further, five-year reviews will be performed by the Air Force, in conjunction with the EPA and NYSDEC, to ensure that (1) the Selected Remedy is protective of public health and the environment, (2) future land use is in compliance with the deed restrictions for industrial/commercial use, and (3) any groundwater use has been approved by the NYSDOH prior to use.

3. Long-term Effectiveness and Permanence

The No Action alternative would not allow for reliable protection of human health and the environment in the long term due to the potential for future ingestion of groundwater and exposure to contaminated soil by portions of the human population other than industrial, utility and construction workers.

For the Selected Remedy alternative, the implementation of institutional controls in the form of land use and groundwater use restrictions will eliminate human contact with the contaminated soil and groundwater. This action, coupled with the five-year reviews, provides reliable long-term protection of human health and the environment.

4. Reduction of Toxicity, Mobility, or Volume through Treatment

   The No Action alternative provides no treatment or containment of contaminant migration, therefore, it does not result in any reduction of toxicity, mobility, or volume.

   The Selected Remedy alternative provides no treatment or containment of contaminants, and therefore does not result in any reduction of toxicity, mobility, or volume. However, the levels of contamination found in the soil and groundwater do not warrant treatment. Although treatment will not be employed, this alternative will eliminate potential exposures to the contamination found in the soil and groundwater.

5. Short-term Effectiveness

   The No Action alternative would not be an effective alternative because the potential for human exposure to contaminated soil and ingestion of groundwater would continue to exist.

   For the Selected Remedy alternative, institutional controls in the form of deed restrictions would be implemented immediately upon transfer of the property. The present and immediate future use of the property is industrial/commercial with no utilization of groundwater. A portion of the property has been transferred and the deed restrictions will ensure that these controls remain intact.

6. Implementability

   There would be no limitations to implementing the No Action alternative.

   There would be no limitations to implementing the Selected Remedy alternative. Implementation of institutional controls in the form of deed restrictions is feasible and has been incorporated into other property transfers.

7. Cost

   There would be no costs associated with the No Action alternative.

   There are no capital costs or project construction durations associated with the Selected Remedy. Reviews to ensure that the remedy is still performing as planned will cost between $2,000 and $5,000 per review.

8. Agency Acceptance

   AFRPA, NYSDEC, and EPA have mutually agreed to select the institutional controls in the form of deed restrictions alternative. The Selected Remedy satisfies the threshold criteria and ensures compliance with applicable regulations.

9. Community Acceptance

   Community acceptance of the Selected Remedy was assessed at the public meeting and during the public comment period.

2.11 Principal Threat Wastes

There are no principal threat wastes at the Lot 69 AOC.

2.12 Selected Remedy

The Selected Remedy for the Lot 69 AOC is institutional controls in the form of land use restrictions for industrial/commercial use and groundwater use restrictions. Institutional controls will be implemented to minimize the exposure of any future users of the property including Air Force personnel, lessees/sublessees, transferees, and construction workers to any remaining hazardous substances located on the property encompassed by the Lot 69 AOC.

The Air Force is responsible for implementing, maintaining, monitoring, and enforcing the institutional controls. It is anticipated that successful implementation, operation, maintenance, and enforcement of these institutional controls in accordance with the terms of this ROD will achieve protection of human health and the environment and compliance with all legal requirements. Approval by the Air Force and EPA, with concurrence from NYSDEC, is required for any modification or termination of institutional controls.

The following are the goals and objectives of the institutional controls:

- Prevent the use of the contaminated groundwater for drinking water or any other purposes that could result in the inhalation of vapors from, dermal absorption of, or ingestion of the contaminated groundwater.

- Prevent the discharge of the contaminated groundwater withdrawn during construction dewatering activities to the ground or surface water, without prior concurrence of the NYSDEC, since this discharge could exacerbate the spreading of the contamination and may require a discharge permit.

- Prevent residential housing, elementary and secondary schools, childcare facilities and playgrounds on Lot 69 since the risk assessment was evaluated for only non-residential use scenarios (future use) and not for unrestricted use.

To achieve these goals and objectives, the Air Force is requiring that use restrictions and controls be placed on the property (to be included in the deed or lease) to ensure that reuse is consistent with the risk assessment. The following are the corresponding use restrictions and controls on the property:

- Development and use of the entire Lot 69 AOC property for residential housing, elementary and secondary schools, childcare facilities and playgrounds will be prohibited unless prior approval is received from the Air Force, EPA, and NYSDEC; and

- The owner or occupant of this site shall not extract, utilize, consume, or permit to be extracted, any water from the subsurface aquifer within the boundary of the site (see Figure 2) unless such owner or occupant obtains prior written approval from the NYSDOH.

The baseline risk assessment indicated that the levels of contaminants present in the soil and groundwater fell within or below EPA's acceptable carcinogenic risk range and posed no noncarcinogenic risk to utility, construction, and industrial workers, with the exception of groundwater ingestion by the industrial worker, which will be restricted as described above. Therefore, the concentrations of chemicals in the soil and groundwater and the results of the baseline risk assessment demonstrate that site contaminants, in conjunction with the institutional controls mentioned earlier, pose no current or potential threat to public health or the environment.

The above restrictions shall be maintained until the concentrations of hazardous substances in the soil and groundwater has been reduced to levels that allow for unlimited exposures and unrestricted use. Approval by the Air Force and EPA, with concurrence from NYSDEC, is required for any modification or termination of institutional controls.

The parcels of property encompassing the Lot 69 Area of Concern (AOC) (site identification designation SS-17) have either been transferred by deed to the Oneida County Industrial Development Agency, through the early transfer authority of CERCLA 120 (h)(3)(C), or are currently leased under Air Force Lease No. RPA-GRF-12-03-0301 to the GLDC.

The Air Force will take the following actions to ensure that the aforementioned use restrictions and the controls are effective in eliminating the exposure scenario and protecting human health and the environment:

Deed Restrictions: The early transfer of fee title from the United States for the portion of the property already transferred does not include a CERCLA 120(h)(3) covenant for the property encompassing the Lot 69 Area of Concern (AOC), since at the time of transfer it was not yet determined if additional remedial action would be needed. The deed contains a description of the residual contamination on the property and the environmental use restrictions, described above, expressly prohibiting activities inconsistent with the performance measure goals and objectives. The Air Force will issue a CERCLA 120(h)(3) covenant for the property once this ROD is executed. For the remainder of the property yet to be transferred (see leased portion on Figure 2), the fee title from the United States will include a CERCLA 120(h)(3) covenant that will have a description of the residual contamination on the property and the environmental use restrictions, described above, expressly prohibiting activities inconsistent with the performance measure goals and objectives.

The environmental restrictions have been included in the deed for the transferred portion of the site and, for the leased portion, the restrictions will be incorporated upon transfer of the title for any property that has had hazardous substances stored for one year or more, known to have been released or disposed of on the property. The Air Force will consult with the EPA and NYSDEC on the deed restriction language. The deed contains or will contain appropriate provisions to ensure that the restrictions continue to run with the land. The deed also contains or will contain a reservation of access to the property for the Air Force, EPA, and the NYSDEC, and their respective officials, agents, employees, contractors, and subcontractors for purposes consistent with the Air Force IRP and the FFA.

Lease Restrictions: During the time between adoption of this ROD and the deeding of the Lot 69 AOC property that has not yet been transferred, equivalent restrictions are implemented by lease terms. Those parcels of property encompassing Lot 69 AOC that have not yet been deeded are currently leased under Air Force Lease No. RPA-GRF-12-03-0301 to the GLDC. The lease restrictions are in place and operational and will remain in place until the property is transferred by deed. At the moment of deed transfer, the lease restrictions will be superseded by the restrictions in the federal deed, which will be equivalent to the use restrictions and controls described in this ROD.

Environmental Easement: An environmental easement will be established for the boundary of the Lot 69 AOC (see Figure 2) consistent with Section 27-1318(b) and Article 71, Title 36 of the New York State Environmental Conservation Law.

Notice: Concurrent with the transfer of fee title between the Air Force and the transferee, information regarding the environmental use restrictions and controls has been / will be communicated in writing to the property owners and to appropriate state and local agencies to ensure such agencies can factor such conditions into their oversight and decision-making activities regarding the property. The

Air Force will also provide a copy of the deeds to the regulatory agencies as soon as practicable after the transfer of fee title.

Monitoring and Enforcement:

Monitoring: Monitoring of the environmental use restrictions and controls will be conducted on an annual basis. The monitoring results will be included in a separate report or as a section in another environmental report, if appropriate, and provided to EPA and NYSDEC. The IC monitoring reports will be used in the preparation of the five-year reviews to evaluate the effectiveness of the controls. Five-year review reports will make recommendations on the continuation or modification of the monitoring reports and IC monitoring frequencies. The five-year review reports will be submitted to the regulatory agencies in accordance with the FFA.

The IC monitoring report, submitted to the regulatory agencies by the Air Force, will evaluate the status of the institutional controls and how any institutional control deficiencies have been addressed. The annual evaluation will address whether the use restrictions and controls were communicated in the deed(s), whether the owners and state and local agencies were notified of the use restrictions and controls affecting the property, and whether use of the property has conformed to such restrictions and controls.

Response to Violations: The Air Force will notify EPA and NYSDEC via e-mail or telephone as soon as practicable, but no later than 10 days after discovery of any activity that is inconsistent with the institutional control objectives or use restrictions, exposure assumptions, or any action that may interfere with the effectiveness of the institutional controls. Any violations that breach federal, state or local criminal or civil law will be reported to the appropriate civilian authorities, as required by law.

Enforcement: Any activity that is inconsistent with the institutional control objectives or use restriction or any action that may interfere with the effectiveness of the institutional controls will be addressed by the Air Force as soon as practicable (but in no case more than 10 days) after the Air Force becomes aware of the violation. The Air Force will notify EPA and NYSDEC regarding how the breach has been addressed within 10 days of sending EPA and NYSDEC notification of the breach. The Air Force will exercise such rights as it retained under the transfer documents to direct that activities in violation of the controls be immediately halted. To the extent necessary, the Air Force will engage the services of the Department of Justice to enforce such rights.

Notification of Land Use Modification: The recipient of the property will obtain approval from the Air Force, EPA, and NYSDEC for any proposals for a land use change at a site inconsistent with the use restrictions described in this ROD.

State Land Use Notification Requirements: Consistent with the stated purposes of recent amendments to the New York environmental conservation law enacting Section 27-1318, Institutional and Engineering Controls, the Air Force will meet the annual certification of Section 27-1318(C) through the annual monitoring report described above. Prior to property transfer, any grantee will be notified of any state land use control notification or reporting requirements.

The Air Force may arrange for third parties or other entities to perform any and all of the above actions. Any such arrangement shall be undertaken and executed in accordance with all applicable legal requirements, to include the Air Force's functions, obligations, and responsibilities under CERCLA. However, the Air Force shall retain ultimate responsibility for remedy integrity.

2.13 Statutory Determinations

The AFRPA and EPA, with concurrence from NYSDEC, have determined that institutional controls in the form of land use restrictions for industrial/commercial use and groundwater use restrictions are warranted for this site. Future landowners will be bound, through the property deed, to the industrial/commercial reuse of the area within the Lot 69 AOC boundary and groundwater use restrictions.

Five-year reviews will be performed by the Air Force, in conjunction with the EPA and NYSDEC, to ensure that (1) the Selected Remedy is protective of public health and the environment, (2) future land use is in compliance with the deed restrictions for industrial/commercial use, and (3) any groundwater use has been approved by the NYSDOH prior to use.

2.14 Documentation of Significant Changes

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

Table 1
COMPOUNDS EXCEEDING STANDARDS AND GUIDANCE VALUES
LOT 69 AOC
GROUNDWATER SAMPLES

Compound	Range of Detected Concentrations	Frequency of Detection Above Most Stringent Criterion	Most Stringent Criterion
Pesticides/PCBs (µg/L)			
Alpha BHC	0.002 J	1/5	0.01 [a]
Metals (mg/L)			
Aluminum	0.194 J - 0.48	2/5	0.05 [b]
Barium	0.027 - 1.96	1/5	1 [a]
Iron	0.051 J - 1.32 J	2/5	0.3 [a]
Manganese	0.113 - 3.25	5/5	0.05 [b]
Sodium	19.6 - 1,170	4/5	20 [a]
Thallium	0.0055 J - 0.006 J	2/5	0.0005 [c]

[a] NYSDEC Class GA groundwater standard; June 1998

[b] Federal secondary maximum contaminat level

[c] NYSDEC Class GA groundwater guidances; June 1998

Key:
J = Estimated concentration

Table 1A
FREQUENCY OF DETECTION
SI GROUNDWATER SAMPLES

Compound	Range of Detected Concentrations	Frequency of Detection Above Most Stringent Criterion	Most Stringent Criterion
VOCs (µg/L)			
1,1,1Trichloroethane	0.25 J	0	5 [a]
2-Butanone	18	0	50 [b]
Carbon tetrachloride	0.47 J - 0.49 J	0	5 [a]
Chloroform	0.46 J - 0.49 J	0	7 [a]

[a] NYSDEC Class GA groundwater standard; June 1998

[b] NYSDEC Class GA groundwater guidances; June 1998

Key:
J = Estimated concentration

Table 2
COMPOUNDS EXCEEDING GUIDANCE VALUES
LOT 69 AOC
SOIL SAMPLES

Compound	Range of Detected Concentrations	Frequency of Detection Above Most Stringent Criterion	Most Stringent Criterion
SVOCs (µg/kg)			
Benzo(a)anthracene	89 J - 9,100	4/29	224 [a]
Benzo(a)pyrene	80 J - 7,700	6/29	61 [a]
Benzo(b)fluoranthene	150 J - 14,000	2/29	1,100 [a]
Chrysene	95 J - 9,500	4/29	400 [a]
Pesticides/PCBs (µg/kg)			
PCB-1260 (Aroclor 1260)	56 - 1,400	1/24	90 [b]
Metals (mg/kg)			
Arsenic	0.81 - 9.6	5/24	4.9 [c]
Barium	7 - 435	1/24	300 [a]
Calcium	398 - 57,200	5/24	23,821 [c]
Copper	1.5 - 473	1/24	43.8 [c]
Lead	2.8 - 70.2	1/24	36.2 [c]
Magnesium	573 - 10,900	1/24	7,180 [c]
Silver	8.8	1/24	1.1 [c]
Zinc	196 - 598	1/24	120 [c]

[a] NYS-recommended soil cleanup objective

[b] Proposed RCRA corrective action levels

[c] Background screening concentration

Key:
J = Estimated concentration

Table 3
LOT 69 AOC
RISK ASSESSMENT
EXPOSURE SCENARIOS

UTILITY AND CONSTRUCTION WORKERS	INDUSTRIAL WORKER
• Incidental ingestion of soil • Inhalation of fugitive dust • Dermal contact with soil	• Ingestion of groundwater • Dermal contact with groundwater (during showering) • Inhalation of VOCs from groundwater (during showering)

Table 4
LOT 69 AOC
RI SUMMARY OF RISKS

HUMAN HEALTH RISKS

Pathway	Receptor	Site Condition	Cancer Risk	Noncancer Risk
Subsurface Soil (ingestion, inhalation, dermal contact)	Utility worker	Current and future	9×10^{-7}	0.003
	Construction worker	Future	9×10^{-7}	0.07
Groundwater (ingestion, inhalation of VOCs, dermal)	Industrial workers	Future	2×10^{-6}	3 (ingestion)

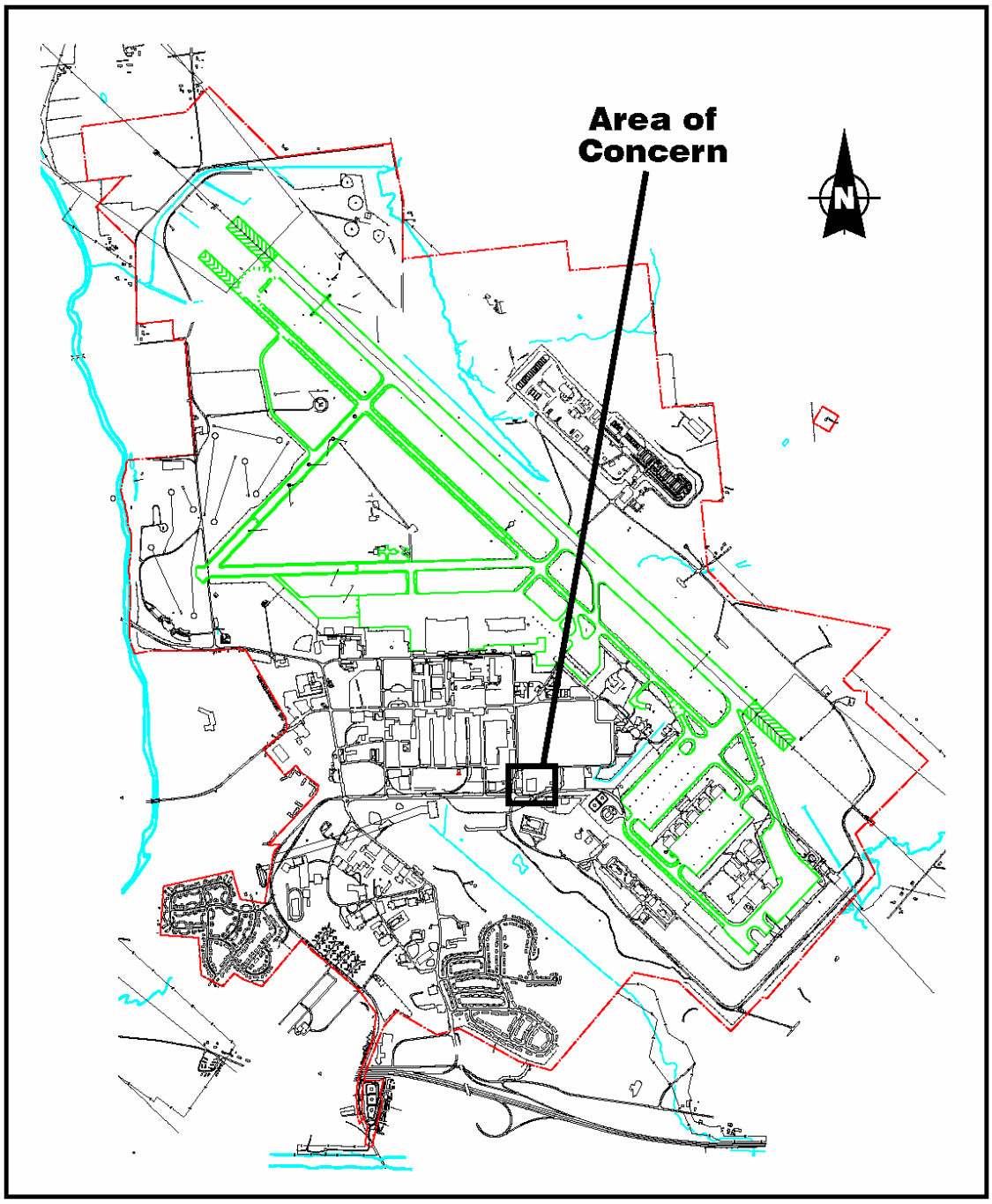

Figure 1 Lot 69 AOC Location Map

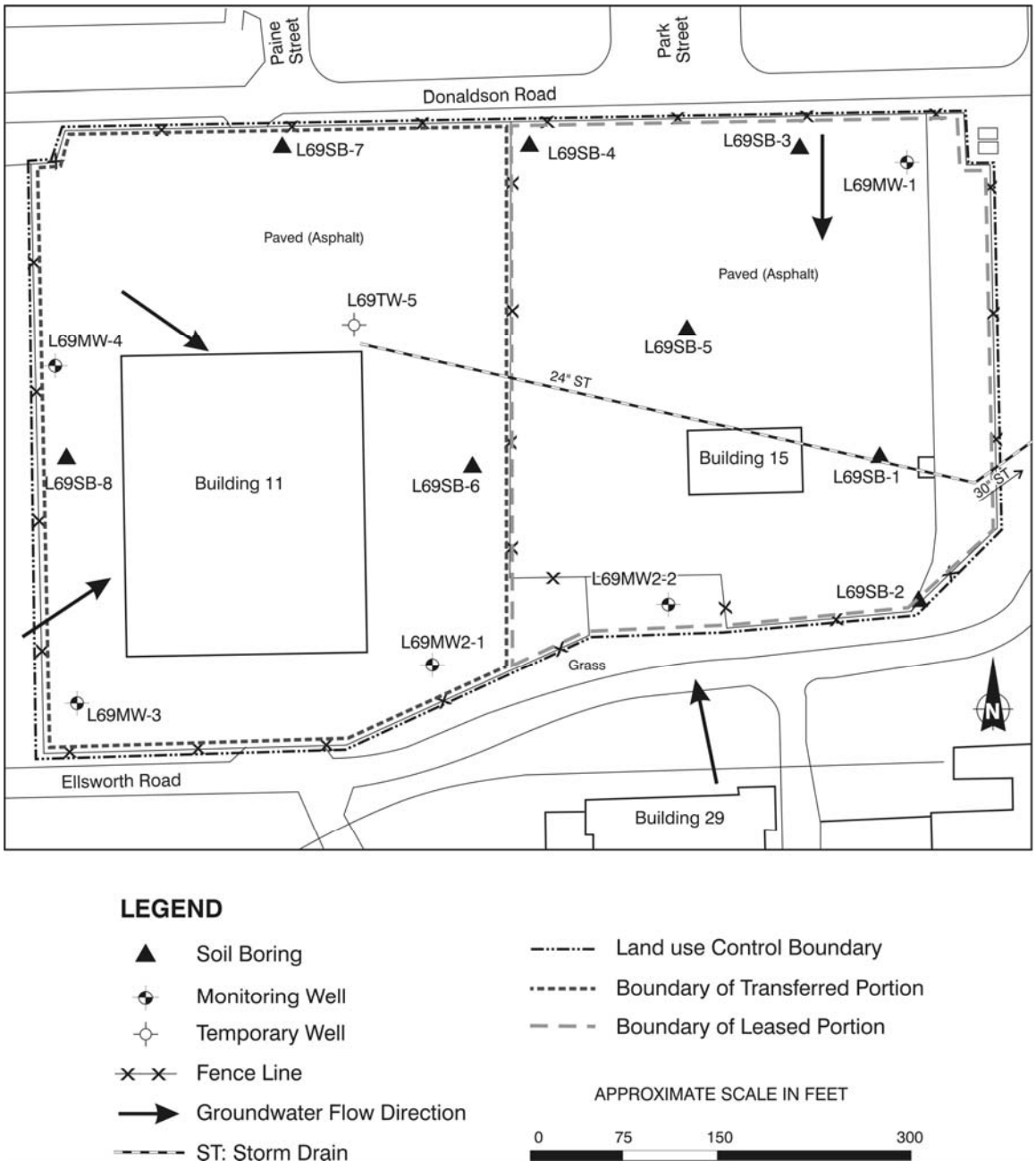

Figure 2 Lot 69 AOC Site Map and Land Use Control Boundary

3 Responsiveness Summary

On Wednesday, January 23, 2002, AFRPA, following consultation with and concurrence of the EPA and NYSDEC, released for public comment the proposed plan for institutional controls in the form of land use restrictions for industrial/commercial use and groundwater use restrictions at the Lot 69 AOC located at the former Griffiss AFB. The release of the proposed plan initiated the public comment period, which concluded on February 21, 2002.

During the public comment period, a public meeting was held on Thursday, February 7, 2002, at 5:00 p.m. at the Floyd Town Hall located at 8299 Old Floyd Road, Rome, New York. A court reporter recorded the proceedings of the public meeting. Copies 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 proposed plan for 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. Several of the oral and written comments do not pertain to the six proposed plans that were issued for public comment but do relate to the base closure in general. Responses to such general comments, however, are also provided in this Responsiveness Summary.

ORAL COMMENTS

Comment #1 (Freda Melkun)

Mrs. Melkun asked why petroleum hydrocarbons weren't sampled and considered in the Lot 69 risk assessment.

Response #1

Petroleum hydrocarbons were sampled for and the results were reviewed as part of the site evaluation. The "petroleum hydrocarbon" analysis is actually a representation of the total of many individual constituents. As a class, petroleum hydrocarbons were not included as a chemical of concern in the risk assessment; however, the individual constituents of petroleum (e.g., benzene, toluene, ethylbenzene) were evaluated.

Comment #2 (Freda Melkun)

a) Mrs. Melkun asked a general question regarding potential movement of contamination off base and asked if any off-base investigations will take place.

b) She stated that Three Mile Creek and Six Mile Creek are contaminated, so their groundwater wells should be contaminated, and asked what the chemical effects are when you start mixing everything together.

c) She stated that ethylene glycols were found in some of the off-base wells and her well was supposed to be tested and it never was.

d) She stated that children are still swimming in the creeks.

Response #2

a) Several off-base investigations have been completed and it has been determined that there is no contamination at levels of health concern affecting off-base property, with the possible exception of Three Mile and Six Mile Creeks. Twenty-seven monitoring wells were sampled as part of the Off-Base Groundwater Contamination Area of Concern. Also, more than 300 domestic wells were sampled.

Reference report: Volume 32 of the Draft-final Remedial Investigations Report dated December 1996.

b) There has been contamination found in both Six Mile and Three Mile Creeks. As part of our assessment of the creeks, we have evaluated the effects of individual and combined chemicals on various receptors. However, such chemical effects, whether dealing with one or several chemicals, are unique and must be evaluated on a case-by-case basis. For the off-base portion of Six Mile Creek, the contaminants include low-level concentrations of polycyclic aromatic hydrocarbons (PAHs) and polychlorinated biphenyls (PCBs) in the surface water and sediments.

For the off-base portion of Three Mile Creek, the contaminants include moderate level concentrations of VOCs, SVOCs, metals, PAHs and PCBs in the surface water and sediments. Remedies are being evaluated for these sites and proposed plans will be issued within the next year. Several of the off-base monitoring wells and private wells that were sampled were adjacent to the creeks. The results showed that contamination has not traveled from the creeks to the wells. Furthermore, during the investigations, it was found that groundwater in the area south and southeast of the base flows into Six Mile Creek and not from the creek into the surrounding groundwater, therefore, it is extremely unlikely that contaminants in the creek would be transferred to adjacent homeowner wells. Proposed plans for Three Mile Creek (Remedial Action with Long-term Monitoring) and Six Mile Creek (source Control and Long-term Monitoring) were issued for public review and comment on July 24, 2003. A public meeting was held on August 5, 2003, to present the proposed alternatives. A final Record of Decision was signed by the EPA on March 26, 2004.

Reference reports: Volumes 6 and 11 of the Draft-final Remedial Investigations Report dated December 1996, Draft Feasibility Study Report for Three Mile Creek AOC and Six Mile Creek AOC dated January 1999, Six Mile Creek Summary Report dated March 2000. Final Three Mile Creek and Final Six Mile Creek Records of Decision dated December 2003.

c) The off-base investigations that sampled monitoring wells and private wells concluded that there is no evidence that people were exposed to ethylene glycol in drinking water at levels of health concern in the Griffiss area. The results of the investigations were well publicized. Several fact sheets were issued and several public meetings were held. Although NYSDOH acknowledges that Mrs. Melkun's well was not tested, it was not a deliberate oversight. Results of the sampling in the early 1980s in the vicinity of Mrs. Melkun's home did not indicate any pattern of groundwater contamination, nor were results above drinking water standards and, therefore, the sampling effort was discontinued. As a result, further testing of wells, including Mrs. Melkun's well, was not performed.

Reference reports: Volume 32 of the Draft-final Remedial Investigations Report dated December 1996; Public Health Assessment Addendum for Griffiss AFB, dated September 9, 1996 (Agency for Toxic Substances and Disease Registry).

d) The water and the sediments of Six Mile and Three Mile Creeks were thoroughly tested. The results analyzed under the CERCLA program showed that there is no significant risk to adults or children when playing or fishing in the creeks. However, NYSDOH does include statewide fish advisories for all streams, creeks and water bodies. These restrictions known as the NYSDOH Fish Consumption Advisories provide general warnings or restrictions for recreational fishers who may eat the fish. The NYSDOH Fish Consumption Advisories are provided to all individuals who seek a NYS fishing license and a copy can be obtained by contacting the NYSDOH. The NYSDOH Fish Consumption Advisories are issued independent of the CERCLA process.

Reference reports: Volumes 6 and 11 of the Draft-final Remedial Investigations Report dated December 1996, Draft Feasibility Study Report for Three Mile Creek AOC and Six Mile Creek AOC dated January 1999, Six Mile Creek Summary Report dated March 2000.

Comment #3 (Paul Landry)

Mr. Landry asked for a summary of the overall status of base cleanup.

Response #3

A brief summary was provided after the meeting. The status was documented and passed out at the next Restoration Advisory Board meeting.

WRITTEN COMMENTS

One letter was received during the public comment period. That letter was sent by Mrs. Freda Melkun and was dated February 14, 2002. The comments in the letter are summarized below. Many of the comments are general comments not related to a specific proposed plan. Two comments, however, are related to specific proposed plans that were presented at the February 7, 2002, public meeting.

Comment #1

Mrs. Melkun stated that her well was not tested, although she requested the Health Department to sample.

Response #1

The NYSDOH acknowledges that Mrs. Melkun's well was not tested. It was not a deliberate oversight. Results of the sampling in the early 1980s in the vicinity of Mrs. Melkun's home did not indicate any pattern of groundwater contamination, nor were results above drinking water standards and the sampling effort was discontinued.

Comment #2

Mrs. Melkun reported suspecting chemical contamination to be the source of an illness in 1980 and also reported green bath water, dead fish and animals.

Response #2

There are reports that occasionally the green dye used to mark the runways in winter appeared in Six Mile Creek. NYSDOH and the Air Force have no records of reports of dead fish and animals in the vicinity of the base. As stated above, the off-base investigations that sampled monitoring wells and private wells concluded that there is no evidence that people were exposed to ethylene glycol or other contaminants in drinking water at levels of health concern in the Griffiss area.

Comment #3

Mrs. Melkun witnessed run-off from spraying planes going into the ground along with trichloroethylene.

Response #3

A comprehensive environmental investigation has been completed at Griffiss Air Force Base and no records exist of trichloroethylene being sprayed on the planes. De-icing sprays comprised of glycols were used at various parts of the base. The status of the projects and maps of the contaminated areas are regularly reported at Restoration Advisory Board Meetings. The Apron areas where planes were parked do have petroleum and solvent contamination and these areas of contamination have been defined. However, please note that these areas are located well within the base boundary and are being addressed by the Air Force.

Comment #4: Comment on Building 3 Drywell Proposed Plan

Mrs. Melkun repeated her concern with contamination from the drywell moving to the air or groundwater.

Response #4

Groundwater samples were taken near the location of the former drywell. The results from sampling efforts in 1994 and 1997 are presented on page 6 of the proposed plan. The 1997 groundwater sampling indicated the presence of four VOCs and one SVOC; however, none of the concentrations exceeded the most stringent criterion. The risk assessment associated with the chemical concentrations found during the Remedial Investigations is presented on page 10 of the proposed plan. The results of the human health baseline risk assessment indicate that chemicals in the soil and groundwater should not present a risk under the current and future scenarios. The drywell and surrounding soil were totally removed in 1987. There is no contamination present to move from soil to air or soil to groundwater. The most recent groundwater sampling detected concentrations of TCE less than the most stringent drinking water standards. Contamination at levels equal to or less than the drinking water standards pose no threat to indoor air quality.

Comment #5

Mrs. Melkun stated her disappointment that no further sampling will be performed as contamination has shifted from Griffiss to her area.

Response #5

As stated above, extensive off-base investigations have been completed and it has been determined that there is no contamination at levels of health concern affecting off-base property, with the possible exception of Three Mile and Six Mile Creeks. Twenty-seven monitoring wells were sampled as part of the Off-Base Groundwater Contamination Area of Concern. Also, more than 300 domestic wells were sampled.

Comment # 6

Mrs. Melkun repeated her concern for swimmers in Six Mile Creek and requested the posting of notices.

Response #6

The water and the sediments of Six Mile and Three Mile Creeks were thoroughly tested. The results were analyzed and showed that there is no significant risk to adults or children when playing or fishing in the creeks provided adherence to the NYSDOH Fish Consumption Advisories. Therefore, there are no additional restrictions or warnings beyond the fishing health advisory required for recreational use of the creeks.

Comment #7

Mrs. Melkun stated there should have been compensation for the health problems resulting from contaminated water.

Response #7

There is no documentation that contamination released by Griffiss AFB has caused health problems to off-base residents.

Comment #8: **Comment on Electrical Power Substation Proposed Plan**

Mrs. Melkun is concerned about the dioxins and furans and wants to know the cause.

Response #8
When transformer fluids get extremely hot, dioxins and furans are released. They are also associated with PCBs. Therefore, the dioxins and furans were associated with PCB transformer spills. Dioxin (2,3,7,8-TCDD) concentrations did not exceed the 40 nanograms per kilogram (ng/kg) soil guidance value in any sample. There were no high levels detected.

4 References

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Final
Record of Decision for the Electrical Power Substation Area of Concern (SS-44) at the Former Griffiss Air Force Base Rome, New York

November 2004

AIR FORCE REAL PROPERTY AGENCY

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List of Abbreviations and Acronyms

AFB	Air Force Base
AFRPA	Air Force Real Property Agency (formerly 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
COPCs	chemicals of potential concern
DBCRA	Defense Base Closure and Realignment Act
DoD	Department of Defense
EIS	Environmental Impact Statement
EPA	United States Environmental Protection Agency
EPS	Electrical Power Substation
FFA	Federal Facility Agreement
HI	Hazard Index
HQ	Hazard Quotient
IRP	Installation Restoration Program
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
PCB	polychlorinated biphenyl
ppm	parts per million
RI	remedial investigation
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act
SVOC	semivolatile organic compound
TBC	To-Be-Considered
VOC	volatile organic compound

1 Declaration

1.1 Site Name and Location

The Electrical Power Substation (EPS) Area of Concern (AOC) (site identification designation SS-44) 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 land use restrictions (for use as a restricted access electrical substation) and groundwater use restrictions alternative for the EPS 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, as amended by the Superfund Amendments and Reauthorization Act (SARA), and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The remedy has been selected by the United States Air Force (Air Force) in conjunction with the United States Environmental Protection Agency (EPA) and with the concurrence of the New York State Department of Environmental Conservation (NYSDEC) pursuant to the Federal Facility Agreement (FAA) among the parties under Section 120 of CERCLA. This decision is based on the administrative record file for this site.

1.3 Assessment of the Site

The response action selected in this ROD is necessary to protect the public health or welfare, or the environment, from actual or threatened release of hazardous substances from the AOC into the environment.

1.4 Description of Selected Remedy

The Selected Remedy for the EPS AOC is land use restrictions for industrial use as a restricted access electrical substation and groundwater use restrictions. Land and groundwater use restrictions will be implemented to minimize the exposure of any future users of the property including Air Force personnel, lessees/sublessees, transferees, and construction workers to any remaining hazardous substances located on the property encompassed by the EPS AOC. The deed from the United States, which includes property within the boundary of the EPS AOC, will contain the following restrictions to ensure that the reuse of the site and groundwater use is consistent with the risk assessment:

- Development and use of the EPS AOC (within the site boundary) for residential housing, elementary and secondary schools, childcare facilities and playgrounds will be prohibited unless prior approval is received from the Air Force, EPA, and NYSDEC;

- The area within the fence line will be designated for use as a restricted access electrical substation;

- 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 site unless such owner or occupant obtains prior written approval from the NYSDOH; and

- Within the site boundary (see Figure 3), the owner or operator will restrict the relocation of the contaminated soils below 1 foot of the surface from being placed outside the site boundaries. If the contaminated soil below 1 foot of the surface is to be excavated, it must remain on site, stay covered if stockpiled, and covered by a minimum of 1 foot of clean fill once it is returned to the ground. Prior to any digging within the site boundary, the owner/operator will notify all workers performing such work of these restrictions. The owner/operator will notify the Air Force of any digging activities that take place within the restricted area. The Air Force will, in turn, include any such notifications received from the owner/operator as part of the monitoring reports discussed below.

An interim remedial action was performed at this site in which the majority of soil contamination found during the remedial investigation (RI) was removed. The remaining chemicals detected in the soil did not exceed standards and guidance values and a potential source of groundwater contamination has been removed. In addition, the baseline risk assessment for soil and groundwater, which was performed prior to remediation, indicated that risks fell within EPA's acceptable risk range for recreational receptors and industrial, utility, landscape, and construction workers. Therefore, concentrations of the chemicals remaining in the soil and the results of the baseline risk assessment for soil and groundwater, in conjunction with the land and groundwater use restrictions mentioned earlier, pose no current or potential threat to public health or the environment.

The Air Force is responsible for implementing, maintaining, monitoring, and enforcing the land and groundwater use restrictions. The above restrictions will be maintained until the concentrations of hazardous substances in the soil and groundwater has been reduced to levels that allow for unlimited exposures and unrestricted use. It is anticipated that successful implementation, operation, maintenance, and enforcement of these land use restrictions in accordance with the terms of this ROD will achieve protection of human health and the environment and compliance with all legal requirements. Approval by the Air Force and EPA with concurrence from NYSDEC is required for any modification or termination of land use or groundwater use restrictions.

1.5 Statutory Determinations

It has been determined that no additional removal action is necessary at the EPS AOC. The Air Force Real Property Agency (AFRPA) and EPA, with concurrence from NYSDEC, have determined that land use restrictions, which include groundwater use restrictions, are warranted for this site. Future landowners will be bound, through the property deed, to the industrial reuse of the property as a restricted access electrical substation.

Five-year reviews will be performed by the Air Force, in conjunction with the EPA and NYSDEC, to ensure that (1) the Selected Remedy is protective of public health and the environment, (2) future land use is in compliance with the deed restrictions for industrial use, (3) any groundwater use has been approved by the NYSDOH prior to use, and (4) the soil removal interim remedial action effectively eliminated PCB discharges and the potential for PCB contaminated soil to enter the Three Mile Creek ecosystem.

During the reviews, data collected from the Three Mile Creek AOC will also be reviewed.

1.6 ROD Data Certification Checklist

The following information is included in the Decision Summary section of this ROD. Additional information can be found in the Administrative Record for this site.

- The chemicals of potential concern (COPCs) and their respective concentrations are presented in Section 2.5, Site Characteristics.
- Current and reasonably anticipated future land and groundwater use assumptions used in the baseline risk assessment and ROD are presented in Section 2.6, Current and Potential Future Site and Resource Uses.
- The baseline risk represented by the COPCs is presented in Section 2.7, Summary of Site Risks.

1.7 Authorizing Signatures

On the basis of the remedial investigations and a successfully completed removal action performed at the EPS 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 purposes and when groundwater use is restricted. Future landowners will be bound, through the property deed, to the industrial reuse of the property as a restricted access electrical substation. The New York State Department of Environmental Conservation has concurred with the Selected Remedy presented in this Record of Decision.

Kathryn M. Halvorson
Director
Air Force Real Property Agency

DEC 2 0 2004
Date

William McCabe
Acting Director, Emergency and Remedial Response Division
United States Environmental Protection Agency, Region 2

March 17, 2005
Date

2 Decision Summary

2.1 Site Name, Location, and Brief Description

The EPS AOC (site identification designation SS-44) is located at the former Griffiss Air Force Base (AFB) in Rome, Oneida County, New York. 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 EPA, NYSDEC, and the AFRPA entered into an FFA under Section 120 of CERCLA.

The EPS is located in the south-central portion of the base along the southern margin of the industrial complex (see Figure 1). It is located on the southeast corner of Ellsworth Road and the former Wright Drive intersection (see Figure 2).

Since the start of operations at Griffiss AFB in the 1940s, the EPS has served as an electrical unit to relay power to various facilities throughout the base. The facility contains electrical transformers and other electrical equipment. Prior to conversion, some of the transformers contained polychlorinated biphenyl (PCB) dielectric fluids.

2.2 Site History and Enforcement 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 Air

Development Center [1951], Rome Laboratory, and then the Air Force Research Laboratory Information Directorate, established with the mission of accomplishing applied research, development, and testing of electronic air-ground systems). The 49th Fighter Interceptor Squadron was also added. The Headquarters of the Ground Electronics Engineering Installations Agency was established in June of 1958 to engineer and install ground communications equipment throughout the world. On July 1, 1970, the 416th Bombardment Wing of the Strategic Air Command 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. The Air Force Research Laboratory Information Directorate and the Northeast Air Defense Sector will continue to operate at their current locations; the New York Air National Guard 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 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, among others, 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 performed 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. An RI was conducted in 1994 and the draft-final RI report covering 31 AOCs was delivered to the EPA and NYSDEC in December 1996 (Law 1996). Based on the results of the RI, an interim remedial action was performed in 1998 and 1999. The Final Closeout Report, Interim Remedial Action, Electrical Power Substation, was delivered in May 2000 (IT 2000).

2.3 Community Participation

A proposed plan for the EPS AOC (AFRPA 2001), indicating land and groundwater use restrictions for industrial use as a restricted access electrical substation, was released to the public on Wednesday, January 23, 2002. The document was made available to the public in both the administrative record file located at 153 Brooks Road 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 Monday, January 21, 2002. A public comment period lasting from January 23, 2002, to February 21, 2002, was set up to encourage public participation in the alternative selection process. In addition, a public meeting was held on Thursday, February 7, 2002. The AFRPA, NYSDEC, and the NYSDOH held an information session at the beginning of the public meeting and 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 land and groundwater use restrictions for the EPS AOC addresses the concerns for human health and the environment. The land use restrictions for industrial use as a restricted access electrical substation are consistent with the risk assessment performed for occupational workers and recreational receptors.

2.5 Site Characteristics

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 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.

The EPS is located on an area of the base that is topographically level. The EPS is located between two major southward flowing storm water drainage culverts that comprise the headwaters of Three Mile Creek to the south of the site. A 6-inch abandoned storm drain runs below the EPS to Three Mile Creek. A storm water catch basin is located south of the site and there are no manholes located within the substation enclosure. Run-off from the site is channeled into Three Mile Creek, which ultimately discharges to the New York State Barge Canal.

The groundwater at the EPS was encountered at depths ranging from 11.8 feet below ground surface (BGS) to 14 feet BGS. The groundwater flows south to southeast toward Three Mile Creek. The upper 2 feet of soil consists of predominantly brown, silty, fine to coarse sand. Subsurface soil consists of brown, gravelly, silty, fine sand ranging from depths of 2 to 13 feet BGS.

Since the start of operations at Griffiss AFB in the 1940s, the EPS has served as an electrical unit to relay power to various facilities throughout the base. The facility contains electrical transformers and other electrical equipment. Prior to conversion, some of the transformers contained PCB dielectric fluids.

The EPS is surrounded by a fence, thereby restricting access to the area. Two new transformers (containing no PCBs) were installed in the northern area of the substation in 1992; transformers are located within the fenced enclosure on concrete pads. During the RI, the area within the substation enclosure (adjacent to the transformer pads and electrical equipment) consisted of a gravel cover to a depth of about 3 inches. The area surrounding the fence line of the facility is grassy to the east and south. The area west of the

site consists of grass and concrete sidewalks. A jogging path is located about 60 feet south of the enclosure.

Dielectric fluids have reportedly been drained from the transformers directly onto the ground surface over an extended period of time. A transformer rupture reportedly occurred in 1987 at Transformer No. 1, during which PCB fluids were released through a blow-tube located on the east side of the transformer (see Figure 2). Oil spillage occurred through the substation enclosure fence to the east and also onto the gravel-covered ground surface to the west inside the enclosure. PCB containers (drums) have also reportedly been stored at this site.

Site Investigations and Removal Actions

PCB-contaminated surface soil was removed from the EPS following the Transformer No. 1 rupture in 1987. The gravel-covered area to the west of the transformer pad and inside the enclosure was excavated to a depth of 8 inches. The area to the east of the transformer pad and through the enclosure fence was excavated to a depth of between 1 to 1.5 feet. A cleanup goal of less than 50 parts per million (ppm) was achieved, but this action was later deemed inadequate and the area was re-excavated in 1998 (see Section 2.8).

Previous investigations of the sediment and water quality in the Three Mile Creek Basin were conducted by the U.S. Department of the Interior, Geologic Survey in 1987 and the U.S. Fish and Wildlife Service in 1988. These studies identified PCBs to be present in the streambed sediments at Three Mile Creek. An increase in PCBs in fish collected from Three Mile Creek downstream of the base relative to fish collected from Six Mile Creek at upstream locations from the base was reported.

In 1994, an RI was performed at the EPS AOC. The main objective of the RI was to investigate the nature and extent of environmental contamination from historical releases at this AOC in order to determine whether any further remedial action was necessary to prevent potential threats to human health and the environment that might arise from exposure to site conditions. The RI included the drilling of 32 soil borings outside the substation enclosure and 15 hand auger borings inside the substation enclosure; the collection of 317 soil samples for on-site field screening, and based on the screening results, the selection of 75 soil samples for off-site confirmatory analysis (NYSDOH-

certified laboratory); the collection of four surface soil samples from two locations near a jogging path south of the site; the collection of two sediment samples from beneath each of two storm water culverts that discharge drainage from the central portion of the base to Three Mile Creek; the collection of four samples of concrete from the PCB transformer pads; the collection of three gravel samples from areas adjacent to the PCB transformer pads; and the installation of four temporary wells to collect four groundwater samples for off-site analyses.

Analysis of the four groundwater samples collected during the RI indicated the presence of six chlorinated volatile organic compounds, and seven semivolatile organic compounds. The concentrations of two SVOCs exceeded the most stringent criterion for groundwater (see Table 1).

Analysis of the four surface soil samples collected along the jogging path during the RI indicated the presence of one VOC, 14 SVOCs, one PCB, and petroleum hydrocarbons. Two SVOCs were detected at concentrations above the most stringent criterion for soil (see Table 2).

On-site screening of the 317 soil samples collected during the RI indicated the presence of PCBs in 39 samples. Analysis of the 75 confirmatory soil samples revealed the presence of eight VOCs, 27 SVOCs, 14 pesticides, six PCBs, 22 dioxins and furans, and petroleum hydrocarbons. Five SVOCs, two pesticides, and three PCBs were detected at concentrations above the most stringent criterion for soil (see Table 3).

Analysis of the sediment samples collected during the RI indicated the presence of 17 SVOCs and two PCBs. The analytical results for these samples were compared to surface soil rather than sediment values (To-Be-Considereds [TBCs]) because the sediment TBCs were developed to be protective of aquatic life, which is not present at these locations (culverts are dry except for periods of rainfall). Four SVOCs were detected at concentrations above the most stringent criterion for soil (see Table 4).

Analysis of the four concrete samples and three gravel samples indicated the presence of two PCBs.

In May 1994, during the installation of groundwater monitoring wells for the On-base Groundwater AOC investigation, stained soil was found in the LAWMW-16 monitoring well borehole located approximately 300 feet southeast of the EPS AOC (see Figure 2). Therefore, the sampling of this location was recommended by NYSDEC and a

soil sample was collected from a soil boring adjacent to the monitoring well. Analysis of the soil sample indicated the presence of three VOCs, 19 SVOCs, two pesticides, 23 metals, and cyanide. Five SVOCs were detected at concentrations above the most stringent criterion for soil (see Table 5). Analysis of the LAWMW-16 groundwater sample indicated the presence of four VOCs, one pesticide, and 11 metals, but no analytes were detected in the groundwater sample above the most stringent criteria.

In 1994, an RI was conducted for the Three Mile Creek AOC. High levels of PCBs were detected in sediment, surface water, and fish collected from the east fork of Three Mile Creek adjacent to the site, likely as a result of discharges and/or erosion from the EPS AOC. The results of sediment, surface water, and fish samples were presented in the Three Mile Creek proposed plan and ROD. The selected remedy, as presented in the ROD, is excavation of the creek sediments and long-term environmental monitoring for a period of 30 years. The ROD was signed by the EPA on March 26, 2004, and remedial activities began in July 2004.

2.6 Current and Potential Future Site and Resource Uses

Griffiss AFB was designated for realignment under the Defense Base Closure and Realignment Act (DBCRA) in 1993 and 1995, resulting in deactivation of the 416th Bombardment Wing in September 1995. As a result of the realignment, a Master Reuse Strategy was developed by the Griffiss Local Development Corporation to provide the framework for reuse of the base after realignment and closure. The proposed reuse plan recommended in the final Master Reuse Strategy was evaluated in the Final Environmental Impact Statement (EIS) dated November 1995. As outlined in the Master Reuse Plan and EIS, the current and proposed future land use designations for the EPS AOC are industrial for use as a restricted access electrical substation. Currently, groundwater at the site is not being used as a resource. In the future, the deed for industrial use will prohibit the use of groundwater at the site unless prior written approval is granted by the NYSDOH.

2.7 Summary of Site Risks

Site risks were analyzed based on the extent of contamination at the EPS 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.

2.7.1 Human Health Risk Assessment

A baseline human health risk assessment was conducted during the RI to determine whether chemicals detected at the EPS 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 [HI] 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 COPCs with the exception of metals detected at concentrations less than twice the mean background concentrations; iron, magnesium, calcium, potassium, and sodium, which are essential human nutrients; and compounds detected in less than 5% of the total samples (unless they were known human carcinogens). 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 the effects of exposure to potential recreational receptors and occupational workers including utility, landscape, and construction workers to chemicals detected in the soil and industrial workers that may be exposed to groundwater. The various exposure scenarios for each population are described in Table 6. Intake assumptions, which are based on EPA guidance, are more fully described in the RI report.

Quantitative estimates of carcinogenic and noncarcinogenic risks from exposure to soil and groundwater were calculated for the EPS 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 increase in the probability of an individual developing cancer over a lifetime as a result of exposure to the potential carcinogen. The risks associated with exposure to 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 less than 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 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. If either of these thresholds is exceeded, the 1 in 1,000,000 (1 x

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.

Potential risks from exposure to COPCs at the EPS AOC were evaluated for recreational receptors (jogging path) and utility, construction, landscape, and industrial workers during the RI, prior to the interim remedial action. The potential carcinogenic and noncarcinogenic risks from exposure to soil and groundwater at the EPS AOC are summarized below and in Table 7.

Carcinogenic Risk

The total carcinogenic risk associated with exposure of landscape workers to surface soil was 3×10^{-5}, which is within the EPA's target risk range. The pathway-specific risks for landscape workers from incidental ingestion of soil, inhalation of fugitive dust, and dermal contact with soil were 1×10^{-5}, 9×10^{-9}, and 2×10^{-5}, respectively. Dermal contact and incidental ingestion of soil contaminated with PCBs and dioxin were the greatest contributors to the risk.

The total carcinogenic risk associated with exposure of utility workers to subsurface soil was 4×10^{-6}, which is within EPA's target risk range. The pathway-specific risks for utility workers from incidental ingestion of soil, inhalation of fugitive dust, and dermal contact with soil were 2×10^{-6}, 2×10^{-9}, and 2×10^{-6}, respectively. Dermal contact and incidental ingestion of soil contaminated with PCBs and dioxin were the greatest contributors to the risk.

The total carcinogenic risk associated with exposure of construction workers to subsurface soil was 3×10^{-6}, which is within EPA's target risk range. The pathway-specific risks for construction workers from incidental ingestion of soil, inhalation of fugitive dust, and dermal contact were 2×10^{-6}, 5×10^{-10}, and 6×10^{-7}, respectively. Dermal contact and incidental ingestion of soil contaminated with PCBs and dioxin were the greatest contributors to the risk.

The total carcinogenic risk associated with exposure of industrial workers to contaminants in groundwater was 4×10^{-5}, which is within EPA's target risk range. The pathway-specific risks for industrial workers from ingestion of groundwater, inhalation of VOCs released from groundwater, and dermal contact with groundwater were 3×10^{-6}, 1×10^{-8}, and 4×10^{-5}, respectively. Dermal contact with groundwater contaminated with

dibenz(a,h)anthracene and benzo(b)fluoranthene and the ingestion of groundwater contaminated with chrysene were the greatest contributors to the risk.

The total carcinogenic risk associated with exposure of recreational receptors (at the jogging path) to contaminants in fugitive dusts was 2×10^{-9}, which is below EPA's target risk range.

Noncarcinogenic Risk

The total HI for landscape workers exposed to subsurface soil was 0.1, which is significantly less than the benchmark value of 1. The total individual HIs for potential utility workers exposed to subsurface soil was 0.02. The total HI calculated for potential construction workers exposed to subsurface soil was 0.3. The total HI for potential industrial workers exposed to groundwater was 0.006. The total HI calculated for potential recreational receptors exposed to fugitive dusts from surface soil was 1×10^{-9}.

Toxicity values were not available for 2-methylnaphthalene, acenaphthylene, benzo(g,h,i)peryline, and dichlorofluoromethane and, therefore, the risk arising from exposure to these compounds was assessed qualitatively. Possible exposures to the site concentrations of these compounds are unlikely to pose a health hazard for occupational receptors potentially performing intrusive activities at this site.

Summary

The results of the human health baseline risk assessment indicate that chemicals in soil and groundwater do not present a risk to current and future occupational and recreational receptors. Quantitative evaluation of risk is subject to several conservative assumptions and should not be considered an absolute measure of risk.

2.7.2 Uncertainties

Uncertainties exist in many components of the human health risk assessment process. However, use of conservative variables in intake calculations and health-protective 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 this AOC include (1) Chemical samples were collected from the suspected source of contamination rather than through random sampling, which may

result in a potential overestimation of risk; (2) The HIs associated with dermal contact with soil were not quantified for the majority of COPCs, which may lead to underestimation of the overall risk due to dermal contact; (3) The models used in the RI are likely to overestimate exposure point concentrations in air, which would cause a potential overestimation of risk for the inhalation pathway; (4) Toxicological criteria were not available for all chemicals found at the site, which may result in a potential underestimation of risk; (5) Construction at the site was assumed to occur over a one year period. Since construction may take less time to complete, this would result in a potential overestimation of risk; (6) 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.

2.7.3 Ecological Risk Assessment

A baseline risk assessment for ecological receptors at the EPS AOC was conducted during the RI. The environmental evaluation modeled risks to the raccoon and short-tailed shrews from exposure to surface soil. The HQs indicative of risks to the raccoon were calculated to be below 1; therefore, the potential for adverse impact on this ecological receptor is considered to be insignificant. The HQs for the short-tailed shrew were all less than 1 with the exception of one chemical (2,3,7,8-TCDD, HQ=56). A hazard quotient of this value indicates a moderately high potential for adverse effects. (Note: 2,3,7,8-TCDD concentrations were all less than the most stringent regulatory criteria.)

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 on or in the vicinity of the base, no threatened and/or endangered species have been identified 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

Based on the results of the RI and baseline risk assessment, an interim remedial action was performed from April 1998 to January 1999 to remove PCB contaminated soil that remained at the EPS AOC. As described in section 2.5, SVOCs, pesticides, and other compounds were detected in the soils in addition to PCBs. It was determined that the removal of PCB contaminated soil from specific locations would mitigate the majority of contamination and resulting risk associated with this site. The interim remedial action included excavation of surface and subsurface soil containing PCBs; stockpiling; waste characterization; disposal of the excavated soil; confirmatory sampling at excavation sites to ensure cleanup goals were met; and site restoration and backfilling of the excavated areas with clean material. A brief summary of this remedial action is provided below.

Remedial action work activities began on April 20, 1998. Erosion and sedimentation control and work zones were identified and installed. All utilities (steam, sanitary, storm, water, and electrical) were located and marked out on the ground surface with fluorescent paint. Excavation around building foundations and storm sewer manholes was performed in a manner that would maintain their structural integrity. All excavated soil was staged on the alert apron where it awaited waste characterization. Soil was initially excavated to the required lateral limits and confirmatory soil samples were collected. Additional excavation was performed by hand beyond the initial limits to a depth of 2 feet in a 5-foot by 5-foot area based on the results of confirmatory samples obtained from the south excavation sidewall. Additional excavation was also performed adjacent to the east fence line due to the reported oil spill in 1987. The approximate limits of excavation are depicted in Figure 3. A total of 85 tons of soil was excavated and removed from the EPS AOC.

Confirmatory samples were taken after the removal action was completed to verify the effectiveness of this interim remedial action. The Air Force, EPA, and NYSDEC compared the results of the confirmatory soil samples to the NYSDEC Technical and Administrative Guidance Memorandum (TAGM) 4046: Determination of Soil Cleanup Objectives and Soil Cleanup Levels, 1994; and the following PCB project cleanup goals (Toxic Substances Control Act cleanup levels): soil concentrations outside the EPS fenceline of less than 1 ppm (1 ppm = 1 mg/kg) at the surface and less than 10 ppm at a

depth greater than 10 inches; soil concentrations inside the EPS fence (restricted access limits) of less than 25 ppm. The four areas of excavation at the EPS (see Figure 3) include:

Area 1: The concentrations of total PCBs in the soil prior to excavation ranged from nondetect to 3.07 ppm. Following excavation, 14 confirmatory samples were collected; concentrations ranged from 0.039 to 2.10 ppm subsurface soil (cleanup criteria of 10 ppm), with an average of 0.78 ppm.

Area 2: Inside the fenced area of the EPS, the only RI sample that exceeded the 25 ppm cleanup criteria was sample B27SB-7 with a concentration of 93 ppm subsurface soil and 42 ppm surface soil. Following excavation of Area 2, the concentrations of confirmatory samples within Area 2 were all nondetect. Note: In the remaining area within the EPS fence line, RI concentrations ranged from nondetect to 16 ppm (sample B27SB-18) with an average of 3.1 ppm. Due to the extensive underground electrical grid system, it was not feasible to remove all the PCB contaminated soils, however, since all remaining PCB concentrations within the fenced in area are below 25 ppm, the criteria for continued use as an electrical substation has been met.

Area 3: Following the 1987 oil spill, concentrations of total PCBs ranged from nondetect to 103 ppm. Following excavation, confirmatory samples were collected and an area along the east fence line was re-excavated due to the sample results. In total, 25 confirmatory samples were collected in Area 3; the final confirmatory sample concentrations ranged from nondetect to 5.6 ppm.

Area 4: RI sample concentrations prior to excavation ranged from 1.22 to 22.3 ppm. Following excavation, 46 confirmatory samples were collected; concentrations ranged from nondetect to 4.5 ppm. Tables and figures depicting all of the results of the confirmatory samples are included in The Final Closeout Report, Interim Remedial Action, Electrical Power Substation, May 2000.

After agreement was reached that the project goals were met, the EPS excavations were backfilled with clean material and the site was restored. Site restoration included the placement of topsoil, seed, fertilizer, shrubbery, and mulch, over clean backfill outside the fenced area. Inside the fenced area, 4 to 18 inches of crushed stone/gravel was placed over clean backfill to match pre-existing conditions and to prevent any future storm water runoff.

Storm water drainage from the EPS to Three Mile Creek is not considered to be a concern due to the physical nature of the substation area. The transformers are located within the EPS fence on concrete pads. Although transformers formerly contained PCBs,

there are no longer transformers containing PCBs within the substation. Crushed limestone (from 4 to 18 inches) covers the soil within the fenced area where PCB levels are near (but do not exceed) the cleanup goals, thus preventing migration of any contaminated soil. In addition, there are no storm water catch basins present within the EPS area that would transport soil with storm water runoff during rain events. A 6-inch abandoned storm drain that runs below the EPS to Three Mile Creek is dry; no flow from the discharge point has been observed during rain events.

The stockpiles of excavated soil were sampled and characterized as non-hazardous. The contaminated soil stockpiles were loaded, transported, and disposed at the Seneca Meadows Landfill in Waterloo, New York, on January 18, 1999.

2.9 Remedial Action Objectives

The following are the remedial action objectives developed for this site based upon the site data presented in the RI and Final Closeout reports:

Restrict Exposure to Contamination

Land and groundwater use restrictions within the land use control boundary, as shown in Figure 3, will be implemented to restrict site use to industrial use as a restricted access electrical substation (within the fence line), restrict use of the groundwater, and restrict relocation of subsurface soil.

The following are the goals and objectives of the land and groundwater use restrictions:

- Prevent the use of the contaminated groundwater for drinking water or any other purposes that could result in the inhalation of vapors from dermal absorption of, or ingestion of, the contaminated groundwater.

- Prevent the discharge of the contaminated groundwater withdrawn during construction dewatering activities to the ground or surface water, without prior concurrence of the NYSDEC, since this discharge could exacerbate the spreading of the contamination and may require a discharge permit.

- Prevent use of the EPS AOC for residential, elementary and secondary schools, childcare facilities and playgrounds since the risk assessment was evaluated for only non-residential use scenarios (future use) and not for unrestricted use.

- Prevent relocation of subsurface contaminated soils during construction activities since the excavated subsurface (below 1 foot) contaminated soils must remain on site and be covered with a minimum of 1-foot of clean fill.

Evaluate Effectiveness of the Remedy

Five-year reviews will be performed by the Air Force, in conjunction with the EPA and NYSDEC, to ensure that (1) the Selected Remedy is protective of public health and the environment, (2) land use is in compliance with the deed restrictions for industrial use, (3) any groundwater use has been approved by the NYSDOH prior to use, and (4) the soil removal interim remedial action effectively eliminated PCB discharges and the potential for PCB contaminated soil to enter the Three Mile Creek ecosystem.

2.10 Description of Alternatives

CERCLA regulations mandate that a remedial action must be protective of human health and the environment, cost effective, and utilize permanent solutions and treatment technologies to the maximum extent practicable. This ROD evaluates a No Action scenario as dictated by CERCLA, and compares it to the land and groundwater use restrictions alternative. A summary of the two alternatives is presented below.

No Action Alternative

CERCLA requires that the No Action alternative be compared with other alternatives. Under the No Action alternative, no remedy would be implemented at the EPS AOC. The site would remain as it is presently and there would be no monitoring of contaminants in the groundwater. No land use restrictions restricting habitation or use would be established. Costs and construction time are not associated with this alternative.

Land Use Restrictions for Industrial Use and Groundwater Use Restrictions Alternative

This alternative includes land use restrictions for industrial use and groundwater use restrictions. The deed from the United States, which includes property within the land use control boundary of the EPS AOC, will contain the following elements to ensure that the reuse of the site is consistent with the risk assessment:

- Development and use of the EPS AOC (within the site boundary) for residential housing, elementary and secondary schools, childcare facilities and playgrounds will be prohibited unless prior approval is received from the Air Force, EPA, and NYSDEC;

- The area within the fence line will be designated for use as a restricted access electrical substation;

- 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 site unless such owner or occupant obtains prior written approval from the NYSDOH; and

- Within the site boundary (see Figure 3), the owner or operator will restrict the relocation of the contaminated soils below 1 foot of the surface from being placed outside the site boundaries. If the contaminated soil below 1 foot of the surface is to be excavated, it must remain on site, stay covered if stockpiled, and covered by a minimum of 1 foot of clean fill once it is returned to the ground. Prior to any digging within the site boundary, the owner/operator will notify all workers performing such work of these restrictions. The owner/operator will notify the Air Force of any digging activities that take place within the restricted area. The Air Force will, in turn, include any such notifications received from the owner/operator as part of the monitoring reports discussed below.

Five-year reviews will be performed by the Air Force, in conjunction with the EPA and NYSDEC, to ensure that (1) the Selected Remedy is protective of public health and the environment, (2) future land use is in compliance with the deed restrictions for industrial use, (3) any groundwater use has been approved by the NYSDOH prior to use, and (4) the soil removal interim remedial action effectively eliminated PCB discharges and the potential for PCB contaminated soil to enter the Three Mile Creek ecosystem. Costs will range between $2,000 and $5,000 per review and construction time is not associated with this alternative.

2.11 Comparative Analysis of Alternatives

Remedial alternatives are assessed on the basis of both a detailed and a comparative analysis pursuant to the NCP. The analysis of EPS AOC consisted of (1) an assessment of the individual alternatives against nine evaluation criteria and (2) a comparative analysis focusing upon the relative performance of each alternative against the criteria. In

general, the following "threshold" criteria must be satisfied by an alternative for it to be eligible for selection:

1. Overall protection of human health and the environment addresses whether a remedy provides adequate protection and describes how risks posed through each exposure pathway (based on a reasonable maximum exposure scenario) are eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls.

2. Compliance with Applicable or Relevant and Appropriate Requirement (ARARs) addresses whether a remedy would (a) meet all of the ARARs or (b) provide grounds for invoking a waiver.

In addition, the following "primary balancing" criteria are used to make comparisons and identify the major trade-offs among alternatives:

3. Long-term effectiveness and permanence refers to the ability of a remedy to maintain reliable protection of human health and the environment over time once cleanup goals have been met. It also addresses the magnitude and effectiveness of the measures that may be required to manage the risk posed by treatment residuals and/or untreated wastes.

4. Reduction of toxicity, mobility, or volume via treatment refers to a remedial technology's expected ability to reduce the toxicity, mobility, or volume of hazardous substances, pollutants, or contaminants at the site.

5. Short-term effectiveness addresses (a) the period of time needed to achieve protection and (b) any adverse impacts on human health and the environment that may be posed during the construction and implementation periods until cleanup goals are achieved.

6. Implementability refers to the technical and administrative feasibility of a remedy, including the availability of materials and services needed.

7. Cost includes estimated capital, operation and maintenance, and present-worth costs.

Finally, the following "modifying" criteria are considered fully after the formal public comment period on the Proposed Plan is complete:

8. State acceptance indicates whether, based on its review of the RI and the Proposed Plan, the State supports or opposes the preferred alternative and/or has identified any reservations with respect to the preferred alternative.

9. Community acceptance refers to the public's general response to the alternatives described in the Proposed Plan and the RI reports. Factors of community acceptance include support, reservation, or opposition by the community.

A comparative analysis of the two alternatives based on the nine evaluation criteria follows:

1. Overall Protection of Human Health and the Environment

   The No Action alternative would potentially not provide adequate protection of human health and the environment since no remedy would be implemented at the EPS AOC. Based on the concentrations of contaminants in the surface soil, subsurface soil, and groundwater, the results of the baseline risk assessment indicate that, although the concentrations of some chemicals exceed soil guidance values and groundwater standards, the EPS poses no unacceptable risk from exposure to the soil or groundwater for industrial, utility and construction workers. Based on the soil removal interim remedial action, it is believed that all PCB discharges and erosion of contaminated soil into Three Mile Creek have been eliminated.

   The proposed alternative will prevent unnecessary exposure to the soil and groundwater (not evaluated for residential use scenarios) by limiting the future use of the site and the groundwater through the implementation of land use restrictions for industrial use and groundwater use restrictions.

2. Compliance with ARARs

   Contaminant concentrations will not immediately comply with the ARARs under the No Action alternative or the Selected Remedy alternative. Currently there are no chemical specific ARARs for soil (other than for PCBs). Therefore, other non-promulgated federal and state advisories and guidance values, referred to as TBCs and background levels of the contaminants were used.

   The Selected Remedy alternative addresses soil and groundwater at the site. The Selected Remedy alternative will limit exposure to groundwater and soil through the implementation of land use and groundwater use restrictions. There is no evidence that the chemical concentrations in the surface soil, subsurface soil, or the groundwater pose a current or future potential threat to human health or the environment when used for industrial purposes and when groundwater use is restricted. Further, five-year reviews will be performed by the Air Force, in conjunction with the EPA and NYSDEC, to ensure that (1) the Selected Remedy is protective of public health and the environment, (2) future land use is in compliance with the deed restrictions for industrial use, (3) any groundwater use has been approved by the NYSDOH prior to use, and (4) the soil removal interim remedial action effectively eliminated PCB dis-

charges and the potential for PCB contaminated soil to enter the Three Mile Creek ecosystem.

3. Long-term Effectiveness and Permanence

   The No Action alternative would not allow for reliable protection of human health and the environment in the long term due to the potential for future ingestion of groundwater and exposure to contaminated soil by portions of the human population other than industrial, utility and construction workers.

   For the Selected Remedy alternative, the implementation of land use and groundwater use restrictions will eliminate human contact with potentially contaminated soil and groundwater. This action, coupled with the five-year reviews, provides reliable long-term protection of human health and the environment.

4. Reduction of Toxicity, Mobility, or Volume through Treatment

   The No Action alternative provides no treatment or containment of contaminants, and therefore does not result in any reduction of toxicity, mobility, or volume.

   The Selected Remedy alternative provides no treatment or containment of contaminant migration, therefore, it does not result in any reduction of toxicity, mobility, or volume. However, the levels of contamination found in the soil and groundwater do not warrant treatment. Although treatment will not be employed, this alternative will eliminate potential exposures to the contamination found in the soil and groundwater.

5. Short-term Effectiveness

   The No Action alternative would not be an effective alternative because potential human exposure to contaminated soil and ingestion of groundwater would continue to exist.

   For the Selected Remedy alternative, land use and groundwater use restrictions would be implemented immediately upon transfer of the property. The present and immediate future use of the property is industrial with no utilization of groundwater. The deed restrictions will ensure that these controls remain intact.

6. Implementability

   There would be no limitations to implementing the No Action alternative.

   There would be no limitations to implementing the Selected Remedy alternative. Implementation of land use restrictions is feasible and has been incorporated into other property transfers.

7. Cost

   There would be no costs associated with the No Action alternative.

   There are no capital costs or project construction durations associated with the Selected Remedy. Reviews to ensure that the remedy is still performing as planned will cost between $2,000 and $5,000 per review.

8. Agency Acceptance

   AFRPA, NYSDEC, and EPA have mutually agreed to select the land use and groundwater use restrictions alternative. The Selected Remedy satisfies the threshold criteria and ensures compliance with applicable regulations.

9. Community Acceptance

   Community acceptance of the Selected Remedy was assessed at the public meeting and during the public comment period.

2.12 Principal Threat Wastes

There are no principal threat wastes at the EPS AOC.

2.13 Selected Remedy

The Selected Remedy for the EPS AOC is land use restrictions for industrial use as a restricted access electrical substation and groundwater use restrictions. Long-term monitoring of sediments, surface water and fish in Three Mile Creek will be conducted under the ROD for that AOC and will be reviewed in the five-year review. If monitoring indicates that there is a potential for continued impacts to the creek, additional work may be needed. Land and groundwater use restrictions will be implemented to minimize the exposure of any future users of the property including Air Force personnel, lessees/sublessees, transferees, and construction workers to any remaining hazardous substances located on the property encompassed by the EPS AOC.

The Air Force is responsible for implementing, maintaining, monitoring, and enforcing the land and groundwater use restrictions, which will be documented in the deed or lease. It is anticipated that successful implementation, operation, maintenance, and enforcement of these land use restrictions in accordance with the terms of this ROD will achieve protection of human health and the environment and compliance with all legal

requirements. Approval by the Air Force and EPA with concurrence from NYSDEC is required for any modification or termination of land use or groundwater use restrictions.

The following are the goals and objectives of the land and groundwater use restrictions:

- Prevent the use of the contaminated groundwater for drinking water or any other purposes that could result in the inhalation of vapors from dermal absorption of, or ingestion of, the contaminated groundwater.

- Prevent the discharge of the contaminated groundwater withdrawn during construction dewatering activities to the ground or surface water, without prior concurrence of the NYSDEC, since this discharge could exacerbate the spreading of the contamination and may require a discharge permit.

- Prevent use of the EPS AOC for residential, elementary and secondary schools, childcare facilities and playgrounds since the risk assessment was evaluated for only non-residential use scenarios (future use) and not for unrestricted use.

- Prevent relocation of subsurface contaminated soils during construction activities since the excavated subsurface (below 1-foot) contaminated soils must remain on site and be covered with a minimum of 1-foot of clean fill.

To achieve these goals and objectives, the Air Force is requiring that use restrictions be placed on the property where the residual contamination is located. The deed will contain the following restrictions to ensure that the reuse of the site and groundwater use is consistent with the risk assessment:

- Development and use of the EPS AOC (within the site boundary) for residential housing, elementary and secondary schools, childcare facilities and playgrounds will be prohibited unless prior approval is received from the Air Force, EPA, and NYSDEC;

- The area within the fence line will be designated for use as a restricted access electrical substation;

- 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 site unless such owner or occupant obtains prior written approval from the NYSDOH; and

- Within the site boundary (see Figure 3), the owner or operator will restrict the relocation of the contaminated soils below 1 foot of the surface from being placed outside the site boundaries. If the contaminated soil below 1 foot of the surface is to be excavated, it must remain on site, stay covered if stock-piled, and covered by a minimum of 1 foot of clean fill once it is returned to the ground. Prior to any digging within the site boundary, the owner/operator will notify all workers performing such work of these restrictions. The owner/operator will notify the Air Force of any digging activities that take place within the restricted area. The Air Force will, in turn, include any such notifications received from the owner/operator as part of the monitoring reports discussed below.

An interim remedial action was performed at this site in which the majority of the PCB soil contamination found during the RI was removed and a potential source of groundwater contamination was removed. In addition, the baseline risk assessment for soil and groundwater, which was performed prior to remediation, indicated that risks fell within EPA's acceptable risk range for recreational receptors and industrial, utility, landscape, and construction workers. Therefore, concentrations of the chemicals (PCBs, SVOCs, pesticides and other compounds) remaining in the soil and the results of the baseline risk assessment for soil and groundwater, in conjunction with the land and groundwater use restrictions mentioned earlier, pose no current or potential threat to public health or the environment.

The above restrictions shall be maintained until the concentrations of hazardous substances in the soil and groundwater has been reduced to levels that allow for unlimited exposures and unrestricted use. Approval by the Air Force and EPA with concurrence from NYSDEC is required for any modification or termination of land use or groundwater use restrictions.

The parcel of property encompassing the EPA AOC is currently leased under Air Force Lease No. BCA-GRF-12-01-1201 to the Griffiss Local Development Corporation (GLDC).

The Air Force will take the following actions to ensure that the aforementioned use restrictions and the controls are effective in eliminating the exposure scenario and protecting human health and the environment:

Deed Restrictions: The transfer of fee title from the United States will include a CERCLA 120(h)(3) covenant which will contain a description of the residual contamination on the property and the environmental use restrictions, described above, expressly prohibiting activities inconsistent with the performance measure goals and objectives.

The environmental restrictions are or will be included in the deed for any property that has had hazardous substances stored for one year or more, known to have been released or disposed of on the property. The Air Force will consult with the EPA and NYSDEC on the deed restriction language. The deed contains or will contain appropriate provisions to ensure that the restrictions continue to run with the land. The deed also contains or will contain a reservation of access to the property for the Air Force, EPA, and the NYSDEC, and their respective officials, agents, employees, contractors, and subcontractors for purposes consistent with the Air Force IRP and the FFA.

Lease Restrictions: The parcel of property encompassing the EPS AOC is currently leased under Air Force Lease No. BCA-GRF-12-01-1201 to the GLDC and equivalent restrictions are implemented by lease terms. The lease restrictions are in place and operational and will remain in place until the property is transferred by deed. At the moment of deed transfer, the lease restrictions will be superseded by the restrictions in the federal deed, which will be equivalent to the use restrictions and controls described in this ROD.

Environmental Easement: An environmental easement will be established for the boundary of the EPS AOC (see Figure 3) consistent with Section 27-1318(b) and Article 71, Title 36 of the New York State Environmental Conservation Law.

Notice: Concurrent with the transfer of the fee title between the Air Force and the transferee, information regarding the environmental use restrictions will be communicated in writing to the property owners and to appropriate state and local agencies to ensure such agencies can factor such conditions into their oversight and decision-making activities regarding the property. The Air Force will also provide a copy of the deeds to the regulatory agencies as soon as practicable after the transfer of fee title.

Monitoring and Enforcement:

Monitoring: Monitoring of the environmental use restrictions will be conducted on an annual basis. The monitoring results will be included in a separate report or as a section in another environmental report, if appropriate, and provided to the EPA and NYSDEC. The environmental use monitoring reports will be used in the preparation of the five-year reviews to evaluate the effectiveness of the remedy. Five-year review reports will make recommendations on the continuation or modification of the monitoring reports and environmental use monitoring fre-

quencies. The five-year review reports will be submitted to the regulatory agencies in accordance with the FFA.

The environmental use monitoring report, submitted to the regulatory agencies by the Air Force, will evaluate the status of the land and groundwater use restrictions and how any use restriction deficiencies have been addressed. The annual evaluation will address whether the use restrictions were communicated in the deed(s), whether the owners and state and local agencies were notified of the use restrictions affecting the property, and whether use of the property has conformed to such restrictions.

Response to Violations: The Air Force will notify EPA and NYSDEC via e-mail or telephone as soon as practicable, but no later than 10 days after discovery of any activity that is inconsistent with the land and groundwater use objectives or use restrictions, exposure assumptions, or any action that may interfere with the effectiveness of the land and groundwater use restrictions. Any violations that breach federal, state or local criminal or civil law will be reported to the appropriate civilian authorities, as required by law.

Enforcement: Any activity that is inconsistent with the land and groundwater use objectives or use restriction or any action that may interfere with the effectiveness of the land and groundwater use restrictions will be addressed by the Air Force as soon as practicable (but in no case more than 10 days) after the Air Force becomes aware of the violation. The Air Force will notify EPA and NYSDEC regarding how the breach has been addressed within 10 days of sending EPA and NYSDEC notification of the breach. The Air Force will exercise such rights as it retained under the transfer documents to direct that activities in violation of the controls be immediately halted. To the extent necessary, the Air Force will engage the services of the Department of Justice to enforce such rights.

Notification of Land Use Modification: The recipient of the property will obtain approval from the Air Force, EPA, and NYSDEC for any proposals for a land use change at a site inconsistent with the use restrictions described in this ROD.

State Land Use Notification Requirements: Consistent with the stated purposes of recent amendments to the New York Environmental Conservation Law enacting Section 27-1318, Institutional and Engineering Controls, the Air Force will meet the annual certification of Section 27-1318(C) through the annual monitoring report described above. Prior to property transfer, any grantee will be notified of any state land use control notification or reporting requirements.

The Air Force may arrange for third parties or other entities to perform any and all of the above actions. Any such arrangement shall be undertaken and executed in accordance with all applicable legal requirements, to include the Air Force's functions, obliga-

tions, and responsibilities under CERCLA. However, the Air Force shall retain ultimate responsibility for remedy integrity.

2.14 Statutory Determinations

It has been determined that no additional removal action is necessary at the EPS AOC. The AFRPA and EPA, with concurrence from NYSDEC, have determined that land use restrictions for industrial use and groundwater use restrictions are warranted for this site. Future landowners will be bound, through the property deed, to the industrial reuse of the area within the EPS AOC site boundary and to the industrial reuse as a restricted access electrical substation.

Five-year reviews will be performed by the Air Force, in conjunction with the EPA and NYSDEC, to ensure that (1) the Selected Remedy is protective of public health and the environment, (2) future land use is in compliance with the deed restrictions for industrial use, (3) any groundwater use has been approved by the NYSDOH prior to use, and (4) the soil removal interim remedial action effectively eliminated PCB discharges and the potential for PCB contaminated soil to enter the Three Mile Creek ecosystem.

2.15 Documentation of Significant Changes

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

Table 1
COMPOUNDS EXCEEDING STANDARDS AND GUIDANCE VALUES
ELECTRICAL POWER SUBSTATION
GROUNDWATER SAMPLES

Compound	Range of Detected Concentrations	Frequency of Detection Above Most Stringent Criterion	Most Stringent Criterion
Semivolatiles (µg/kg)			
Benzo(b)fluoranthene	0.08 J	2/4	0.002 [a]
Chrysene	0.07 J - 0.08 J	2/4	0.002 [a]

[a] NYSDEC Class GA groundwater standard; June 1998

Key:
J = Estimated concentration

Table 2
COMPOUNDS EXCEEDING STANDARDS AND GUIDANCE VALUES
ELECTRICAL POWER SUBSTATION
SURFACE SOIL SAMPLES - JOGGING PATH

Compound	Range of Detected Concentrations	Frequency of Detection Above Most Stringent Criterion	Most Stringent Criterion
SVOCs (µg/kg)			
Benzo(a)anthracene	68 J - 260 J	1/4	224 [a]
Benzo(a)pyrene	59 J - 200 J	3/4	61 [a]

[a] NYS-recommended soil cleanup objective

Key:
J = Estimated concentration

Table 3
COMPOUNDS EXCEEDING GUIDANCE VALUES
ELECTRICAL POWER SUBSTATION
SOIL SAMPLES

Compound	Range of Detected Concentrations	Frequency of Detection Above Most Stringent Criterion	Most Stringent Criterion
SVOCs (µg/kg)			
Benzo(a)anthracene	46 J - 2,400	26/65	224 [a]
Benzo(a)pyrene	41 J - 2,000	50/65	61 [a]
Benzo(b)fluoranthene	53 J - 3,500	7/65	1,100 [a]
Chrysene	41 J - 2,200	1/4	400 [a]
Dibenzo(a,h)anthracene	57 J - 480	14/65	14 [a]
Pesticides/PCBs (µg/kg)			
Dieldrin	0.29 J - 84.2	1/35	40 [b]
Heptachlor epoxide	0.12 J - 43.1	1/35	20 [a]
PCB-1248 (Aroclor 1248)	146 - 1,040	2/65	90 [b]
PCB-1254 (Aroclor 1254)	8 J - 22,300	14/65	90 [b]
PCB-1260 (Aroclor 1260)	13.2 J - 93,000 J	10/65	90 [b]

[a] NYS-recommended soil cleanup objective

[b] Proposed RCRA corrective action levels

Key:
J = Estimated concentration

Table 4
COMPOUNDS EXCEEDING STANDARDS AND GUIDANCE VALUES
ELECTRICAL POWER SUBSTATION
SEDIMENT SAMPLES *

Compound	Range of Detected Concentrations	Frequency of Detection Above Most Stringent Criterion	Most Stringent Criterion*
Semivolatiles (µg/kg)			
Benzo(a)anthracene	230 J - 910	2/2	224 [a]
Benzo(a)pyrene	350 J - 770	2/2	61 [a]
Benzo(b)fluoranthene	730 J - 1,400	1/2	1,100 [a]
Chrysene	400 J - 850	2/2	400 [a]

[a] NYS-recommended soil cleanup objective

* The samples are more comparable to surface soil samples;their analytical results are compared to soil TBCs

Key:
J = Estimated concentration

Table 5
COMPOUNDS EXCEEDING STANDARDS AND GUIDANCE VALUES
ELECTRICAL POWER SUBSTATION
SOIL SAMPLES - MONITORING WELL BORING LAWMW-16

Compound	Range of Detected Concentrations	Frequency of Detection Above Most Stringent Criterion	Most Stringent Criterion
Semivolatiles (µg/kg)			
Benzo(a)anthracene	1,400 J	1/1	224 [a]
Benzo(a)pyrene	1,100 J	1/1	61 [a]
Benzo(b)fluoranthene	1,600 J	1/1	1,100 [a]
Chrysene	1,200 J	1/1	400 [a]
Dibenz(a,h)anthracene	120 J	1/1	14 [a]

[a] NYS-recommended soil cleanup objective

Key:
J = Estimated concentration

Table 6
ELECTRICAL POWER SUBSTATION
AOC RISK ASSESSMENT
EXPOSURE SCENARIOS

RECREATIONAL RECEPTOR	UTILITY, LANDSCAPE AND CONSTRUCTION WORKERS	INDUSTRIAL WORKER
• Inhalation of fugitive dust	• Incidental ingestion of soil • Inhalation of fugitive dust • Dermal contact with soil	• Ingestion of groundwater • Dermal contact with groundwater (during showering) • Inhalation of VOCs from groundwater (during showering)

Table 7
ELECTRICAL POWER SUBSTATION AOC
RI SUMMARY OF RISKS[a]

HUMAN HEALTH RISKS

Pathway	Receptor	Site Condition	Cancer Risk	Noncancer Risk
Surface Soil (ingestion, inhalation, dermal contact)	Landscape worker	Current and future	3×10^{-5}	0.1
Subsurface Soil (Ingestion, inhalation, dermal contact)	Utility workers	Current and future	4×10^{-6}	0.02
	Construction workers	Future	3×10^{-6}	0.3
Inhalation of Fugitive Dust	Recreational receptor	Current and future	2×10^{-9}	1×10^{-9}
Groundwater (Ingestion, inhalation of VOCs, dermal)	Industrial worker	Future	4×10^{-5}	0.006

ECOLOGICAL HEALTH RISKS

Pathway	Indicator Species	Hazard Quotient
Ingestion of Soil	Raccoon	<1
	Short-tailed shrew	56

a Prior to Interim Remedial Action

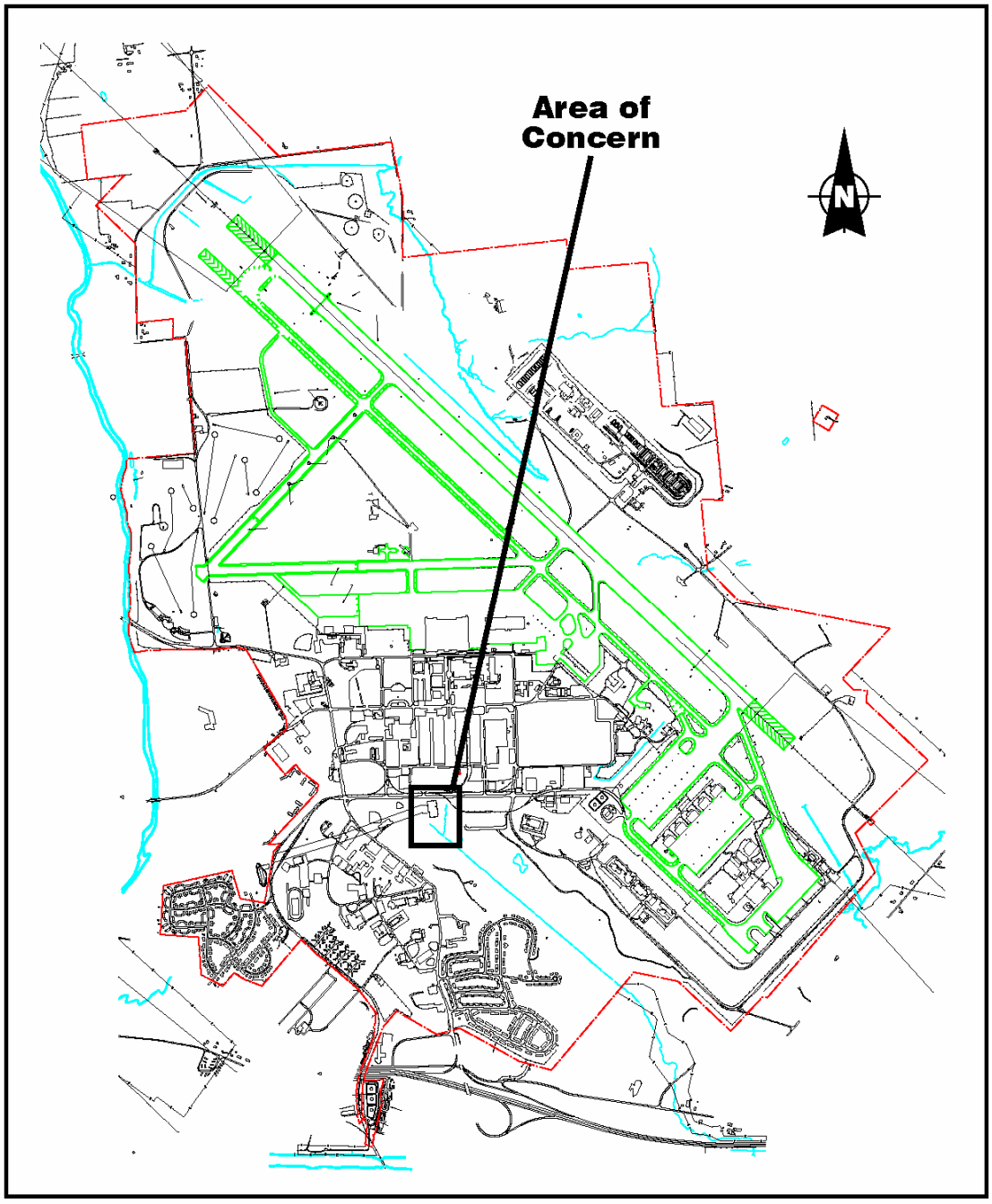

Figure 1 Electrical Power Substation AOC Location Map

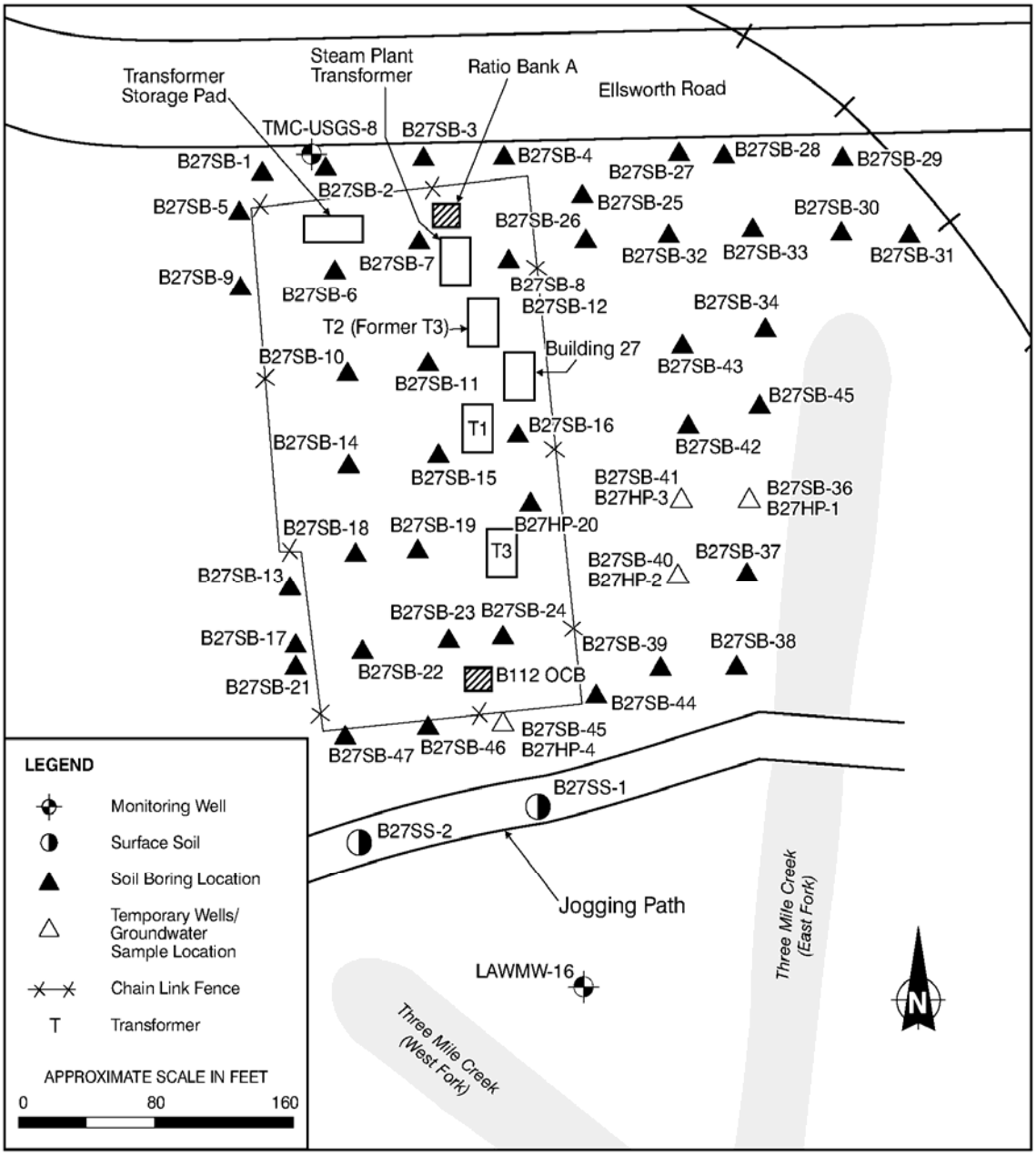

Figure 2 Electrical Power Substation AOC Site Map

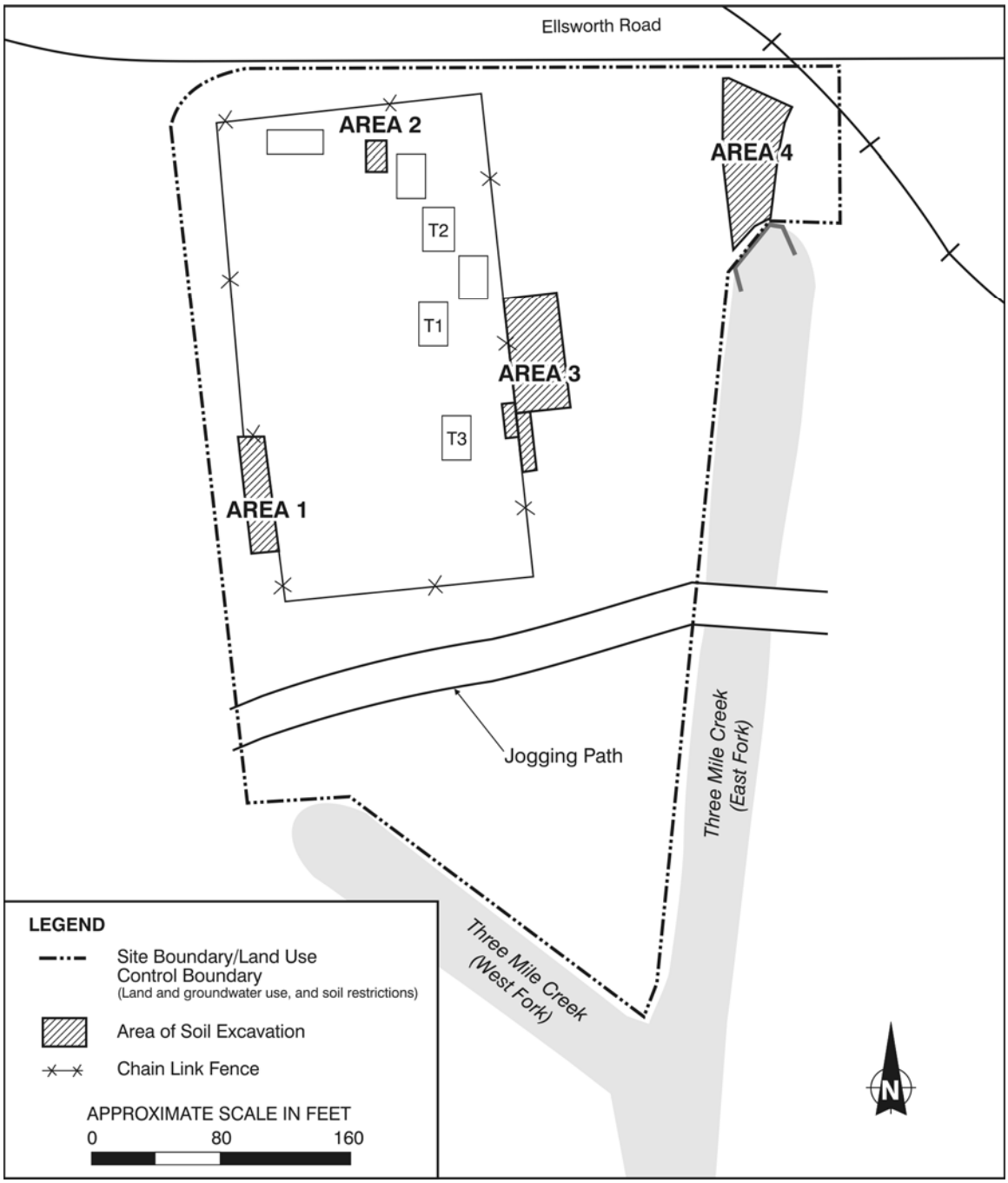

Figure 3 EPS AOC Interim Remedial Action and Site Boundary/Land Use Control Boundary

3 Responsiveness Summary

On Wednesday, January 23, 2002, AFRPA, following consultation with and concurrence of the EPA and NYSDEC, released for public comment the proposed plan for land use and groundwater use restrictions at the EPS AOC at the former Griffiss AFB. The release of the proposed plan initiated the public comment period, which concluded on February 21, 2002.

During the public comment period, a public meeting was held on Thursday, February 7, 2002, at 5:00 p.m. at the Floyd Town Hall located at 8299 Old Floyd Road, Rome, New York. A court reporter recorded the proceedings of the public meeting. Copies 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 plan for 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. Several of the oral and written comments do not pertain to the six proposed plans that were issued for public comment but do relate to the base closure in general. Responses to such general comments, however, are also provided in this Responsiveness Summary.

ORAL COMMENTS

Comment #1 (John Fitzgerald)

a) Mr. Fitzgerald asked what the sources and amounts of dioxin were at the EPS AOC since their presence was indicated on page 12 of the proposed plan.

b) He also pointed out that since modeling of bioaccumulation to higher order species and evaluation of cumulative effects were not done in the ecological risk assessment, it would seem like more work should be done.

c) He asked if there would be more contamination since the EPS will continue to be used as a substation.

d) He also asked if there were any other possible contaminants.

Response #1

a) When transformer fluids get extremely hot, dioxins and furans are released. They are also associated with PCBs. Therefore, the dioxins and furans were associated with PCB transformer spills. Dioxin (2,3,7,8-TCDD) concentrations did not exceed the 40 nanograms per kilogram (ng/kg) soil guidance value in any sample.

Reference report: Volume 7 of the Draft-final Remedial Investigations Report dated December 1996.

b) The ecological risk assessment was performed based on contamination present before the removal action was performed. Since a removal action has been completed and the clean up goals were met, the majority of the contaminants have been removed. Therefore, it is not necessary to perform additional risk assessments.

c) There are no longer any PCBs in the transformer oil at the site, so there is no source for future PCB contamination.

d) Oils inside the equipment would be a possible contaminant should a release occur.

Comment #2 (Freda Melkun)

a) Mrs. Melkun asked a general question regarding potential movement of contamination off base and asked if any off-base investigations will take place.

b) She stated that Three Mile Creek and Six Mile Creek are contaminated, so their groundwater wells should be contaminated, and asked what the chemical effects are when you start mixing everything together.

c) She stated that ethylene glycols were found in some of the off-base wells and her well was supposed to be tested and it never was.

d) She stated that children are still swimming in the creeks.

Response #2

a) Several off-base investigations have been completed and it has been determined that there is no contamination at levels of health concern affecting off-base property, with the possible exception of Three Mile and Six Mile Creeks. Twenty-seven monitoring wells were sampled as part of the Off-Base Groundwater Contamination Area of Concern. Also, more than 300 domestic wells were sampled.

Reference report: Volume 32 of the Draft-final Remedial Investigations Report dated December 1996.

b) There has been contamination found in both Six Mile and Three Mile Creeks. As part of our assessment of the creeks, we have evaluated the effects of individual and combined chemicals on various receptors. However, such chemical effects, whether dealing with one or several chemicals, are unique and must be evaluated on a case-by-case basis. For the off-base portion of Six Mile Creek, the contaminants include low-level concentrations of polycyclic aromatic hydrocarbons (PAHs) and polychlorinated biphenyls (PCBs) in the surface water and sediments. For the off-base portion of Three Mile Creek, the contaminants include moderate level concentrations of VOCs, SVOCs, metals, PAHs and PCBs in the surface water and sediments. Remedies are being evaluated for these sites and proposed plans will be issued within the next year. Several of the off-base monitoring wells and private wells that were sampled were adjacent to the creeks. The results showed that contamination has not traveled from the creeks to the wells. Furthermore, during the investigations, it was found that groundwater in the area south and southeast of the base flows into Six Mile Creek and not from the creek into the surrounding groundwater, therefore, it is extremely unlikely that contaminants in the creek would be transferred to adjacent homeowner wells. Proposed plans for Three Mile Creek (Remedial Action with Long-term Monitoring) and Six Mile Creek (source Control and Long-term Monitoring) were issued for public review and comment on July 24, 2003. A public meeting was held on August 5, 2003, to present the proposed alternatives. A final Record of Decision was signed by the EPA on March 26, 2004.

Reference reports: Volumes 6 and 11 of the Draft-final Remedial Investigations Report dated December 1996, Draft Feasibility Study Report for Three Mile Creek AOC and Six Mile Creek AOC dated January 1999, Six Mile Creek Summary Report dated March 2000. Final Three Mile Creek and Final Six Mile Creek Records of Decision dated December 2003.

c) The off-base investigations that sampled monitoring wells and private wells concluded that there is no evidence that people were exposed to ethylene glycol in drinking water at levels of health concern in the Griffiss area. The results of the

investigations were well publicized. Several fact sheets were issued and several public meetings were held. Although NYSDOH acknowledges that Mrs. Melkun's well was not tested, it was not a deliberate oversight. Results of the sampling in the early 1980s in the vicinity of Mrs. Melkun's home did not indicate any pattern of groundwater contamination, nor were results above drinking water standards and, therefore, the sampling effort was discontinued. As a result, further testing of wells, including Mrs. Melkun's well, was not performed.

Reference reports: Volume 32 of the Draft-final Remedial Investigations Report dated December 1996; Public Health Assessment Addendum for Griffiss AFB, dated September 9, 1996 (Agency for Toxic Substances and Disease Registry).

d) The water and the sediments of Six Mile and Three Mile Creeks were thoroughly tested. The results analyzed under the CERCLA program showed that there is no significant risk to adults or children when playing or fishing in the creeks. However, NYSDOH does include statewide fish advisories for all stream, creeks and water bodies. These restrictions known as the NYSDOH Fish Consumption Advisories provide general warnings or restrictions for recreational fishers who may eat the fish. The NYSDOH Fish Consumption Advisories are provided to all individuals who seek a NYS fishing license and a copy can be obtained by contacting the NYSDOH. The NYSDOH Fish Consumption Advisories are issued independent of the CERCLA process.

Reference reports: Volumes 6 and 11 of the Draft-final Remedial Investigations Report dated December 1996, Draft Feasibility Study Report for Three Mile Creek AOC and Six Mile Creek AOC dated January 1999, Six Mile Creek Summary Report dated March 2000.

Comment #3 (Paul Landry)

Mr. Landry asked for a summary of the overall status of base cleanup.

Response #3

A brief summary was provided after the meeting. The status will be documented and passed out at the next Restoration Advisory Board meeting.

WRITTEN COMMENTS

One letter was received during the public comment period. That letter was sent by Mrs. Freda Melkun and was dated February 14, 2002. The comments in the letter are summarized below. Many of the comments are general comments not related to a specific proposed plan. Two comments, however, are related to specific proposed plans that were presented at the February 7, 2002, public meeting.

Comment #1

Mrs. Melkun stated that her well was not tested, although she requested the Health Department to sample.

Response #1

The NYSDOH acknowledges that Mrs. Melkun's well was not tested. It was not a deliberate oversight. Results of the sampling in the early 1980s in the vicinity of Mrs. Melkun's home did not indicate any pattern of groundwater contamination, nor were results above drinking water standards and the sampling effort was discontinued.

Comment #2

Mrs. Melkun reported suspecting chemical contamination to be the source of an illness in 1980 and also reported green bath water, dead fish and animals.

Response #2

There are reports that occasionally the green dye used to mark the runways in winter appeared in Six Mile Creek. NYSDOH and the Air Force have no records of reports of dead fish and animals in the vicinity of the base. As stated above, the off-base investigations that sampled monitoring wells and private wells concluded that there is no evidence that people were exposed to ethylene glycol or other contaminants in drinking water at levels of health concern in the Griffiss area.

Comment #3

Mrs. Melkun witnessed run-off from spraying planes going into the ground along with trichloroethylene.

Response #3

A comprehensive environmental investigation has been completed at Griffiss Air Force Base and no records exist of trichloroethylene being sprayed on the planes. De-icing sprays comprised of glycols were used at various parts of the base. The status of the projects and maps of the contaminated areas are regularly reported at Restoration Advisory Board Meetings. The Apron areas where planes were parked do have petroleum and solvent contamination and these areas of contamination have been defined. However, please note that these areas are located well within the base boundary and are being addressed by the Air Force.

Comment #4: **Comment on Building 3 Drywell Proposed Plan**

Mrs. Melkun repeated her concern with contamination from the drywell moving to the air or groundwater.

Response #4

Groundwater samples were taken near the location of the former drywell. The results from sampling efforts in 1994 and 1997 are presented on page 6 of the proposed plan. The 1997 groundwater sampling indicated the presence of four VOCs and one SVOC, however, none of the concentrations exceeded the most stringent criterion. The risk assessment associated with the chemical concentrations found during the Remedial Investigations is presented on page 10 of the proposed plan. The results of the human health baseline risk assessment indicate that chemicals in the soil and groundwater should not present a risk under the current and future scenarios. The drywell and surrounding soil were totally removed in 1987. There is no contamination present to move from soil to air or soil to groundwater. The most recent groundwater sampling detected concentrations of TCE less than the most stringent drinking water standards. Contamination at levels equal to or less than the drinking water standards pose no threat to indoor air quality.

Comment #5

Mrs. Melkun stated her disappointment that no further sampling will be performed as contamination has shifted from Griffiss to her area.

Response #5

As stated above, extensive off-base investigations have been completed and it has been determined that there is no contamination at levels of health concern affecting off-base property, with the possible exception of Three Mile and Six Mile Creeks. Twenty-seven monitoring wells were sampled as part of the Off-Base Groundwater Contamination Area of Concern. Also, more than 300 domestic wells were sampled.

Comment #6

Mrs. Melkun repeated her concern for swimmers in Six Mile Creek and requested the posting of notices.

Response #6

The water and the sediments of Six Mile and Three Mile Creeks were thoroughly tested. The results were analyzed and showed that there is no significant risk to adults or children when playing or fishing in the creeks provided adherence to the NYSDOH Fish Consumption Advisories. Therefore, there are no additional restrictions or warnings beyond the fishing health advisory required for recreational use of the creeks.

Comment #7

Mrs. Melkun stated there should have been compensation for the health problems resulting from contaminated water.

Response #7

There is no documentation that contamination released by Griffiss AFB has caused health problems to off-base residents.

Comment #8: **Comment on Electrical Power Substation Proposed Plan**

Mrs. Melkun is concerned about the dioxins and furans and wants to know the cause.

Response #8

When transformer fluids get extremely hot, dioxins and furans are released. They are also associated with PCBs. Therefore, the dioxins and furans were associated with PCB transformer spills. Dioxin (2,3,7,8-TCDD) concentrations did not exceed the 40 nanograms per kilogram (ng/kg) soil guidance value in any sample. There were no high levels detected.

4 References

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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_____, 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.