

Final

Environmental Assessment

DEICER RECOVERY

At
Grand Forks AFB, North Dakota

Nov 04

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14. ABSTRACT This Final EA has been prepared in accordance with the National Environmental Policy Act, and assesses the potential environmental impacts of a Deicer Recovery Proposal, located in Grand Forks County North Dakota. Resource areas analyzed in the EA include Air Quality Noise; Wastes, Hazardous Materials, and Stored Fuels; Water Resources Biological Resources; Socioeconomic Resources; Cultural Resources Land Use; Transportation Systems; Airspace/Airfield Operations; Safety and Occupational Health; Environmental Management; and Environmental Justice. In addition to the Proposed Action, the Alternative Actions and the No Action Alternative were analyzed in the EA. The EA also addresses the potential cumulative effects of the associated activities along with other concurrent actions at Grand Forks AFB and the surrounding area.				
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FINDING OF NO SIGNIFICANT IMPACT FOR DEICER RECOVERY

AGENCY: Department of the Air Force

PROPOSED ACTION: Under this alternative, Grand Forks AFB would improve the current procedures used for aircraft deicing Type I and anti-ice Type IV fluid discharge from Grand Forks AFB, in order to prevent potential impacts of stormwater discharge into surface water bodies and to meet NDPDES permit requirements. Under the proposed action, the base plans to implement procedures to prevent and control deicing fluid discharge created during the deicing of aircraft, from reaching the outfalls off base and continuing into adjoining navigable waterways. Currently, stormwater is channeled off base through a series of stormwater inlets, grated manholes, culvert pipes, and open trenches. Deicing fluids (propylene glycol mixed with water) and other fluids that are used on the runway, aircraft ramps, and staging areas can get into the stormwater system and eventually migrate to the Turtle River and Kelly's Slough National Wildlife Refuge. Controlling and/or preventing the flow of runoff containing propylene glycol off base will benefit the water quality of the receiving waters and is required by law. Spill prevention and recovery policies are already in place to control the release of hazardous materials into the environment. However, the potential for some of these materials to escape these controls exists and should be addressed. Preventing the release of hazardous materials into the Turtle River and Kelly's Slough is required.

The USAF proposes to contract for purchase or lease all necessary infrastructure modifications and equipment for the collection and disposal of deicing and anti-ice fluid left on the ramp after spraying aircraft. The contract would specify the purchase or lease of all equipment, such as a RampRanger T750 Collection Unit or a similar vacuum unit, and a bulk storage tank for fluid storage, and the purchase of catch basin inserts for permanent installation onto all affected storm drains on the Charlie ramp and Charlie ramp extension. The contract would also include collection of fluid caught in the catch basins, and placement into a bulk tanker trailer, for ultimate disposal to include recycling. Secondary containment would be provided beneath the bulk tank trailer while accumulation of fluids takes place. The RampRanger, or similar unit, is a self-contained unit with a diesel engine that allows the unit to collect by vacuuming aircraft deicing and anti-ice fluid left on the ramp via a rear mounted suction nozzle. The unit is designed to operate at small- to mid-size airports, cargo operations, military installations and larger facilities requiring a second unit for storage of deice and anti-ice fluids. The proposed action for snow contaminated with deicing and anti-ice fluid is that snow accumulated during the winter months would be plowed to a common place on the north end of Charlie Ramp, and surrounded by an earthen berm. In the spring the snow mixed with aircraft deicing and anti-ice fluid would be allowed to melt naturally. The melted snow would naturally flow north, around the landfill, and toward the Northwest ditch and outfall. Residues would be allowed to biodegrade in the grass.

ALTERNATIVES CONSIDERED: Under the no action alternative 1, the stormwater collection system remains unchanged, and thus the stormwater discharges of anti-ice and de-icing fluid would continue to run unimpeded to the Turtle River and Kelly's Slough. The potential for

environmental impacts to these receiving waters would continue. Under the alternative action 3, the USAF would construct a facility for the aircraft to drive through and be heated by convection or microwave heat from above. Melted ice would be allowed to continue through the stormwater system. Under alternative action 4, the USAF would construct two deicer drive-thru pads at each end of the runway. De-icing and anti-ice fluids would be sprayed on aircraft and collected in constructed containment areas, for ultimate disposal or recycling.

ENVIRONMENTAL CONSEQUENCES:

Air Quality - Air Quality is considered good and the area is in attainment for all criteria pollutants. No significant impacts to air quality would result because of deicer recovery activities.

Noise - The people operating the deicer recovery vacuum machine would create additional noise. The increase in noise would be negligible and only occur when the vacuum was being used.

Wastes, Hazardous Materials, and Stored Fuels - The increase in hazardous and solid wastes from deicer related activities would be minimal and temporary. Liquid waste would be recycled at an approved recycling location. If not acceptable for recycling, liquids would be disposed at an approved disposal location for deicing and anti-icing fluid. Solid waste debris would be disposed of in an approved location, such as the Grand Forks Municipal Landfill.

Water Resources – Provided best management practices (BMPs) are followed, there would be minimal impacts on ground water and water quality. The proposed action would have no impact on wastewater, provided no BOD loading issues are created. Surface water quality would be greatly improved in the immediate run off areas, due to the fact that stormwater quality would be greatly improved. The proposed action could have a direct positive impact on many wetland areas due to the improved quality of surface water being discharged.

Biological Resources – BMPs and control measures, including silt fences and covering of stockpiles, would be implemented to ensure that impacts to biological resources be kept to a minimum. BMPs would be required to prevent the spread of noxious weeds, minimize soil erosion, and promote the establishment of native plant species. Deicer recovery activities would have beneficial impact to aquatic life, vegetation and wildlife in the surface water and wetland areas.

Socioeconomic Resources - This action would have a minor positive effect on the local economy. Secondary retail purchases would make an additional contribution to the local communities. The implementation of the proposed action, therefore, would provide a short-term, beneficial impact to local contractors and retailers during the purchase, lease and operation phase of the project.

Cultural Resources - The proposed action has little potential to impact cultural resources. In the unlikely event any such artifacts were discovered during the deicer recovery activities, the contractor would be instructed to halt operations and immediately notify Grand Forks AFB civil engineers who would notify the State Historic Preservation Officer.

Land Use - The proposed operation would not have an impact on land use.

Transportation Systems – The proposed operation would have minor adverse impact to transportation systems on base due to vehicles traveling to and from aircraft deicing area.

Airspace/Airfield Operations - The proposed action would not impact aircraft safety or airspace compatibility.

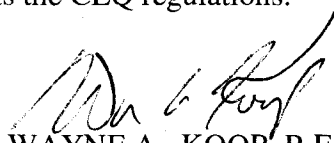
Safety and Occupational Health – The Grand Forks AFB Safety Office has indicated they have no safety concerns.

Environmental Management – The proposed action would not impact IRP Sites. BMPs would be implemented to prevent erosion. No pesticides would be used as part of this project.

Environmental Justice - EO 12898 requires federal agencies to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. There is no minority or low-income populations in the area of the proposed action or alternatives, and, thus, there would be no disproportionately high or adverse impact on such populations.

No adverse environmental impact to any of the areas identified by the AF Form 813 is expected by the proposed action, Deicer Recovery.

CONCLUSION: Based on the Environmental Assessment performed for Deicer Recovery, no significant environmental impact is anticipated from the proposed action. Based upon this finding, an Environmental Impact Statement is not required for this action. This document and the supporting AF Form 813 fulfill the requirements of the National Environmental Policy Act (NEPA), the Council of Environmental Quality (CEQ) regulations implementing NEPA, and Air Force Instruction 32-7061, which implements the CEQ regulations.



WAYNE A. KOOP, R.E.M., GM-13
Environmental Management Flight Chief

Date: 15 Dec 2004

Cover Sheet

Agency: United States Air Force (USAF)

Action: The action proposes to determine a Deicer Recovery operation at Grand Forks Air Force Base (AFB), North Dakota.

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Designation: Final Environmental Assessment (EA)

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In addition to the Proposed Action, the Alternative Actions and the No Action Alternative were analyzed in the EA. The EA also addresses the potential cumulative effects of the associated activities along with other concurrent actions at Grand Forks AFB and the surrounding area.

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ACRONYMS, ABBREVIATIONS, AND TERMS

AAM	Annual Arithmetic Mean
ACM	Asbestos Containing Material
AFB	Air Force Base
AFI	Air Force Instruction
AICUZ	Air Installation Compatible Use Zone
AMC	Air Mobility Command
APZ	Accident Potential Zone
ARPA	Archeological Resource Protection Act
ARW	Air Refueling Wing
AST	Above Ground Storage Tank
Ave	Avenue
BASH	Bird Aircraft Strike Hazard
Blvd	Boulevard
BMP	Best Management Practice
BMX	Bike Motocross
BOD	Biochemical Oxygen Demand
CAA	Clean Air Act
CWA	Clean Water Act
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CO	Carbon Monoxide
dB	decibel
DBa	Decibel
DNL	Day-Night Average A-Weighted Sound Level
EA	Environmental Assessment
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
EO	Executive Order
EPA	Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
ESA	Endangered Species Act
F	Fahrenheit
FEMA	Federal Emergency Management Agency
FONPA	Finding of No Practicable Alternative
FONSI	Finding of No Significant Impact
ft	Feet
ft ³ /s	feet cubed per meter

GFAFB	Grand Forks Air Force Base
HAP	Hazardous Air Pollutants
hr	Hour
H ₂ S	Hydrogen Sulfide
IRP	Installation Restoration Program
LT	Long-Term
MBTA	Migratory Bird Treaty Act
MFH	Military Family Housing
mph	Miles Per Hour
MSDS	Material Safety Data Sheet
MSL	Mean Sea Level
µg/m ³	Micrograms Per Meter Cubed
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
ND	North Dakota
NDAAQS	North Dakota National Ambient Air Quality Standards
NDAC	North Dakota Administrative Code
NDDH	North Dakota Department of Health
NDPDES	North Dakota Pollutant Discharge Elimination System
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NHPA	National Historic Preservation Act
NO _x	Nitrogen Oxides
NO ₂	Nitrogen Dioxide
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRHP	National Register of Historic Places
NWR	National Wildlife Refuge
O ₃	Ozone
OSHA	Occupational Safety and Health Act
P2	Pollution Prevention
Pb	Lead
PCS	Petroleum-Contaminated Soil
PM ₁₀	Particulate Matter 10 Microns in Diameter
PM _{2.5}	Particulate Matter 25 Microns in Diameter
POL	Petroleum Oil Lubricant
ppm	Parts Per Million
PSD	Prevention of Significant Deterioration

QA/QC	Quality Assessment and Quality Control
RACM	Regulated Asbestos Containing Materials
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation/Feasibility Study
RV	Recreational Vehicle
SAGE	Strategic Air Ground Equipment
SARA	Superfund Amendments and Reauthorization Act
SO ₂	Sulfur Dioxide
SO _x	Sulfur Dioxide
St	Street
ST	Short-Term
SWMU	Solid Waste Management Unit
tpy	Tons Per Year
TSCA	Toxic Substance Control Act
TSI	Thermal System Insulation
US	United States
USACE	United States Army Corps of Engineers
USAF	United States Air Force
U.S.C.	United States Code
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VOC	Volatile Organic Compound

EXECUTIVE SUMMARY

The United States Air Force (USAF) proposes a Deicer Recovery Procedure on Grand Forks Air Force Base (AFB), North Dakota.

Purpose and Need: The purpose of the proposed action is to improve the current procedures used for aircraft de-icing Type I and anti-ice Type IV fluid discharge from Grand Forks AFB, in order to prevent potential impacts of stormwater discharge into surface water bodies and to meet NDPDES permit requirements. Under the proposed action, the base plans to implement procedures to prevent and control deicing fluid discharge created during the deicing of aircraft, from reaching the outfalls off base and continuing into adjoining navigable waterways. Currently, stormwater is channeled off base through a series of stormwater inlets, grated manholes, culvert pipes, and open trenches. Deicing fluids (propylene glycol mixed with water) and other fluids that are used on the runway, aircraft ramps, and staging areas can get into the stormwater system and eventually migrate to the Turtle River and Kelly's Slough National Wildlife Refuge. Controlling and/or preventing the flow of runoff containing propylene glycol off base will benefit the water quality of the receiving waters and is required by law. Spill prevention and recovery policies are already in place to control the release of hazardous materials into the environment. However, the potential for some of these materials to escape these controls exists and should be addressed. Preventing the release of hazardous materials into the Turtle River and Kelly's Slough is required.

No Action Alternative 1: If the stormwater collection system remains unchanged, stormwater discharges of aircraft deicing and anti-ice fluid would continue to run unimpeded to the Turtle River and Kelly's Slough. The potential for environmental impacts to these receiving waters would continue.

Proposed Action 2: The USAF proposes to contract for purchase or lease all necessary infrastructure modifications and equipment for the collection and disposal of deicing and anti-ice fluid left on the ramp after spraying aircraft. The contract would specify the purchase or lease of all equipment, such as a RampRanger T750 Collection Unit or a similar vacuum unit, and a bulk storage tank for fluid storage, and the purchase of catch basin inserts for permanent installation onto all affected storm drains on the Charlie ramp and Charlie ramp extension. The contract would also include collection of fluid caught in the catch basins, and placement into a bulk tanker trailer, for ultimate disposal to include recycling. Secondary containment would be provided beneath the bulk tank trailer while accumulation of fluids takes place. The RampRanger, or similar unit, is a self-contained unit with a diesel engine that allows the unit to collect by vacuuming aircraft deicing and anti-ice fluid left on the ramp via a rear mounted suction nozzle. The unit is designed to operate at small- to mid-size airports, cargo operations, military installations and larger facilities requiring a second unit for storage of deice and anti-ice fluids. The proposed action for snow contaminated with deicing and anti-ice fluid is that snow accumulated during the winter months would be plowed to a common place on the north end of Charlie Ramp, and surrounded by an earthen berm. In the spring the snow mixed with aircraft deicing and anti-ice fluid would be allowed to melt naturally. The melted snow would naturally

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Alternative 4: The USAF would construct two deicer drive-thru pads at each end of the runway. De-icing and anti-ice fluids would be sprayed on aircraft and collected in constructed containment areas, for ultimate disposal or recycling.

Impacts by Resource Area

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1.0 PURPOSE OF AND NEED FOR PROPOSED ACTION

This Environmental Assessment (EA) examines the potential for impacts to the environment resulting from operation of a Deicer Recovery operation on Grand Forks Air Force Base (AFB). As required by the National Environmental Policy Act (NEPA) of 1969, federal agencies must consider environmental consequences in their decision making process. The EA provides analysis of the potential environmental impacts from both the proposed action and its alternatives.

1.1 INTRODUCTION

Located in northeastern North Dakota (ND), Grand Forks AFB is the first core refueling wing in Air Mobility Command (AMC) and home to 48 KC-135R Stratotanker aircraft. The host organization at Grand Forks AFB is the 319th Air Refueling Wing (ARW). Its mission is to guarantee global reach, by extending range in the air, supplying people and cargo where and when they are needed and provides air refueling and airlift capability support to United States Air Force (USAF) operations anywhere in the world, at any time. Organizational structure of the 319th ARW consists primarily of an operations group, maintenance group, mission support group, and medical group.

The location of the proposed action (and the alternative actions) would be at Grand Forks AFB, ND. Grand Forks AFB covers approximately 5,420 acres of government-owned land and is located in northeastern ND, about 14 miles west of Grand Forks, along United States (US) Highway 2. Grand Forks (population 49,321) is the third largest city in ND. Appendix A includes a Location Map. The city, and surrounding area, is a regional center for agriculture, education, and government. It is located approximately 160 miles south of Winnipeg, Manitoba, and 315 miles northwest of Minneapolis, Minnesota. The total base population, as of May 2003, is approximately 6,934. Of that, 2,849 are military, 3,747 are military dependents, and 338 civilians working on base (Grand Forks AFB, 2003).

1.2 NEED FOR THE ACTION

The purpose of the proposed action is to improve the current procedures used for aircraft de-icing Type I and anti-ice Type IV fluid discharge from Grand Forks AFB, in order to prevent potential impacts of stormwater discharge into surface water bodies and to meet NDPDES permit requirements.

The base needs to implement procedures to prevent and control deicing fluid discharge created during the deicing of aircraft, from reaching the outfalls off base and continuing into adjoining navigable waterways. Currently, stormwater is channeled off base through a series of stormwater inlets, grated manholes, culvert pipes, and open trenches. Deicing fluids (propylene glycol mixed with water) and other fluids that are used on the runway, aircraft ramps, and staging areas can get into the stormwater system and eventually migrate to the Turtle River and Kelly's Slough National Wildlife Refuge. Controlling and/or preventing the flow of runoff containing propylene glycol off base will benefit the water quality of the receiving waters and is required by law. Spill

prevention and recovery policies are already in place to control the release of hazardous materials into the environment. However, the potential for some of these materials to escape these controls exists and should be addressed. Preventing the release of hazardous materials into the Turtle River and Kelly's Slough is required.

1.3 OBJECTIVES FOR THE ACTION

The purpose of the proposed action is to improve the current procedures used for aircraft de-icing Type I and anti-ice Type IV fluid discharge from Grand Forks AFB.

1.4 SCOPE OF EA

This EA identifies, describes, and evaluates the potential environmental impacts associated with Deicer Recovery operations on Grand Forks AFB. This analysis covers only those items listed above. It does not include any previous construction of facilities, parking lots, associated water drainage structures, or other non-related construction activities.

The following must be considered under the NEPA, Section 102(E).

- Air Quality
- Noise
- Wastes, Hazardous Materials, and Stored Fuels
- Water Resources
- Biological Resources
- Socioeconomic Resources
- Cultural Resources
- Land Use
- Transportation Systems
- Airspace/Airfield Operations
- Safety and Occupation Health
- Environmental Management
- Environmental Justice

1.5 DECISION(S) THAT MUST BE MADE

This EA evaluates the environmental consequences from implementing the proposed Deicer Recovery operations on Grand Forks AFB. NEPA requires that environmental impacts be considered prior to final decision on a proposed project. The Environmental Management Flight Chief will determine if a Finding of Significant Impact can be signed or if an Environmental Impact Statement (EIS) must be prepared. Preparation of an environmental analysis must be accomplished prior to a final decision regarding the proposed project and must be available to inform decision makers of potential environmental impacts of selecting the proposed action or any of the alternatives.

1.6 APPLICABLE REGULATORY REQUIREMENTS AND REQUIRED COORDINATION

These regulations require federal agencies to analyze potential environmental impacts of proposed actions and alternatives and to use these analyses in making decisions on a proposed action. All cumulative effects and irretrievable commitment of resources must also be assessed during this process. The Council on Environmental Quality (CEQ) regulations declares that an EA is required to accomplish the following objectives:

- Briefly provide sufficient evidence and analysis for determining whether to prepare an EIS or a Finding of No Significant Impact (FONSI).
- Aid in an agency's compliance with NEPA when an EIS is not necessary, and facilitate preparation of an EIS when necessary.

Air Force Instruction (AFI) 32-7061 as promulgated in 32 Code of Federal Regulations (CFR) 989, specifies the procedural requirements for the implementation of NEPA and the preparation of an EA. Other environmental regulatory requirements relevant to the proposed action and alternatives are also in this EA. Regulatory requirements including, but not restricted to the following programs will be assessed:

- AF Environmental Impact Analysis Process (EIAP) (32 CFR 989)
- AFI 32-7020, Environmental Restoration Program
- AFI 32-7040, Air Quality Compliance
- AFI 32-7041, Water Quality Compliance
- AFI 32-7042, Solid and Hazardous Waste Compliance
- AFI 32-7063, Air Installation Compatible Use Zone (AICUZ) Program
- AFI 32-7064, Integrated Natural Resource Management
- Archaeological Resources Protection Act (ARPA) [16 U.S.C. Sec 470a-11, et seq., as amended]
- Clean Air Act (CAA) [42 U.S.C. Sec 7401, et seq., as amended]
- Clean Water Act (CWA) [33 U.S.C. Sec 400, et seq.]
- CWA [33 U.S.C. Sec 1251, et seq., as amended]
- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended by the Superfund Amendments and Reauthorization Act (SARA) [42 U.S.C. Sec. 9601, et seq.]
- Defense Environmental Restoration Program [10 U.S.C. Sec. 2701, et seq.]
- Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986 [42 U.S.C. Sec. 11001, et seq.]
- Endangered Species Act (ESA) [16 U.S.C. Sec 1531-1543, et seq.]
- Executive Order (EO) 11514, Protection and Enhancement of Environmental Quality as Amended by EO 11991
- EO 11988, Floodplain Management
- EO 11990, Protection of Wetlands
- EO 12372, Intergovernmental Review of Federal Programs
- EO 12898, Environmental Justice

- EO 12989 Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations
- EO 13045, Protection of Children from Environmental Health Risks and Safety Risks
- Hazardous Materials Transportation Act of 1975 [49 U.S.C. Sec 1761, et seq.]
- NEPA of 1969 [42 U.S.C. Sec 4321, et seq.]
- National Historic Preservation Act (NHPA) of 1966 [16 U.S.C. Sec 470, et seq., as amended]
- The Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 [Public Law 101-601, 25 U.S.C. Sec. 3001-3013, et seq.]
- Noise Control Act of 1972 [42 U.S.C. Sec. 4901, et seq., Public Law 92-574]
- ND Air Pollution Control Act (Title 23) and Regulations
- ND Air Quality Standards (Title 33)
- ND Hazardous Air Pollutants Emission Standards (Title 33)
- Occupational Safety and Health Act (OSHA) of 1970 [29 U.S.C. Sec. 651, et seq.]
- Resource Conservation and Recovery Act (RCRA) of 1976 [42 U.S.C. Sec. 6901, et seq.]
- Toxic Substances Control Act (TSCA) of 1976 [15 U.S.C. Sec. 2601, et seq.]

Grand Forks AFB has a National Pollutant Discharge Elimination System (NPDES) permit to cover base-wide industrial activities. Implementation of the proposed action or an alternative action would disturb less than one acre, thus not requiring a contractor to obtain a separate NPDES from the North Dakota Department of Health (NDDH). The permit would allow discharge of storm water runoff until the site is stabilized by the reestablishment of vegetation or other permanent cover.

Scoping for this EA included discussion of relevant issues with members of the environmental management and bioenvironmental flights. Scoping letters requesting comments on possible issues of concern were sent to agencies with pertinent resource responsibilities. In accordance with AFI 32-7061, a copy is submitted to the ND Division of Community Services.

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 INTRODUCTION

Based on the descriptions of the relevant environmental resources presented in Section 3 and the predictions and analyses presented in Section 4, this section presents a comparative summary matrix of the alternatives (the heart of the analysis), providing the decision maker and the public with a clear basis for choice among the alternatives.

This section has five parts:

- Selection Criteria for Alternatives
- Alternatives Considered but Eliminated from Detailed Study
- Detailed Descriptions of the Four Alternatives Considered
- Comparison of Environmental Effects of the Proposed Action and Alternatives
- Identification of the Preferred Alternative

2.2 SELECTION CRITERIA FOR ALTERNATIVES

Selection criteria used to evaluate the Proposed and Alternative Actions include the following:

A cost effective method to recover deicer and anti-ice fluids from aircraft deicing operations during winter months at Grand Forks AFB.

2.3 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED STUDY

The snow, contaminated with aircraft deicing or anti-ice fluid and accumulated during the winter months, would be plowed to a common place on the north end and the south end of Charlie Ramp. It would be trucked by Air Force operators to the waste water treatment facility at the lagoon on the east side of the base. This was considered an unsuitable alternative, due to lack of scientific data of lagoon loading. Further testing is ongoing and once complete, future assessments and decisions may be made based on scientific results and facts.

2.4 DESCRIPTION OF PROPOSED ALTERNATIVES

This section describes the activities that would occur under four alternatives: the no action alternative, the proposed action, and two action alternatives. These four alternatives provide the decision maker with a reasonable range of alternatives from which to choose.

2.4.1 Alternative 1 (No Action Alternative): Status Quo

If the stormwater collection system remains unchanged, stormwater discharges of aircraft deicing and anti-ice fluid would continue to run unimpeded to the Turtle River and Kelly's Slough. The potential for environmental impacts to these receiving waters would continue.

2.4.2 Alternative 2 (Proposed Action): The USAF proposes to contract for purchase or lease all necessary infrastructure modifications and equipment for the collection and disposal of deicing and anti-ice fluid left on the ramp after spraying aircraft. The contract would specify the purchase or lease of all equipment, such as a RampRanger T750 Collection Unit or a similar vacuum unit, and a bulk storage tank for fluid storage, and the purchase of catch basin inserts for permanent installation onto all affected storm drains on the Charlie ramp and the Charlie ramp extension. The contract would also include disposal of fluid caught in the catch basins, and would then place it into a tanker trailer, for ultimate disposal to include recycling. The RampRanger, or similar unit, is a self-contained unit with a diesel engine that allows the unit to collect by vacuuming aircraft deicing and anti-ice fluid left on the ramp via a rear mounted suction nozzle. The unit is designed to operate at small- to mid-size airports, cargo operations, military installations and larger facilities requiring a second unit for storage of deice and anti-ice fluids. The Proposed Action for snow contaminated with aircraft deicing and anti-ice fluid is that snow accumulated during the winter months would be plowed to a common place on the north end of Charlie Ramp, and surrounded with earthen berms. In the spring the snow mixed with aircraft deicing and anti-ice fluid would be allowed to melt naturally. The melted snow would naturally flow north, around the landfill, and toward the Northwest ditch and outfall. Residues would be allowed to biodegrade in the grass.

2.4.3 Alternative 3: The USAF would construct a facility for the aircraft to drive through and be heated by convection or microwave heat from above. Melted ice would be allowed to continue through the stormwater system.

2.4.4 Alternative 4: The USAF would construct two deicer drive-thru pads at each end of the runway. De-icing and anti-ice fluids would be sprayed on aircraft and collected in constructed containment areas, for ultimate disposal or recycling.

2.5 DESCRIPTION OF PAST, PRESENT, AND REASONABLY FORESEEABLE FUTURE ACTIONS RELEVANT TO CUMULATIVE IMPACTS

Impacts from the Proposed Action would be concurrent with other actions occurring at Grand Forks AFB. There are several other construction and demolition projects occurring on Grand Forks AFB in the same time frame. These projects are addressed under separate NEPA documents.

Construction of Flow Control Structures and Sampling Points within the embankments of all four stormwater ditches has been proposed and is being evaluated by another proposed action, RCS# 2004-190. The flow control structure would consist of a barrier (earthen or concrete) that extends between the two slopes of the ditch. A pipe would be installed in the barrier with head gates or valves that would be operated manually by emergency personnel, to prevent and/or control the off-base discharge of potentially environmentally harmful liquids. The proposal also includes the construction of stormwater sampling points at outfalls to provide safe access to regulators and sampling personnel and to provide a specific point to complete mandated

stormwater sampling. The specific point for sampling will ensure quality assessment and quality control (QA/QC) of stormwater sampling collection and analysis. Without implementation of this proposed action, stormwater samples would continue to be collected in an unsafe manner. The personnel involved in this activity would continue to take precarious paths down the ditch slope, exposing them to injury due to falling. Implementation of this alternative would ensure that the stormwater sampling is conducted in the same location each time.

2.6 SUMMARY COMPARISON OF THE EFFECTS OF ALL ALTERNATIVES

Potential impacts from implementing the No Action Alternative, the Proposed Action, and Alternatives 3 and 4 are discussed in detail in Chapter 4.

Table 2.6.1: Summary of Environmental Impacts			
	No Action Alternative 1	Proposed Action 2	Alternatives 3 and 4
Legend: ST = short-term; LT = long-term			
Air Quality	None	Minor Adverse ST Impact	Minor Adverse ST Impact
Noise	None	Minor Adverse ST Impact	Minor Adverse ST Impact
Wastes, Hazardous Materials, and Stored Fuels	None	Minor Adverse ST Impact	Minor Adverse ST Impact
Water Resources			
Ground Water	None	Minor Adverse ST Impact	Minor Adverse ST Impact
Surface Water	Adverse LT	Beneficial LT Impact	Beneficial LT Impact
Wastewater	None	None	None
Water Quality	None	None	None
Wetlands	Adverse LT	Beneficial LT Impact	Beneficial LT Impact
Biological Resources			
Vegetation	None	Minor Adverse ST Impact	Minor Adverse ST Impact
Noxious Weeds	None	Minor Adverse ST Impact	Minor Adverse ST Impact
Wildlife	Adverse LT	Minor Adverse ST Impact	Minor Adverse ST Impact
Threatened and Endangered Species	Adverse LT	Beneficial LT Impact	Beneficial LT Impact
Socioeconomic Resources	None	Beneficial ST Impact	Minor Beneficial ST Impact
Cultural Resources	None	None	None
Land Use	None	None	None
Transportation Systems	None	Minor Adverse ST Impact	Minor Adverse ST Impact
Airspace/Airfield Operations			
Aircraft Safety	None	None	None
Airspace Compatibility	None	None	None
Safety and Occupational Health	None	None	None
Environmental Management			
Installation Restoration Program	None	None	None
Geological Resources	None	None	None
Pesticide Management	None	None	None
Environmental Justice	None	None	None

2.7 IDENTIFICATION OF PREFERRED ALTERNATIVE

Contract to Lease/Purchase a RampRanger T750 Collection Unit, and a bulk storage tank, and install permanent catch basin inserts for storm drains on Charlie ramp and Charlie ramp extension. The proposed purchase or lease of a RampRanger T750 Collection Unit, a storage tank for collection, and catch basin inserts for the Charlie taxiways, would effectively reduce the potential impact of discharges of aircraft deicing and anti-ice fluid into the surface waters of North Dakota/USA.

3.0 AFFECTED ENVIRONMENT

3.1 INTRODUCTION

This section succinctly describes the operational concerns and the environmental resources relevant to the decision that must be made concerning this proposed action. Environmental concerns and issues relevant to the decision to be made and the attributes of the potentially affected environment are studied in greater detail in this section.

This descriptive section, combined with the definitions of the alternatives in Section 2, and their predicted effects in Section 4, establish the scientific baseline against which the decision-maker and the public can compare and evaluate the activities and effects of all the alternatives.

3.2 AIR QUALITY

Grand Forks AFB has a humid continental climate that is characterized by frequent and drastic weather changes. The summers are short and humid with frequent thunderstorms. Winters are long and severe with almost continuous snow cover. The spring and fall seasons are generally short transition periods. The average annual temperature is 40° Fahrenheit (F) and the monthly mean temperature varies from 6° F in January to 70° F in July. Mean annual precipitation is 19.5 inches. Rainfall is generally well distributed throughout the year, with summer being the wettest season and winter the driest. An average of 34 thunderstorm days per year is recorded, with some of these storms being severe and accompanied by hail and tornadoes. Mean annual snowfall recorded is 40 inches with the mean monthly snowfall ranging from 1.6 inches in October to 8.0 inches in March. Relative humidity averages 58 percent annually, with highest humidity being recorded in the early morning. The average humidity at dawn is 76 percent. Mean cloud cover is 48 percent in the summer and 56 percent in the winter (USAF, 2003).

Table 3.2-1: Climate Data for Grand Forks AFB, ND						
	Mean Temperature (°F)			Precipitation (Inches)		
	Daily			Monthly		
Month	Maximum	Minimum	Monthly	Mean	Maximum	Minimum
January	15	-1	6	0.7	2.4	0.1

February	21	5	13	0.5	3.2	0.0
March	34	18	26	1.0	2.9	0.0
April	53	32	41	1.5	4.0	0.0
May	69	47	56	2.5	7.8	0.5
June	77	56	66	3.0	8.1	0.8
July	81	61	70	2.7	8.1	0.5
August	80	59	67	2.6	5.5	0.1
September	70	49	57	2.3	6.2	0.3
October	56	37	44	1.4	5.7	0.1
November	34	20	26	0.7	3.3	0.0
December	20	6	12	0.6	1.4	0.0
Source: AFCCC/DOO, October 1998						

Wind speed averages 10 miles per hour (mph). A maximum wind speed of 74 mph has been recorded. Wind direction is generally from the northwest during the late fall, winter, and spring, and from the southeast during the summer.

Grand Forks County is included in the ND Air Quality Control Region. This region is in attainment status for all criteria pollutants. In 1997, the ND Department of Health (NDDH) conducted an Air Quality Monitoring Survey that indicated that the quality of ambient air in ND is generally good as it is located in an attainment area (NDDH, 1998). Grand Forks AFB has the following air permits: T5-F78004 (permit to operate) issued by NDDH and a CAA Title V air emissions permit.

The United States Environmental Protection Agency (USEPA) established the National Ambient Air Quality Standards (NAAQS), which define the maximum allowable concentrations of pollutants that may be reached, but not exceeded within a given time period. The NAAQS regulates the following criteria pollutants: Ozone (O₃), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), lead (Pb), and particulate matter. The ND Ambient Air Quality Standards (NDAAQS) were set by the State of ND. These standards are more stringent and emissions for operations in ND must comply with the Federal or State standard that is the most restrictive. There is also a standard for hydrogen sulfide (H₂S) in ND.

Prevention of significant deterioration (PSD) regulations establishes SO₂, particulate matter 10 microns in diameter (PM₁₀), and NO₂ that can be emitted above a premeasured amount in each of three class areas. Grand Forks AFB is located in a PSD Class II area where moderate, well-controlled industrial growth could be permitted. Class I areas are pristine areas and include national parks and wilderness areas. Significant increases in emissions from stationary sources (100 tons per year (tpy) of CO, 40 tpy of nitrogen oxides (NO_x), volatile organic compounds (VOCs), or sulfur oxides (SO_x), or 15 tpy of PM₁₀) and the addition of major sources requires compliance with PSD regulations. There is also a 25 ton/year level for total particulate.

Air pollutants include O₃, CO, NO₂, SO₂, Pb, and particulate matter. Ground disturbing activities create PM₁₀ and particulate matter 2.5 microns in diameter (PM_{2.5}). Combustion creates CO, SO₂, PM₁₀, and PM_{2.5} particulate matter and the precursors (VOC and NO₂) to O₃.

Only small amounts of Hazardous Air Pollutants (HAP) are generated from internal combustion processes or earth-moving activities. The Grand Forks AFB Final Emissions Survey Report (USAF, 1996) reported that Grand Forks AFB only generated small levels HAPs, 10.3 tpy of combined HAPs and 2.2 tpy maximum of a single HAP (methyl ethyl ketone). Methyl Ethyl Ketone is associated with aircraft and vehicle maintenance and repair. Secondary sources include fuel storage and dispensing (USAF, 2001a).

Table 3.2-2
National Ambient Air Quality Standards (NAAQS) and ND Ambient Air Quality Standards (NDAAQS)

Pollutant	Averaging Time	NAAQS $\mu\text{g}/\text{m}^3$ (ppm) ^a		NDAAQS $\mu\text{g}/\text{m}^3$ (ppm) ^a
		Primary ^b	Secondary ^c	
O ₃	1 hr	235 (0.12)	Same	Same
	8 hr ^e	157 (0.08)	Same	None
CO	1 hr	40,000 (35)	None	40,000 (35)
	8 hr	10,000 (9)	None	10,000 (9)
NO ₂	AAM ^d	100 (0.053)	Same	Same
SO ₂	1 hr	None	None	715 (0.273)
	3 hr	None	1,300 (0.5)	None
	24 hr	365 (0.14)	None	260 (0.099)
	AAM	80 (0.03)	None	60 (0.023)
PM ₁₀	AAM	50	Same	Same
	24 hr	150	Same	Same
PM _{2.5} ^e	AAM	65	Same	None
	24 hr	15	Same	None
Pb	¼ year	1.5	Same	Same
H ₂ S	1 hr	None	None	280 (0.20)
	24 hr	None	None	140 (0.10)
	3 mth	None	None	28 (0.02)
	AAM	None	None	14 (10)
	Instantaneous			14 (10)

^a $\mu\text{g}/\text{m}^3$ – micrograms per cubic meter; ppm – parts per million

^bNational Primary Standards establish the level of air quality necessary to protect the public health from any known or anticipated adverse effects of pollutant, allowing a margin of safety to protect sensitive members of the population.

^cNational Secondary Standards establish the level of air quality necessary to protect the public welfare by preventing injury to agricultural crops and livestock, deterioration of materials and property, and adverse impacts on the environment.

^dAAM – Annual Arithmetic Mean.

^eThe Ozone 8-hour standard and the PM 2.5 standards are included for information only. A 1999 federal court ruling blocked implementation of these standards, which USEPA proposed in 1997. USEPA has asked the US Supreme Court to reconsider that decision (USEPA, 2000).

PM₁₀ is particulate matter equal to or less than 10 microns in diameter.

PM_{2.5} is particulate matter equal to or less than 2.5 microns in diameter.

Source: 40 CFR 50, ND Air Pollution Control Regulations – North Dakota Administrative Code (NDAC) 33-15

3.3 NOISE

Noise generated on Grand Forks AFB consists mostly of aircraft, vehicular traffic and construction activity. Most noise is generated from aircraft during takeoff and landing and not

from ground traffic. Noise levels are dependent upon type of aircraft, type of operations, and distance from the observer to the aircraft. Duration of the noise is dependent upon proximity of the aircraft, speed, and orientation with respect to the observer.

Table 3.3-1 Typical Decibel Levels Encountered in the Environment and Industry			
Sound Level (dBA) ^a	Maximum Exposure Limits	Source of Noise	Subjective Impression
10			Threshold of hearing
20		Still recording studio; Rustling leaves	
30		Quiet bedroom	
35		Soft whisper at 5 ft ^b ; Typical library	
40		Quiet urban setting (nighttime); Normal level in home	Threshold of quiet
45		Large transformer at 200 ft	
50		Private business office; Light traffic at 100 ft; Quiet urban setting (daytime)	
55		Window air conditioner; Men's clothing department in store	Desirable limit for outdoor residential area use (EPA)
60		Conversation speech; Data processing center	
65		Busy restaurant; Automobile at 100 ft	Acceptable level for residential land use
70		Vacuum cleaner in home; Freight train at 100 ft	Threshold of moderately loud
75		Freeway at 10 ft	
80		Ringling alarm clock at 2 ft; Kitchen garbage disposal; Loud orchestral music in large room	Most residents annoyed
85		Printing press; Boiler room; Heavy truck at 50 ft	Threshold of hearing damage for prolonged exposure
90	8 hr ^c	Heavy city traffic	
95	4 hr	Freight train at 50 ft; Home lawn mower	
100	2 hr	Pile driver at 50 ft; Heavy diesel equipment at 25 ft	Threshold of very loud
105	1 hr	Banging on steel plate; Air Hammer	
110	0.5 hr	Rock music concert; Turbine condenser	
115	0.25 hr	Jet plane overhead at 500 ft	
120	< 0.25 hr	Jet plane taking off at 200 ft	Threshold of pain
135	< 0.25 hr	Civil defense siren at 100 ft	Threshold of extremely loud
^a dBA – decibals ^b ft – feet ^c hr - hours Source: US Army, 1978			

Table 3.3-2 Approximate Sound Levels (dBA) of Construction Equipment						
Equipment Type	Sound Levels (dBA) at Various Distances (ft)					
	50	100	200	400	800	1,600
Front-end Loader	84	78	72	66	60	54
Dump Truck	83	77	71	65	59	53

Truck	83	77	71	65	59	53
Tractor	84	78	72	66	58	52
Source: Thurman, 1976; US Army, 1978						

Because military installations attract development in proximity to their airfields, the potential exists for urban encroachment and incompatible development. The USAF utilizes a program known as AICUZ to help alleviate noise and accident potential problems due to unsuitable community development. AICUZ recommendations give surrounding communities alternatives to help prevent urban encroachment. Noise contours are developed from the Day-Night Average A-Weighted Sound Level (DNL) data which defines the noise created by flight operations and ground-based activities. The AICUZ also defines Accident Potential Zones (APZs), which are rectangular corridors extending from the ends of the runways. Recommended land use activities and densities in the APZs for residential, commercial, and industrial uses are provided in the base's AICUZ study. Grand Forks AFB takes measures to minimize noise levels by evaluating aircraft operations. Blast deflectors are utilized in designated areas to deflect blast and minimize exposure to noise.

3.4 WASTES, HAZARDOUS MATERIALS, AND STORED FUELS

3.4.1 Hazardous Waste, Hazardous Material, Recyclable Material

Hazardous wastes, as listed under the RCRA, are defined as any solid, liquid, contained gaseous, or combination of wastes that pose a substantive or potential hazard to human health or the environment. On-base hazardous waste generation involves three types of on-base sites: an accumulation point (90-day), satellite accumulation points, and spill cleanup equipment and materials storage (USAF, 2001c). Discharge and emergency response equipment is maintained in accessible areas throughout Grand Forks AFB. The Fire Department maintains adequate fire response and discharge control and containment equipment. Equipment stores are maintained in buildings 523 and 530. Petroleum contaminated soils generated from excavations throughout the base can be treated at the land treatment facility located on base. These solid wastes are tilled or turned several times a year to remediate the soils to acceptable levels.

Recyclable materials from industrial facilities are collected in the recycling facility, in building 424. Paper, glass, plastics, cardboard, and wood are collected in separate storage bins. Curbside containers are used in housing for recyclable materials. A contractor collects these materials and transports them off base.

The Environmental Management Flight manages the hazardous material through a contract with Mactec Pacific Environmental Services. Typical hazardous materials include reactive materials such as explosives, ignitables, toxics, and corrosives. Improper storage can impact human health and the safety of the environment.

3.4.2 Underground and Above Ground Storage Tanks

Since Grand Forks AFB is a military installation with a flying mission, there are several aboveground and underground fuel storage tanks (ASTs and USTs).

Gasoline, diesel fuel, heating fuel, JP-8, and oil-water separator (OWS)-recovered oils are stored in thirty-nine (39) USTs. Twenty (20) regulated USTs include three (3) gasoline tanks, eight (8) diesel tanks, three (3) JP-8 tanks, and six (6) OWS product recovery tanks. Deferred USTs include fourteen (14) JP-8 tanks of which nine (9) are no longer in use and are programmed for removal. Five (5) USTs exempt from regulation include one (1) heating oil tank, four (4) emergency spill containment tanks, and one (1) hydraulic oil recovery tank.

Gasoline, diesel fuel, heating oil, JP-8, and used oil are stored in fifty-eight (58) ASTs. The majority of petroleum is JP-8 stored in six (6) tanks with a capacity of 3,990,000 gallons for the hydrant fuel system. Diesel fuel is stored in forty-five (45) tanks primarily for emergency generators. Other tanks include: heating oil stored in three (2) tanks; gasoline stored in two (2) tanks; and, used oil stored in three (3) tanks. All ASTs either have secondary containment or are programmed to have secondary containment installed. The six (6) hydrant fuel system tanks each are contained by a concrete dike system.

Runway deicing fluid (potassium acetate) is stored in two (2) 5000 gallon tanks while aircraft deicing fluid (propylene glycol) is stored in a 20,000 gallon tank (Type I) and a 4,000 gallon tank (Type IV).

3.4.3 Solid Waste Management

Hard fill, construction debris, and inert waste generated by Grand Forks AFB are disposed of at a permitted off-base landfill. All on-base household garbage and solid waste is collected by a contractor and transported to the Grand Forks County Landfill, which opened in 1982.

The majority of demolition debris is disposed of at Berger Landfill (permit number IT-198) while municipal waste and asbestos waste is disposed of at the Grand Forks Landfill (SW-069).

GFAFB also operates a land treatment facility (IT-183) for the remediation of petroleum-contaminated soils (PCSs). PCSs are generated on-base through spills, are encountered while excavating for various subsurface repairs, or encountered while replacing or removing underground storage tanks and piping.

3.5 WATER RESOURCES

3.5.1 Ground Water

Chemical quality of ground water is dependent upon the amount and type of dissolved gases, minerals, and organic material leached by water from surrounding rocks as it flows from recharge to discharge areas. The water table depth varies throughout the base, from a typical 1-3 ft to 10 ft or more below the surface.

Even though the Dakota Aquifer has produced more water than any other aquifer in Grand Forks County, the water is very saline and generally unsatisfactory for domestic and most industrial

uses. Its primary use is for livestock watering. It is sodium chloride type water with total dissolved solids concentrations of about 4,400 ppm. The water generally contains excessive chloride, iron, sulfate, total dissolved solids, and fluoride. The water from the Dakota is highly toxic to most domestic plants and small grain crops, and in places, the water is too highly mineralized for use as livestock water (Hansen and Kume, 1970).

Water from wells tapping the Emerado Aquifer near Grand Forks AFB is generally of poor quality due to upward leakage of poor quality water from underlying bedrock aquifers. It is sodium sulfate type water with excessive hardness, chloride, sulfate, and total dissolved solids. Water from the Lake Agassiz beach aquifers is usually of good chemical quality in Grand Forks County. The water is a calcium bicarbonate type that is relatively soft. The total dissolved content ranges from 308 to 1,490 ppm. Most water from beach aquifers is satisfactory for industrial, livestock, and agricultural uses (Hansen and Kume, 1970).

Grand Forks AFB draws 85 to 90 percent of its water for industrial, commercial and housing functions from the City of Grand Forks and 10 to 15 percent from Agassiz Water.

3.5.2 Surface Water

Natural surface water features located on or near Grand Forks AFB are the Turtle River and Kellys Slough National Wildlife Refuge (NWR). Drainage from surface water channels ultimately flows into the Red River.

The Turtle River, crossing the base boundary at the northwest corner, is very sinuous and generally flows in a northeasterly direction. It receives surface water runoff from the western portion of Grand Forks AFB and eventually empties into the Red River of the North that flows north to Lake Winnipeg, Canada. The Red River drainage basin is part of the Hudson Bay drainage system. At Manvel, ND, approximately 10 miles northeast of Grand Forks AFB, the mean discharge of the Turtle River is 50.3 feet cubed per second (ft³/s). Peak flows result from spring runoff in April and minimum flows (or no flow in some years) occur in January and February.

NDDH has designated the Turtle River to be a Class II stream, it may be intermittent, but, when flowing, the quality of the water, after treatment, meets the chemical, physical, and bacteriological requirements of the NDDH for municipal use. The designation also states that it is of sufficient quality to permit use for irrigation, for propagation of life for resident fish species, and for boating, swimming, and other water recreation.

Kelly's Slough NWR occupies a wide, marshy flood plain with a poorly defined stream channel, approximately two miles east and downstream of Grand Forks AFB. Kellys Slough NWR receives surface water runoff from the east half of the base and effluent from the base sewage lagoons located east of the base. Surface water flow of the slough is northeasterly into the Turtle River Drainage from surface water channels ultimately flowing into the Red River.

Floodplains are limited to an area 250 ft on either side of Turtle River (about 46 acres on base). Appendix C contains a map depicting floodplains. Any development in or modifications to

floodplains must be coordinated with the Corps of Engineers and the Federal Emergency Management Agency (FEMA).

Surface water runoff leaves Grand Forks AFB at four primary locations related to identifiable drainage areas on base. The four sites are identified as northeast, northwest, west, and southeast related to the base proper. These outfalls were approved by the NDDH as stated in the Grand Forks AFB ND Pollutant Discharge Elimination System (NDPDES) Permit NDR02-0314 Stormwater Discharges from Industrial Activity. Of the four outfall locations, the west and northwest sites flow into the Turtle River, the northeast site flows to the north ditch and the southeast outfall flows into the south ditch. The latter two flow to Kellys Slough and then the Turtle River. All drainage from these surface water channels ultimately flows into the Red River. The Bioenvironmental Engineering Office samples the four outfall locations during months when de-icing activities occur on base.

3.5.3 Waste Water

Grand Forks AFB discharges its domestic and industrial wastewater to four stabilization lagoons located east of the main base. The four separate treatment cells consist of one primary treatment cell, two secondary treatment cells, and one tertiary treatment cell. Wastewater effluent is discharged under ND Permit ND0020621 into Kellys Slough. Wastewater discharge occurs for about one week, sometime between mid-April through October. Industrial wastewater at the base comprises less than ten percent of the total flow to the treatment lagoons.

3.5.4 Water Quality

According to the National Water Quality Inventory Report (USEPA, 1995), ND reports the majority of rivers and streams have good water quality. Natural conditions, such as low flows, can contribute to violations of water quality standards. During low flow periods, the rivers are generally too saline for domestic use. Grand Forks AFB receives water from Grand Forks and Lake Agassiz Water. The city recovers its water from the Red River and the Red Lake River, while the water association provides water from aquifers. The water association recovers water from well systems within glacial drift aquifers (USAF, 1999). The 319th Civil Engineering Squadron tests the water received on base daily for fluorine and chlorine. The 319th Bioenvironmental Flight collects monthly bacteriological samples to be analyzed at the ND State Laboratory.

3.5.5 Wetlands

About 246,900 acres in the county are drained wetland Type I (wet meadow) to Type V (open freshwater). Approximately 59,500 acres of wetland Type I to V are used for wetland habitat. Wetland Types IV and V include areas of inland saline marshes and open saline water. Kellys Slough NWR occupies a wide, marshy flood plain with a poorly defined stream channel, approximately two miles east and downstream of Grand Forks AFB. Kellys Slough NWR is the most important regional wetland area in the Grand Forks vicinity. EO 11990 requires zero loss of wetlands. Grand Forks AFB has 49 wetlands, covering 23.9 acres of wetlands (see Appendix

C), including 33 jurisdictional wetlands covering 12.2 acres. Wetlands on Grand Forks AFB occur frequently in drainage ways, low-lying depressions, and potholes. Wetlands are highly concentrated in drainage ways leading from the wastewater treatment lagoons to Kellys Slough NWR. The majority of wetland areas occur in the northern and central portions of base, near the runway, while the remaining areas are near the eastern boundary and southeastern corner of base. Development in or near these areas must include coordination with the ND State Water Commission and the USACE.

3.6 BIOLOGICAL RESOURCES

3.6.1 Vegetation

Plants include a large variety of naturally occurring native plants. Because of the agrarian nature of Grand Forks County, cropland is the predominant element for wildlife habitat. Pastures, meadows, and other non-cultivated areas are overgrown with grasses, legumes, and wild herbaceous plants. Included in the grasses and legumes vegetation species are tall wheat grass, brome grass, sweet clover, and alfalfa. Herbaceous plants include little bluestem, goldenrod, green needle grass, western wheat grass, and bluegrama. Shrubs such as Juneberry, dogwood, hawthorn, and snowberry also are found in the area. In wetland areas, predominant species include smartweed, wild millet, cord grass, bulrushes, sedges, and reeds. These habitats for upland wildlife and wetland wildlife attract a variety of species to the area and support many aquatic species.

Various researchers, most associated with the University of ND, have studied current native floras in the vicinity of the base. Prior to 1993 field investigations, ten natural communities occurring in Grand Forks County were identified in the ND Natural Heritage Inventory (1994). Of these, only one community, Lowland Woodland, is represented within the base boundaries. Dominant trees in this community are elm, cottonwood, and green ash. Dutch elm disease has killed many of the elms. European buckthorn (a highly invasive exotic species), chokecherry, and wood rose (*Rosa woodsii*) are common in the under story in this area. Wood nettle (*Laportea canadensis*), stinging nettle (*Urtica dioica*), beggars' ticks (*Bidens frondosa*), and waterleaf (*Hydrophyllum virginianum*) are typical forbes.

One hundred and forty two total taxa, representing less than a third of the known Grand Forks County plant taxa, were identified in the ND Natural Heritage Inventory. No rare plants species are known to exist on Grand Forks AFB.

3.6.2 Wildlife

Ground Forks County is primarily cropland although there are wildlife areas located within the county. Kellys Slough NWR is located a couple miles northeast of Grand Forks AFB. In addition to being a wetland, it is a stopover point for migratory birds. The Prairie Chicken Wildlife Management Area is located north of Mekinock and contains 1,160 acres of habitat for deer, sharp-tailed grouse, and game birds. Wildlife can also be found at the Turtle River State Park, The Bremer Nature Trail, and the Myra Arboretum.

There is minimal habitat for wildlife on Grand Forks AFB due to extensive development. White tail deer, eastern cottontail, and ring-neck pheasant can be found on base. The proposed project area only provides low-quality foraging habitat for small animals.

3.6.3 Threatened and Endangered Species

According to the Biological Survey Update 2004 of GFAFB, 21 state-listed birds and 1 federally listed bird species, 2 state-listed plant species, 1 state-listed mammal species, and 1 state-listed amphibian have been identified at GFAFB. The base does have infrequent use by migratory threatened and endangered species, such as the bald eagle and peregrine falcon, but there are no critical or significant habitats for those species present. The inventory also indicated that red-breasted nuthatch and moose are two special concern species. They have been observed on base near Turtle River. The inventory also indicated that there is no habitat on or near Grand Forks AFB to sustain a moose population. Red-breasted nuthatches prefer woodland habitats dominated by conifers. These birds are transients and pose no particular concern. The ESA does require that Federal Agencies not jeopardize the existence of a threatened or endangered species nor destroy or adversely modify designated critical habitat for threatened or endangered species.

3.7 SOCIOECONOMIC RESOURCES

Grand Forks County is primarily an agricultural region and, as part of the Red River Valley, is one of the worlds most fertile. Cash crops include sugar beets, beans, corn, barley, and oats. The valley ranks first in the nation in the production of potatoes, spring wheat, sunflowers, and durum wheat. Grand Forks County's population in 2000 was 66,109, a decrease of 6.5 percent from the 1990 population of 70,638 (ND State Data Center, No Date). Grand Forks County's annual mean wage in Oct 2001 was \$26,715 (Job Service of ND, 2001). Grand Forks AFB is one of the largest employers in Grand Forks County. As of May 2003, Grand Forks AFB had 3, 165 active duty military members and 338 civilian employees. The total annual economic impact for Grand Forks AFB is \$325,647, 980.

3.8 CULTURAL RESOURCES

According to the Grand Forks AFB Cultural Resources Management Plan, there are no archeological sites that are potentially eligible for the National Register of Historic Places (NRHP). A total of six archeological sites and six archeological find spots have been identified on the base. None meet the criteria of eligibility of the NRHP established in 36 CFR 60.4. There is no evidence for Native American burial grounds, or other culturally sensitive areas. Paleosols (soil that developed on a past landscape) remain a management concern requiring Section 106 compliance. Reconnaissance-level archival and archeological surveys of Grand Forks AFB conducted by the University of ND in 1989 indicated that there are no facilities (50 years or older) that possess historical significance. The base is currently consulting with the ND Historical Society on the future use of eight Cold War Era facilities. These are buildings 313, 606, 703-707, and 714.

3.9 LAND USE

Land use in Grand Forks County consists primarily of cultivated crops with remaining land used for pasture and hay, urban development, recreation, and wildlife habitat. Principal crops are spring wheat, barley, sunflowers, potatoes, and sugar beets. Turtle River State Park, developed as a recreation area in Grand Forks County, is located about five miles west of the base. Several watershed protection dams are being developed for recreation activities including picnicking, swimming, and ball fields. Wildlife habitat is very limited in the county. Kellys Slough NWR (located about two miles east of the base) and the adjacent National Waterfowl Production Area are managed for wetland wildlife and migratory waterfowl, but they also include a significant acreage of open land wildlife habitat.

The main base encompasses 5,420 acres, of which the USAF owns 4,830 acres and another 590 acres are lands containing easements, permits, and licenses. Improved grounds, consisting of all covered area (under buildings and sidewalks), land surrounding base buildings, the 9-hole golf course, recreational ball fields, and the family housing area, encompass 1,120 acres. Semi-improved grounds, including the airfield, fence lines and ditch banks, skeet range, and riding stables account for 1,390 acres. The remaining 2,910 acres of the installation consist of unimproved grounds. These areas are comprised of woodlands, open space, and wetlands, including four lagoons (180.4 acres) used for the treatment of base wastewater. Agricultural out leased land (1,040 acres) is also classified as unimproved. Land use at the base is solely urban in nature, with residential development to the south and cropland, hayfields, and pastures to the north, west, and east of the base.

3.10 TRANSPORTATION SYSTEMS

Seven thousand vehicles per day travel ND County Road B3 from Grand Forks AFB's east gate to the US Highway 2 Interchange (Clayton, 2001). Two thousand vehicles per day use the off-ramp from US Highway 2 onto ND County Road B3 (Dunn, 2001). US Highway 2, east of the base interchange, handles 10,800 vehicles per day. (Kingsley and Kuntz, 2001). A four lane arterial road has a capacity of 6,000 vehicles per hour and a two lane, 3,000, based on the average capacity of 1,500 vehicles per hour per lane. Roadways adjacent to Grand Forks AFB are quite capable of accommodating existing traffic flows (USAF, 2001a).

Grand Forks AFB has good traffic flow even during peak hours (6-8 am and 4-6 pm). There are two gates: the main gate located off of County Road B3, about one mile north of U.S. Highway 2 and the Secondary Gate located off of U.S. Highway 2, about 3/4 mile west of County Road B3. The main gate is connected to Steen Boulevard (Blvd), which is the main east-west road, and the south gate is connected to Eielson Street (St), which is the main north-south road.

3.11 AIRSPACE/AIRFIELD OPERATIONS

3.11.1 AIRCRAFT SAFETY

Bird Aircraft Strike Hazard (BASH) is a major safety concern for military aircraft. Collision with birds may result in aircraft damage and aircrew injury, which may result in high repair costs or loss of the aircraft. A BASH hazard exists at Grand Forks AFB and its vicinity, due to resident and migratory birds. Daily and seasonal bird movements create various hazardous conditions. Although BASH problems are minimal, Kellys Slough NWR is a major stopover for migratory birds. Canadian Geese and other large waterfowl have been seen in the area (USAF, 2001b).

3.11.2 AIRSPACE COMPATIBILITY

The primary objective of airspace management is to ensure the best possible use of available airspace to meet user needs and to segregate requirements that are incompatible with existing airspace or land uses. The Federal Aviation Administration has overall responsibility for managing the nation's airspace and constantly reviews civil and military airspace needs to ensure all interests are compatibly served to the greatest extent possible. Airspace is regulated and managed through use of flight rules, designated aeronautical maps, and air traffic control procedures and separation criteria.

3.12 SAFETY AND OCCUPATIONAL HEALTH

Safety and occupational health issues include one-time and long-term exposure. Examples include asbestos/radiation/chemical exposure, explosives safety quantity-distance, and bird/wildlife aircraft hazard. Safety issues include injuries or deaths resulting from a one-time accident. Aircraft Safety includes information on birds/wildlife aircraft hazards and the BASH program. Health issues include long-term exposure to chemicals such as asbestos and lead-based paint. Safety and occupational health concerns could impact personnel working on the project and in the surrounding area.

The National Emission Standards for Hazardous Air Pollutants (NESHAP) of the CAA designates asbestos as HAP. OSHA provides worker protection for employees who work around or asbestos containing material (ACM). Regulated ACM (RACM) includes thermal system insulation (TSI), any surfacing material, and any friable asbestos material. Non-regulated Category I non-friable ACM includes floor tile and joint compound.

Lead exposure can result from paint chips or dust or inhalation of lead vapors from torch-cutting operations. This exposure can affect the human nervous system. Due to the size of children, exposure to lead based paint is especially dangerous to small children. OSHA considers all painted surfaces in which lead is detectable to have a potential for occupational health exposure.

3.13 ENVIRONMENTAL MANAGEMENT

3.13.1 INSTALLATION RESTORATION PROGRAM

The Installation Restoration Program (IRP) is the AF's environmental restoration program based on the CERCLA. CERCLA provides for Federal agencies with the authority to inventory,

investigate, and clean up uncontrolled or abandoned hazardous waste sites. There are seven IRP sites at Grand Forks AFB. These sites are identified as potentially impacted by past hazardous material or hazardous waste activities. They are the Fire Training Area/Old Sanitary Landfill Area, FT-02; New Sanitary Landfill Area, LF-03; Strategic Air Ground Equipment (SAGE) Building 306, ST-04; Explosive Ordnance Detonation Area, OT-05; Refueling Ramps and Pads, Base Tanks Area, ST-06; POL Off-Loading Area, ST-07; and Refueling Ramps and Pads, ST-08 (USAF, 1997b). Two sites are considered closed, OT-05 and ST-06. ST-08 has had a remedial investigation/feasibility study (RI/FS) completed and the rest are in long-term monitoring. Grand Forks AFB is not on the National Priorities List (NPL)

3.13.2 GEOLOGICAL RESOURCES

3.13.2.1 Physiography and Topography

The topography of Grand Forks County ranges from broad, flat plains to gently rolling hills that were produced mainly by glacial activity. Local relief rarely exceeds 100 ft in one mile, and, in parts of the lake basin, less than five ft in one mile.

Grand Forks AFB is located within the Central Lowlands physiographic province. The topography of Grand Forks County, and the entire Red River Valley, is largely a result of the former existence of Glacial Lake Agassiz, which existed in this area during the melting of the last glacier, about 12,000 years ago (Stoner et al., 1993). The eastern four-fifths of Grand Forks County, including the base, lies in the Agassiz Lake Plain District, which extends westward to the Pembina escarpment in the western portion of the county. The escarpment separates the Agassiz Lake Plain District from the Drift Plain District to the west. Glacial Lake Agassiz occupied the valley in a series of recessive lake stages, most of which were sufficient duration to produce shoreline features inland from the edge of the lake. Prominent physiographic features of the Agassiz Lake Plain District are remnant lake plains, beaches, inter-beach areas, and delta plains. Strandline deposits, associated with fluctuating lake levels, are also present and are indicated by narrow ridges of sand and gravel that typically trend northwest-southwest in Grand Forks County.

Grand Forks AFB lies on a large lake plain in the eastern portion of Grand Forks County. The lake plain is characterized by somewhat poorly drained flats and swells, separated by poorly drained shallow swells and sloughs (Doolittle et al., 1981). The plain is generally level, with local relief being less than one foot. Land at the base is relatively flat; with elevations ranging from 880 to 920 ft mean sea level (MSL) and averaging about 890 ft MSL. The land slopes to the north at less than 12 ft per mile

3.13.2.2 Soil Type Condition

Soils consist of the Gilby loam series that are characterized by deep, somewhat poorly drained, moderately to slowly permeable soils in areas between beach ridges. The loam can be found from 0 to 12 inches. From 12 to 26 inches, the soil is a mixture of loam, silt loam, and very fine sandy loam. From 26 to 60 inches, the soil is loam and clay loam.

3.13.3 PESTICIDE MANAGEMENT

Pesticides are handled at various facilities including Environmental Controls, Golf Course Maintenance, and Grounds Maintenance. Other organizations assist in the management of pesticides and monitoring or personnel working with pesticides. Primary uses are for weed and mosquito control. Herbicides, such as Round-up, are used to maintain areas adjacent to roadways. Military Public Health and Bioenvironmental Engineering provide information on the safe handling, storage, and use of pesticides. Military Public Health maintains records on all pesticide applicators. The Fire Department provides emergency response in the event of a spill, fire, or similar type incident.

3.14 ENVIRONMENTAL JUSTICE

Environmental justice addresses the minority and low-income characteristics of the area, in this case Grand Forks County. The county is more than 93 percent Caucasian, 2.3 percent Native American, 1.4 percent African-American, 1 percent Asian/Pacific Islander, less than 1 percent Other, and 1.6 percent “Two or more races”. In comparison, the US is 75.2 percent Caucasian, 12.3 African-American, 0.9 percent Native American or Native Alaskan, 3.6 percent Asian, 0.1 Native Hawaiian or Pacific Islander, 5.5 percent Other, and 2.4 percent “Two or more races”. Approximately 12.5 percent of the county’s population is below the poverty level in comparison to 13.3 percent of the state (US Bureau of the Census, 2002). There are few residences and no concentrations of low-income or minority populations around Grand Forks AFB.

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 INTRODUCTION

The effects of the proposed action and the alternatives on the affected environment are discussed in this section. The project involves implementation of a Deicer Recovery Process on Grand Forks AFB.

4.2 AIR QUALITY

4.2.1 Alternative 1 (No Action)

The no action alternative would not impact air quality.

4.2.2 Alternatives 2 (Proposed Action)

An increase in air pollutants would result from the ramp ranger's diesel engine, but these are not a concern as they are mobile sources. Mobile sources are not regulated on the GFAFB Title V permit. Air Quality is considered good in ND and the area is in attainment for all criteria pollutants. Any fugitive emissions from the deicer recovery activities are expected to be below the regulatory threshold and would be managed in accordance with NDAC 33-15-17-03. Best management practices (BMPs) to reduce fugitive emissions would be implemented to reduce the amount of these emissions.

4.2.3 Alternative 3

Impacts would be similar to those generated under the proposed action.

4.2.4 Alternative 4

Impacts would be similar to those generated under the proposed action.

4.3 NOISE

4.3.1 Alternative 1 (No Action)

The no action alternative would not impact noise generation.

4.3.2 Alternative 2 (Proposed Action)

The short-term operation of heavy equipment in the airfield area would generate additional noise. These noise impacts would exist only during operations and would cease after completion. The increase in noise from activities would be negligible.

4.3.3 Alternative 3

Impacts would be similar to those generated under the proposed action.

4.3.4 Alternative 4

Impacts would be similar to those generated under the proposed action.

4.4 WASTES, HAZARDOUS MATERIALS, AND STORED FUELS

4.4.1 Alternative 1 (No Action)

The no action alternative would not impact hazardous or solid waste generation.

4.4.2 Alternative 2 (Proposed Action)

The increase in hazardous and solid wastes from deicer recovery related activities would be minimal and temporary. The increase in recyclable waste could be significant if the deicer fluid is accepted for recycling. Solid waste debris would be disposed of in approved location, such as the Grand Forks Municipal Landfill, which is located within 12 miles of the proposed site. Liquid waste, not acceptable for recycling, must be disposed at a facility approved for the disposal of aircraft deicing and anti-icing fluid. All solid waste materials would be managed and transported in accordance with the state's solid and hazardous waste rules. Appropriate efforts to reduce, reuse and/or recycle waste materials are encouraged by the State of North Dakota. Inert waste should be segregated from non-inert waste, where possible, to reduce the cost of waste management.

4.4.3 Alternative 3

Impacts would be similar to those generated under the proposed action.

4.4.4 Alternative 4

Impacts would be similar to those generated under the proposed action.

4.5 WATER RESOURCES

4.5.1 Alternative 1 (No Action Alternative)

Groundwater: No impacts ground water.

Surface Water: Surface water quality would continue to be degraded due to the uncontrolled run-off of deicing and anti-ice fluids.

Water Quality: No impact.

Wastewater: The proposed action would have no impact on wastewater.

Wetlands: This action would have a direct impact on many wetland areas due to the continued release of contaminated water.

4.5.2 Alternative 2 (Proposed Alternative)

Groundwater: Since ground disturbance will be minimal there will be no impact to groundwater. Care would still have to be taken with respect to the usage of aircraft deicing and anti-ice fluids to prevent large spills in unprotected areas. Spills of these chemicals can negatively impact groundwater. Provided best management practices are followed, there would be minimal positive impacts to ground water.

Surface Water: Surface water quality would be greatly improved in the immediate run off areas. This is due to the fact that stormwater quality would be greatly improved. Provided best management practices are utilized during deicing recovery operations, surface water will be positively impacted.

Water Quality: The proposed action would have minimal impact to water quality.

Wastewater: Provided no BOD loading issues are created, there will be minimal wastewater impacts.

Wetlands: The proposed action could have a direct positive impact on many wetland areas due to the improved quality of surface water being discharged.

4.5.3 Alternative 3

Groundwater: Construction of this facility could in the short term negatively affect groundwater. Provided BMP's are followed during construction, any impacts would be short lived and minimal.

Surface Water: Surface water quality would be greatly improved in the immediate run off areas. This is due to the fact that stormwater quality would be greatly improved. Provided best management practices are utilized during construction, surface water will be positively impacted.

Water Quality: Provided all containment needs are met and best management practices are used, the proposed action would have minimal impact to water quality.

Wastewater: The proposed action would have no impact on wastewater.

Wetlands: The proposed action could have a direct positive impact on many wetland areas due to the improved quality of surface water being discharged.

4.5.4 Alternative 4

Groundwater: Construction of this facility could in the short term negatively affect groundwater. Provided BMP's are followed during construction, any impacts would be short lived and minimal.

Surface Water: Surface water quality would be greatly improved in the immediate run off areas. This is due to the fact that stormwater quality would be greatly improved. Provided best management practices are utilized during construction, surface water will be positively impacted.

Water Quality: Provided all containment needs are met and best management practices are used, the proposed action would have minimal impact to water quality.

Wastewater: The proposed action would have no impact on wastewater.

Wetlands: The proposed action could have a direct positive impact on many wetland areas due to the improved quality of surface water being discharged.

4.5.5 Alternative Considered but Eliminated from Detailed Study

Groundwater: Since ground disturbance will be minimal, there will be no impact to groundwater. Care would still have to be taken with respect to the usage of the deicing fluids to prevent large spills in unprotected areas. Spills of these chemicals can negatively impact groundwater. Provided best management practices are followed, there would be minimal positive impacts to ground water.

Surface Water: Surface water quality would be greatly improved in the immediate run off areas. This is due to the fact that stormwater quality would be greatly improved. Provided best management practices are utilized during operation, surface water will be positively impacted.

Water Quality: The action would have minimal impact to water quality.

Wastewater: The action may have an impact on wastewater if the collected fluid is disposed of in the Base lagoons. Provided no BOD loading issues are created, there will be minimal wastewater impacts. Further study, resulting in scientific data, is required.

Wetlands: The action could have a direct positive impact on many wetland areas due to the improved quality of surface water being discharged.

4.6 BIOLOGICAL RESOURCES

4.6.1 Alternative 1 (No Action)

Wildlife, vegetation and aquatic life would continue to suffer due to the uncontrolled run-off of deicing and anti-ice fluids in to surface water and wetland areas.

4.6.2 Alternative 2 (Proposed Action)

Vegetation: Vegetation will be affected from the snow pile run-off from the north end of the Charlie ramp depending on the magnitude of the snow pile and the amounts of aircraft deicer and anti-icer accumulated through the winter. High levels may kill off vegetation, soil microbes, and other invertebrates. Any loss of vegetation should be reestablished with native grass species in this area.

Noxious Weeds: Any exposed soil areas resultant of these operations should reestablish vegetative cover quickly to avoid invasion by noxious weeds. Public law 93-629 mandates control of noxious weeds. Following activities which expose soil, mitigate by covering the area with weed seed free mulch, and/or seed the area with native species. Covering the soil will reduce the germination of weed seeds, maintain soil moisture, and minimize erosion. If any fill material is used, it should be from a weed-free source.

Wildlife: Deicer recovery activities would have minimal impact to wildlife in the area. Wildlife using the ditches (small mammals, birds, and invertebrates) may experience adverse affects from potential high levels of glycol and potential loss of vegetation. Due to the abundance and mobility of these species and the profusion of natural habitats in the general vicinity, any wildlife disturbed would be able to find similar habitat in the local area. Efforts to clean-up deicer and anti-ice fluid on the Charlie ramp will reduce the amount of BOD loading, and should protect wildlife from subsequent run-off.

Threatened or Endangered Species: According to the Biological Survey Update 2004 of GFAFB, 21 state-listed birds and 1 federally listed bird species, 2 state-listed plant species, 1 state-listed mammal species, and 1 state-listed amphibian have been identified at GFAFB. The federally listed bird species (the Bald Eagle) has no critical habitat at GFAFB. Deicer recovery activities will reduce the amount of BOD loading, and should protect these sensitive species. No sensitive species have been identified in the vicinity of the north end of the Charlie ramp, where exposure to contaminated snow will occur.

4.6.3 Alternative 3

Impacts would be similar to those generated under the proposed action.

4.6.4 Alternative 4

Impacts would be similar to those generated under the proposed action.

4.7 SOCIOECONOMIC RESOURCES

4.7.1 Alternative 1 (No Action)

The no action alternative would not impact socioeconomics.

4.7.2 Alternative 2 (Proposed Action)

Secondary retail purchases would make an additional contribution to the local communities. The implementation of the proposed action, therefore, would provide a short-term, minimal beneficial impact to local retailers during the purchase or lease phase of the project.

4.7.3 Alternative 3

Impacts would be similar to those generated under the proposed action.

4.7.4 Alternative 4

Impacts would be similar to those generated under the proposed action.

4.8 CULTURAL RESOURCES

4.8.1 Alternative 1 (No Action)

The no action alternative would not impact cultural resources.

4.8.2 Alternative 2 (Proposed Action)

The proposed action has little potential to impact cultural resources. In the unlikely event any such artifacts were discovered during the construction activities (of the snow berms), the contractor would be instructed to halt construction and immediately notify Grand Forks AFB

civil engineers who would notify the State Historic Preservation Officer.

4.8.3 Alternative 3

Alternative impacts would be similar to those generated under the proposed action.

4.8.4 Alternative 4

Alternative impacts would be similar to those generated under the proposed action.

4.9 LAND USE

4.9.1 Alternative 1 (No Action)

The no action alternative would not have an impact on land use.

4.9.2 Alternative 2 (Proposed Action)

The proposed operation would not have an impact on land use.

4.9.3 Alternative 3

The alternative would not have an impact on land use.

4.9.4 Alternative 4

The alternative would not have an impact on land use.

4.10 TRANSPORTATION SYSTEMS

4.10.1 Alternative 1 (No Action)

The action would not impact transportation.

4.10.2 Alternative 2 (Proposed Action)

The proposed action would have minimal adverse impact to transportation systems on base due to vehicles traveling to and from the Deicer Recovery area.

4.10.3 Alternative 3

Impacts would be similar to those generated under the proposed action.

4.10.4 Alternative 4

Impacts would be similar to those generated under the proposed action.

4.11 AIRSPACE/AIRFIELD OPERATIONS

4.11.1 Alternative 1 (No Action)

The no action alternative would not impact aircraft safety or airspace compatibility.

4.11.2 Alternative 2 (Proposed Action)

The proposed action would not impact aircraft safety or airspace compatibility.

4.11.3 Alternative 3

The action would not impact aircraft safety or airspace compatibility.

4.11.4 Alternative 4

The action would not impact aircraft safety or airspace compatibility.

4.12 SAFETY AND OCCUPATIONAL HEALTH

4.12.1 Alternative 1 (No Action)

The no action alternative would not impact safety and occupational health.

4.12.2 Alternative 2 (Proposed Action)

The proposed action would have no impact on safety and occupational health.

4.12.3 Alternative 3

The alternative would have no impact on safety and occupational health.

4.12.4 Alternative 4

The alternative would have no impact on safety and occupational health.

4.13 ENVIRONMENTAL MANAGEMENT

4.13.1 Alternative 1 (No Action)

The no action alternative would not impact IRP Sites or geological resources. No pesticides would be used as part of this project.

4.13.2 Alternative 2 (Proposed Action)

IRP: The proposed action would not impact IRP Sites.

Geology: The proposed action would not impact geological resources.

Pesticides: No pesticides would be used as part of this project.

4.13.3 Alternative 3

Impacts would be similar to those generated under the proposed action. Soils present in the proposed area include the Gilby series.

4.13.4 Alternative 4

Impacts would be similar to those generated under the proposed action. Soils present in the proposed area include the Gilby series.

4.14 ENVIRONMENTAL JUSTICE

4.14.1 Alternative 1 (No Action)

The no action alternative would not impact environmental justice.

4.14.2 Alternative 2 (Proposed Action)

EO 12898 requires federal agencies to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. There are no minority or low-income populations in the area of the proposed action or alternatives, and, thus, there would be no disproportionately high or adverse impact on such populations.

4.14.3 Alternative 3

Impacts would be similar to those generated under the proposed action.

4.14.4 Alternative 4

Impacts would be similar to those generated under the proposed action.

4.15 INDIRECT AND CUMULATIVE IMPACTS

The short-term increases in air emissions and noise during deicer recovery and the impacts predicted for other resource areas, would not be significant when considered cumulatively with

other ongoing and planned activities at Grand Forks AFB and nearby off-base areas. The cumulative impact of the Proposed Action or Alternative with other ongoing activities in the area would produce an increase in solid waste generation; however, the increase would be limited to the timeframe of each project. The area landfill used for construction and demolition debris does not have capacity concerns and could readily handle the solid waste generated by the various projects.

4.16 UNAVOIDABLE ADVERSE IMPACTS

The use of recovery-related vehicles and their short-term impacts on noise, air quality, and traffic are unavoidable.

4.17 RELATIONSHIP BETWEEN SHORT-TERM USES AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The proposed action and alternatives would involve the use of previously developed areas. No croplands, pastureland, wooded areas, or wetlands would be modified or affected as a result of implementing the Proposed Action or Alternatives and, consequently, productivity of the area would not be degraded.

4.18 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Under the proposed action, fuels, manpower, economic resources, and other recovery materials related to implementation of the Deicer Recovery Proposal would be irreversibly lost.

5.0 LIST OF PREPARERS

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Commander
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6.0 LIST OF AGENCIES AND PERSONS CONSULTED AND/OR PROVIDED COPIES

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Bismarck, ND 58505-0200

Mr. Merlan E. Paaverud
State Historic Preservation Officer
State Historical Society of North Dakota
612 East Boulevard Ave
Bismarck ND 58505-0200

Mr. Dean Hildebrand
Commissioner
North Dakota Game and Fish
100 North Bismarck Expressway
Bismarck, ND 58501

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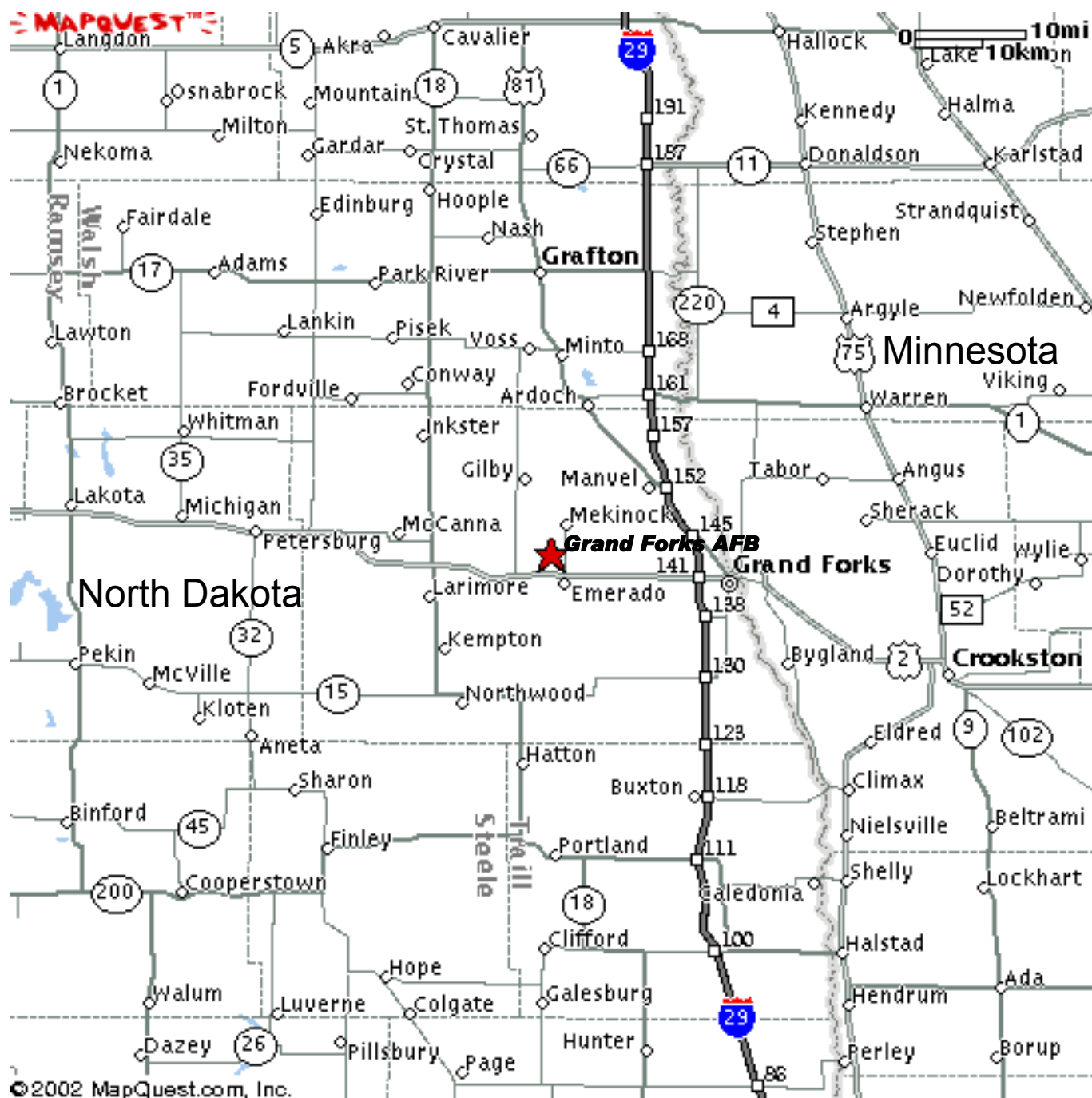
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APPENDIX A
LOCATION MAP

Grand Forks AFB, ND

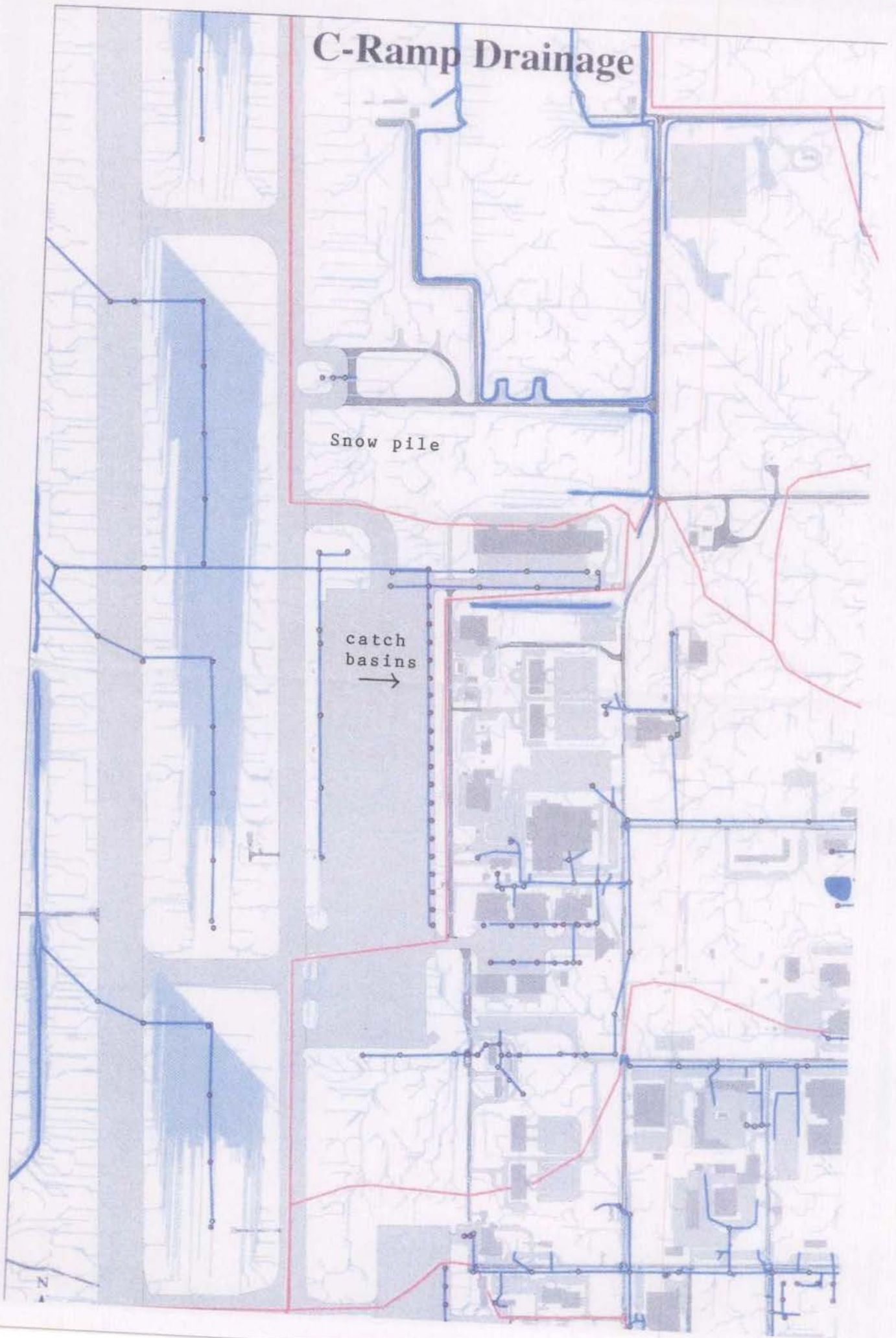


State Boundary

C-Ramp Drainage

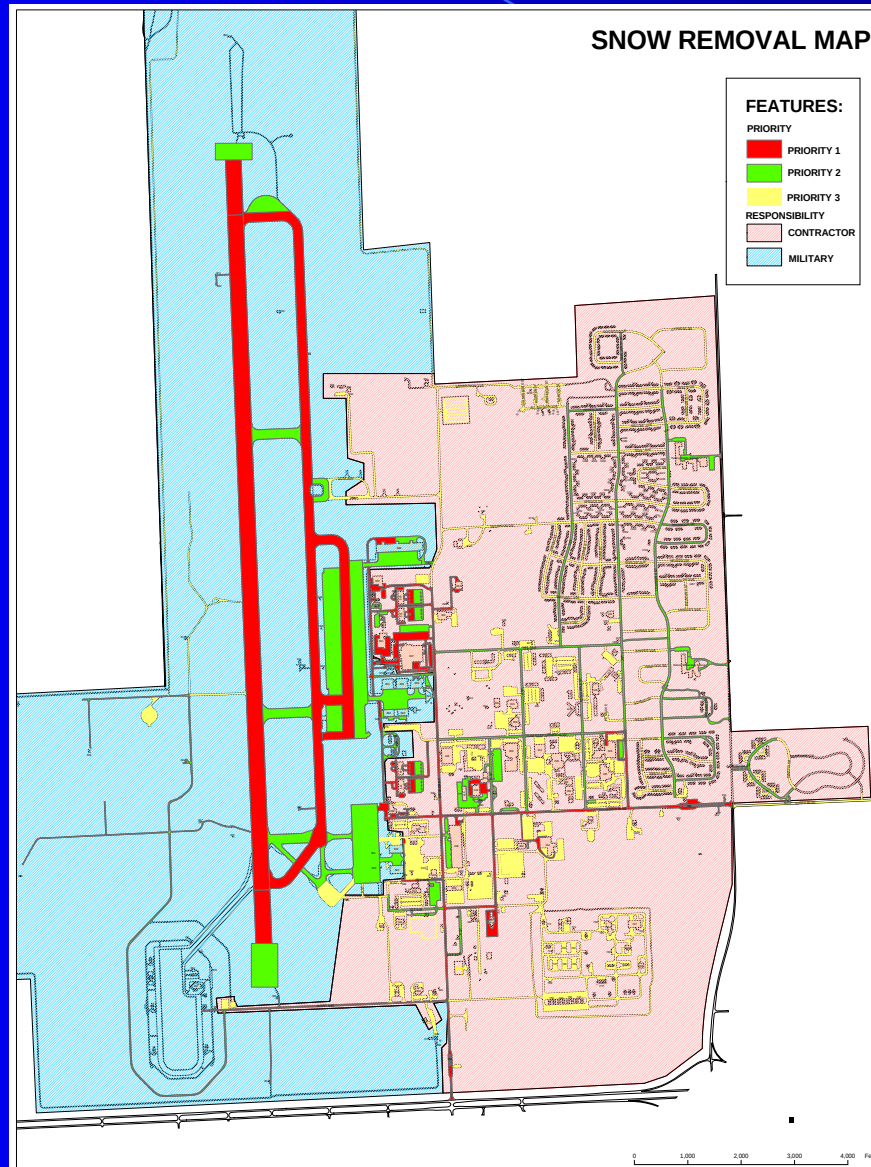
Snow pile

catch
basins
→





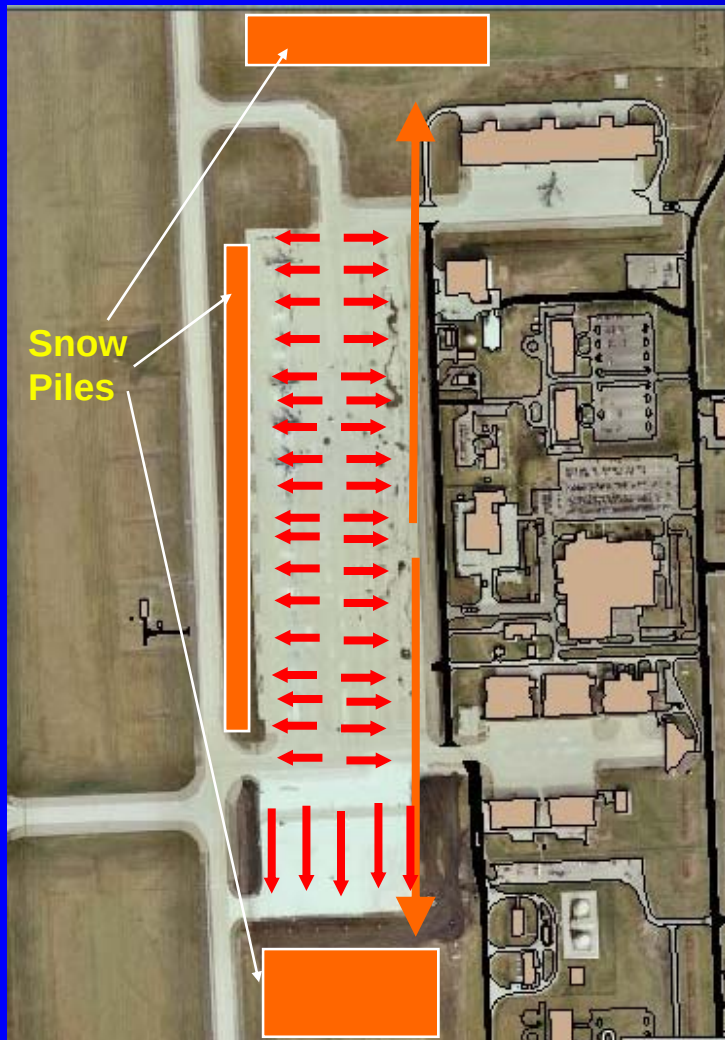
SNOW REMOVAL PRIORITY MAP





PINK SNOW REMOVAL

Current Operations

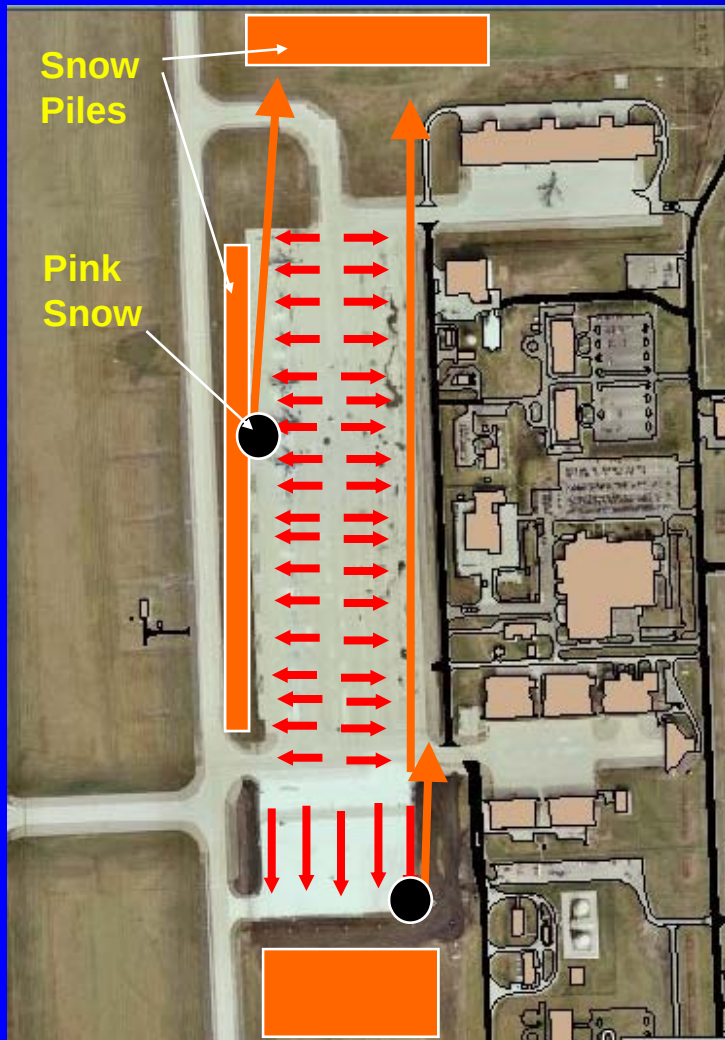


- Red lines show how snow is pushed to clear ramp
- Orange indicated what snow is hauled and to what location
- Snow pile on west side of ramp is blown over the blast fence
- South C ramp pile is blown south of the ramp
- Current hauling operation for east ramp is 2700 man-hours



PINK SNOW REMOVAL

Proposed Operations



- Entire east snow pile will be hauled north
- CE will review de-icing usage during the snow event prior to moving west and south piles
 - Based on snow fall and fluid used, CE will selectively haul contaminated snow north
 - Remaining snow will be blown to the west and south as normal

APPENDIX B
CULTURAL RESOURCE PROBABILITY MAP

Figure 3.5
Survey Areas and
Probabilities

Grand Forks Air Force Base
Cultural Resources Management Plan

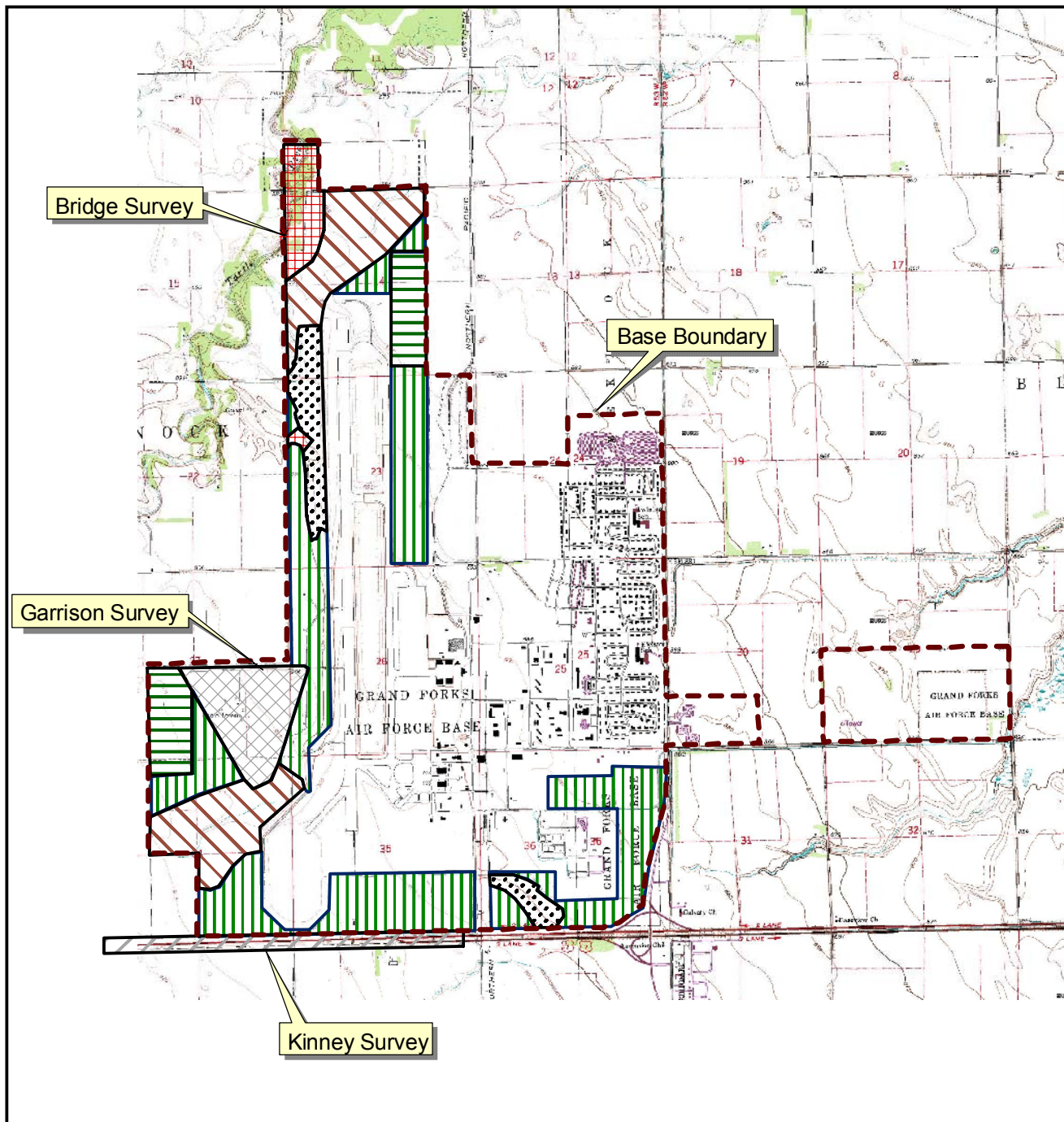
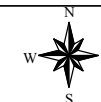
Legend

-  Historic Bridge Inventory Survey
-  Base Boundary
-  High Probability
-  Medium Probability (near water)
-  Kinney Survey
-  Medium Probability (beach ridge)
-  Peace Keeper Rail Garrison Survey
-  Low Probability (distance from water)
-  Low Probability (10% sample)
-  Previously Disturbed

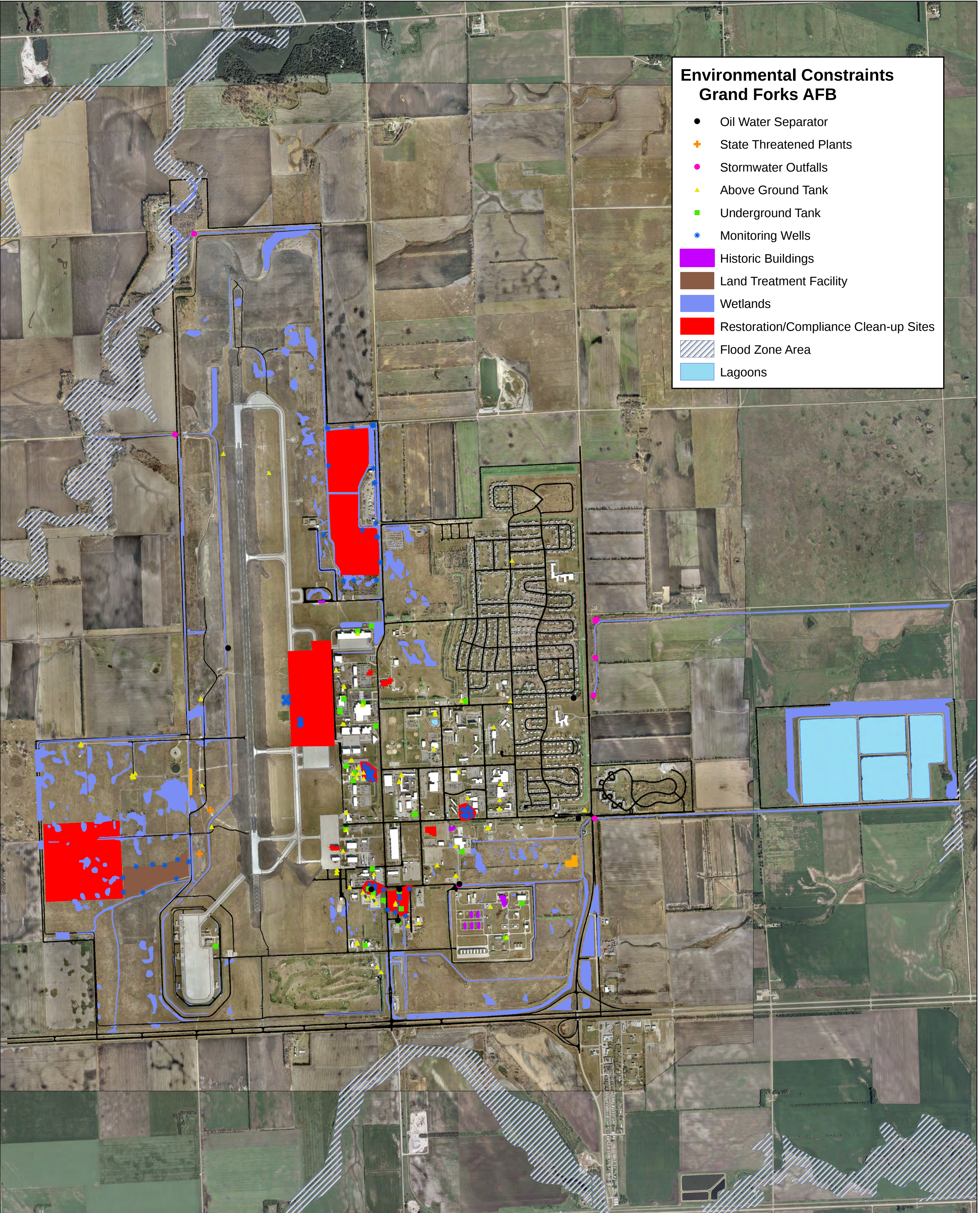
2000 0 2000 4000 Feet



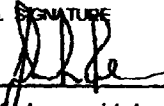
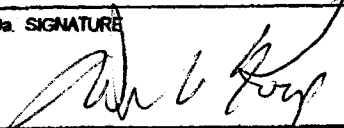
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APPENDIX C
ENVIRONMENTAL SITE MAP



APPENDIX D
AF FORM 813

REQUEST FOR ENVIRONMENTAL IMPACT ANALYSIS			Report Control Symbol RCS: 2004-295	
INSTRUCTIONS: Section I to be completed by Proponent; Sections II and III to be completed by Environmental Planning Function. Continue on separate sheets as necessary. Reference appropriate item number(s).				
SECTION I - PROPONENT INFORMATION				
1. TO (Environmental Planning Function) 319 CES/CEVA	2. FROM (Proponent organization and functional address symbol) 319 AMXS/MXAS	2a. TELEPHONE NO. 7-6190		
3. TITLE OF PROPOSED ACTION DEICER RECOVERY				
4. PURPOSE AND NEED FOR ACTION (Identify decision to be made and need date) The level of glycol entering base storm water drainage system exceeded state Biochemical Oxygen Demand level in 2003-04 winter season. A collection and recovery method is needed to prevent high BOD levels in future.				
5. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES (DOPAA) (Provide sufficient details for evaluation of the total action.) Purchase flightline drain catch basin inserts, and rent/purchase a collection vehicle, and a storage tank for collected glycol, to aid in the minimization of glycol entering the stormwater system, as recommended by 319AMXS/CC on 6 Aug 04. See reverse.				
6. PROPONENT APPROVAL (Name and Grade) SSgt John R. Poe, 319 AMXS/MXAS	6a. SIGNATURE 	6b. DATE 20040826		
SECTION II - PRELIMINARY ENVIRONMENTAL SURVEY. (Check appropriate box and describe potential environmental effects including cumulative effects.) (+ = positive effect; 0 = no effect; - = adverse effect; U = unknown effect)				
7. AIR INSTALLATION COMPATIBLE USE ZONE/LAND USE (Noise, accident potential, encroachment, etc.)				+ 0 - U
8. AIR QUALITY (Emissions, attainment status, state implementation plan, etc.)				☐ ☒ ☐ ☐
9. WATER RESOURCES (Quality, quantity, source, etc.)				☒ ☐ ☐ ☐
10. SAFETY AND OCCUPATIONAL HEALTH (Asbestos/radiation/chemical exposure, explosives safety quantity-distance, bird/wildlife aircraft hazard, etc.)				☐ ☒ ☐ ☐
11. HAZARDOUS MATERIALS/WASTE (Use/storage/generation, solid waste, etc.)				☐ ☒ ☐ ☐
12. BIOLOGICAL RESOURCES (Wetlands/floodplains, threatened or endangered species, etc.)				☐ ☒ ☐ ☐
13. CULTURAL RESOURCES (Native American burial sites, archaeological, historical, etc.)				☐ ☒ ☐ ☐
14. GEOLOGY AND SOILS (Topography, minerals, geothermal, Installation Restoration Program, seismicity, etc.)				☐ ☒ ☐ ☐
15. SOCIOECONOMIC (Employment/population projections, school and local fiscal impacts, etc.)				☐ ☒ ☐ ☐
16. OTHER (Potential impacts not addressed above.)				☐ ☒ ☐ ☐
SECTION III - ENVIRONMENTAL ANALYSIS DETERMINATION				
17. ☐ PROPOSED ACTION QUALIFIES FOR CATEGORICAL EXCLUSION (CATEX) # _____; OR ☒ PROPOSED ACTION DOES NOT QUALIFY FOR A CATEX; FURTHER ENVIRONMENTAL ANALYSIS IS REQUIRED.				
18. REMARKS This action is not "regionally significant" and does not require a conformity determination in accordance with 40 CFR 93.153(1). The total emission of criteria pollutants from the proposed action are below the de minimus thresholds and less than 10 percent of the Air Quality Region's planning inventory.				
19. ENVIRONMENTAL PLANNING FUNCTION CERTIFICATION (Name and Grade) WAYNE A. KOOP, R.E.M., GM-13 Environmental Management Flight Chief	19a. SIGNATURE 			19b. DATE 15 Dec 2004

Block 4: PURPOSE AND NEED FOR ACTION:

4.1 PURPOSE: The purpose of the proposed action is to improve the current procedures used for anti-ice Type IV and de-icing Type I fluid discharge from Grand Forks AFB, in order to prevent potential impacts of stormwater discharge into surface water bodies and to meet NDPDES permit requirements.

4.2 NEED FOR ACTION: The base needs to implement procedures to prevent and control deicing fluid discharge created during the deicing of aircraft, from reaching the outfalls off base and continuing into adjoining navigable waterways. Currently, stormwater is channeled off base through a series of stormwater inlets, grated manholes, culvert pipes, and open trenches. Deicing fluids (propylene glycol mixed with water) and other fluids that are used on the runway, aircraft ramps, and staging areas can get into the stormwater system and eventually migrate to the Turtle River and Kelly's Slough National Wildlife Refuge. Controlling and/or preventing the flow of runoff containing propylene glycol off base will benefit the water quality of the receiving waters and is required by law. Spill prevention and recovery policies are already in place to control the release of hazardous materials into the environment. However, the potential for some of these materials to escape these controls exists and should be addressed. Preventing the release of hazardous materials into the Turtle River and Kelly's Slough is required.

Block 5: DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES:

5.1 NO ACTION ALTERNATIVE 1: If the stormwater collection system remains unchanged, stormwater discharges of anti-ice and de-icing fluid would continue to run unimpeded to the Turtle River and Kelly's Slough. The potential for environmental impacts to these receiving waters would continue.

5.2 PROPOSED ACTION 2: The USAF proposes to contract for purchase or lease all necessary infrastructure modifications and equipment for the collection and disposal of anti-ice and de-icing fluid left on the ramp after spraying aircraft. The contract would specify the purchase or lease of all equipment, such as a RampRanger T750 Collection Unit or a similar vacuum unit, and a 20K gallon storage tank for fluid storage, and the purchase of catch basin inserts for permanent installation onto 25 storm drain inserts on the east side of Charlie ramp and Charlie ramp extension. The contract would also include disposal of fluid caught in the catch basins, and would then place it into a tanker trailer, for ultimate disposal to include recycling. The RampRanger, or similar unit, is a self-contained unit with a diesel engine that allows the unit to collect by vacuuming anti-ice and de-icing fluid left on the ramp via a rear mounted suction nozzle. The unit is designed to operate at small- to mid-size airports, cargo operations, military installations and larger facilities requiring a second unit for storage of de-ice and anti-ice fluids. The proposed action for snow, contaminated with anti-ice and deicing fluid, accumulated during the winter months would be to plow to a common place on the north end of Charlie Ramp, and surround with an earthen berm. In the spring the snow mixed with anti-ice and de-icing fluid would be allowed to melt naturally. The melted snow would naturally flow north, around the landfill, and toward the Northwest ditch and outfall. Residues would be allowed to biodegrade in the grass.

5.4 ALTERNATIVE 3: The USAF would construct a facility for the aircraft to drive through and be heated by convection or microwave heat from above. Melted ice would be allowed to continue through the stormwater system.

5.5 ALTERNATIVE 4: The USAF would construct two deicer drive-thru pads at each end of the runway. De-icing and anti-ice fluids would be sprayed on aircraft and collected in constructed containment areas, for ultimate disposal or recycling.

AF 813, RCS# 2004-295, DEICER RECOVERY, continued.

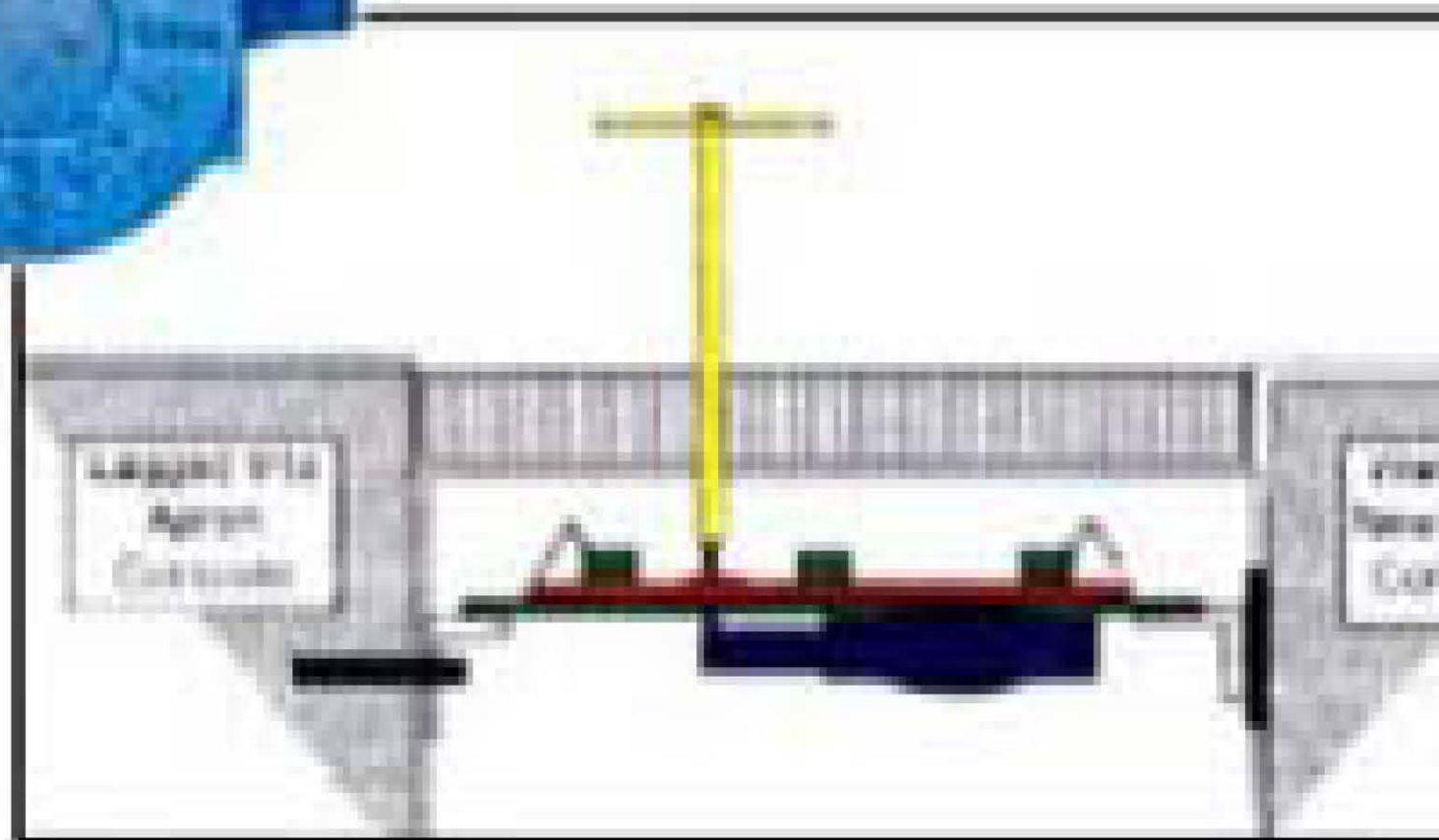
5.6 ALTERNATIVE CONSIDERED BUT ELIMINATED FROM DETAILED STUDY:

The snow, contaminated with anti-ice or deicing fluid and accumulated during the winter months, would be plowed to a common place on the north end and the south end of Charlie Ramp. It would be trucked by Air Force operators to the waste water treatment facility at the lagoon on the east side of the base. This was not considered, due to lack of scientific data of lagoon loading. Further testing is ongoing and once complete, final decisions may be made based on fact.

5.7 DESCRIPTION OF PAST AND REASONABLY FORESEEABLE FUTURE ACTIONS RELEVANT TO CUMULATIVE IMPACTS: Construction of Flow Control Structures and Sampling Points within the embankments of all four stormwater ditches has been proposed and is being evaluated by another proposed action, RCS# 2004-190. The flow control structure would consist of a barrier (earthen or concrete) that extends between the two slopes of the ditch. A pipe would be installed in the barrier with head gates or valves that would be operated manually by emergency personnel, to prevent and/or control the off-base discharge of potentially environmentally harmful liquids. The proposal also includes the construction of stormwater sampling points at outfalls to provide safe access to regulators and sampling personnel and to provide a specific point to complete mandated stormwater sampling. The specific point for sampling will ensure quality assessment and quality control (QA/QC) of stormwater sampling collection and analysis. Without implementation of this proposed action, stormwater samples would continue to be collected in an unsafe manner. The personnel involved in this activity would continue to take precarious paths down the ditch slope, exposing them to injury due to falling. Implementation of this alternative would ensure that the stormwater sampling is conducted in the same location each time.

5.8 IDENTIFICATION OF PREFERRED ALTERNATIVE: Contract to Lease/Purchase a RampRanger T750 Collection Unit, and a storage tank, and install permanent catch basins for drains on Charlie ramp. The proposed purchase or lease of a RampRanger T750 Collection Unit, a storage tank for collection, and catch basins for the Charlie taxiways, would effectively reduce the potential impact of discharges of anti-ice and deicing fluid into the surface waters of North Dakota/USA.

APPENDIX E
RampRanger and Catch Basin Insert Photos



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VQuip Inc. • 4430 Mainway Drive • Burlington, Ontario • L7L 5Y5, Canada

PHONE: 905-336-1611 • FAX: 905-336-3035 • E-MAIL: sales@vquip.com

A.R. PLUS

Deicing Fluid Collection Equipment

▷ **Considerations**

Design Considerations
Sizing Equipment

▷ **Mobile Collection Units**

T4000 RampRanger™
T1800 RampRanger™
T750 RampRanger™
T300 RampRanger™

▷ **Passive Collection Units**

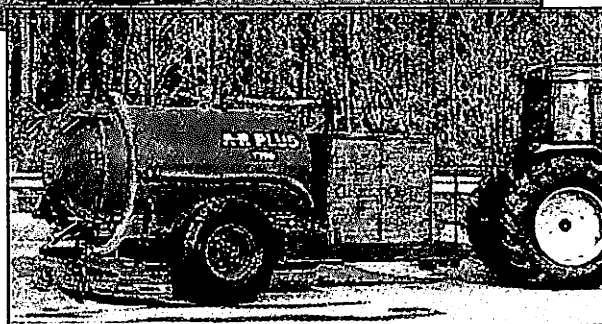
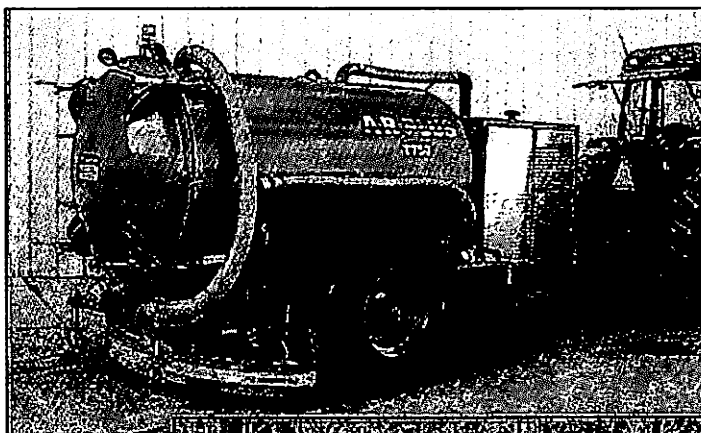
Interceptor™ 2800
Isolator Catch Basin Inserts

Mobile Collection Units **T750 RampRanger™**

RampRanger™ T750 Collection Units

[Specifications]

A self-contained diesel engine allows this versatile unit to operate at airports, cargo operations, military installations and larger facilities requiring



Specifications

- ▷ 500 or 750 US GPM capacity
- ▷ Up to 200 GPM collection rate
- ▷ 39hp diesel engine liquid cooled with automatic shutdown protection
- ▷ Heavy duty positive vacuum system powered by centrifugal clutch
- ▷ In cab controls and warning lights
- ▷ Towable with truck, tractor or tug
- ▷ Standard surge brakes
- ▷ 150 GPM recirculation/discharge pump with trash screen

APPENDIX F
MSDS for Deicing and Anti-icing Fluids

Estimated Number of Deicing Operations by Year (2002-2004 Average)

2002 – 2003 92 Aircraft

2003 – 2004 334 Aircraft

Monthly Aircraft Deicing by Shift

Mid Shift (2301-0700) = 50%

Day Shift (0701-1500) = 40%

Swing Shift (1501-2300) = 10%

Note 1: The primary aircraft deiced at Grand Forks AFB is the Boeing KC-135 Stratotanker. Deicing operations are not limited to these aircraft.

E1.2 Aircraft Deicing Fluid Usage.

Deicing Fluid Usage by Year (Gallons)

2002 – 2003 10,883 Glycol

7,255 Water

Total Sprayed= 18,138(TYPE 1 60/40 Mix)

2003 – 2004 60,543 Glycol (TYPE 1 60/40 Mix)

40,362 Water

Total Sprayed= 100,905 (TYPE 1 60/40 Mix)

An additional 4,185 gallons of TYPE 4 Anti-icing (100% Glycol Straight) was also sprayed in 2003-2004.

Appendix 2

E2.1 Government Furnished Equipment Inventory List

<u>Nomenclature</u>	<u>Quantity</u>
1. 1 Port LMR Battery Charger	1
2. Land Mobile Radios w/ cases	2
3. Telephone	1



HEALTH and SAFETY DATA

1. PRODUCT NAME

Kilfrost ABC-S ®

DESCRIPTION

Aircraft De-/anti-icing fluid, Type IV.
Complies with Specification AMS 1428

CHEMICAL EMERGENCY NUMBER

Chemical Emergency: Spill, leak, fire, or accident call Chemtrec day or night (800)424-9300;
Outside continental USA call (703)527-3887

MANUFACTURED AND SUPPLIED IN THE US BY

Cryotech Deicing Technology
6103 Orthoway
Fort Madison, IA
52627

Cryotech Contact Numbers

Telephone:
All Hours: (800)346-7237
FAX: (319)372-2662
e-mail: deicers@cryotech.com

MANUFACTURED AND SUPPLIED IN EUROPE BY

Kilfrost Limited
Albion Works
HALTWHISTLE
Northumberland
NE49 0HJ
ENGLAND

Kilfrost Contact Numbers

Telephone:
Working Hours: (01434) 320332
Other Times: (01228) 573614
FAX: (01434) 321463
e-mail: kilfrost.haltwhistle@virgin.net

2. COMPOSITION

- 2.1 Aqueous monopropylene glycol mixture.
- 2.2 Contains a minimum of 50% monopropylene glycol.
- 2.3 None of the ingredients are classed as Dangerous Substances

3. HAZARD IDENTIFICATION

- 3.1 Inhalation
- 3.2 Skin
- 3.3 Eyes
- 3.4 Ingestion
- 3.5 Occupation Exposure Limits

Considered to be non-hazardous.
Unlikely to cause irritation.
May cause temporary irritation.
Considered to be non-hazardous.
An exposure limit has been set for
Monopropylene Glycol
(synonym Propane-1,2-diol).
This applies in the UK only.

UK (EH 40) OES

Total (vapour & Particulates)
Particulates

150 ppm (470 mg/m³) (8hr TWA)
- ppm (10 mg/m³) (8hr TWA)

ACGIH TLV – TWA
FRANCE VME
GERMANY MAK

No limit assigned.
No limit assigned.
No limit assigned.

HEALTH and SAFETY DATA

4. FIRST AID MEASURES

- | | | |
|-----|--------------|---|
| 4.1 | Ingestion | Give large quantities of water to drink. Consult medical personnel. |
| 4.2 | Skin Contact | Wash off in flowing water. Launder contaminated clothing before re-use. |
| 4.3 | Eye contact | Irrigate with water for 5 minutes. Obtain medical assistance if irritation persists. |
| 4.4 | Inhalation | Remove to fresh air if feeling unwell. Consult medical personnel if symptoms persist. |

5. FIRE FIGHTING MEASURES

- | | | |
|-----|-----------------------------------|--|
| 5.1 | Flash point (close cup) | None below boiling point. |
| 5.2 | Auto ignition temperature | 446 °C |
| 5.3 | Exposure limits | No data. |
| 5.4 | Specific fire-fighting procedures | None. |
| 5.5 | Unusual fire hazards | The product may become combustible after prolonged heating at the boiling point. |
| 5.6 | Extinguishing media | Water, foam, Carbon Dioxide, dry powder. |
| 5.7 | Hazardous decomposition products | Incomplete combustion may produce Carbon Monoxide and other harmful gases/vapours. |

NFPA Ratings:

Health 0; Flammability 1; Reactivity 0; Special NDA (Least-0, Slight-1, Moderate-2, High-3, Extreme-4). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint Coating Association

6. ACCIDENTAL RELEASE MEASURES

- | | |
|-----|---|
| 6.1 | Contain spillage and absorb on suitable material e.g. sawdust, sand or earth. Transfer to a container for disposal. See section 13. |
| 6.2 | Wash the spillage area with plenty of water. |

7. HANDLING AND STORAGE

- | | |
|-----|--|
| 7.1 | Avoid contact with skin and eyes. Avoid breathing mists/vapours when spraying. |
| 7.2 | Store in tightly sealed original containers, away from direct heat and strong oxidising agents. |
| 7.3 | Do not use uncoated mild steel tanks. For advice on bulk and/or heated storage contact Cryotech. |

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

- | | |
|-----|---|
| 8.1 | Maintain sufficient ventilation to comply with 'Occupational Exposure Standard'. |
| 8.2 | Wear eye protection if splashing is possible. An eye wash bottle should be available. |
| 8.3 | Gloves and protective overalls recommended if prolonged contact is likely. |

9. PHYSICAL AND CHEMICAL PROPERTIES

- | | Typical Values | |
|------|---|--|
| 9.1 | Appearance | Clear, almost colourless or green fluid. |
| 9.2 | Odour | None |
| 9.3 | pH (20 °C) | 7 |
| 9.4 | Boiling point | ~ 104 °C |
| 9.5 | Flammability data | See 5.1 – 5.3 |
| 9.6 | Vapour pressure (20 °C) | 15 mm Hg |
| 9.7 | Specific gravity (20°C) | 1.038 |
| 9.8 | Vapour density (air = 1) | 1.0 (estimated) |
| 9.9 | Freezing Point | |
| | 100% | -37°C |
| | 75% v/v | -22°C |
| | 50% v/v | -11°C |
| 9.10 | Brookfield LVT Viscosity (Spindle No. 1 or 2; 0.3rpm) | |
| | 20°C | 22,500 mPas |
| | -25°C | 12,000 mPas |

HEALTH and SAFETY DATA

9.11	Specific heat	
	20°C	3.6 J/g/°C
	70°C	3.7 J/g/°C
9.12	Solubility in water	Completely miscible.

10. STABILITY AND REACTIVITY

- 10.1 Stable under normal storage conditions.
- 10.2 Incompatible materials – strong oxidising agents.

11. TOXICOLOGICAL INFORMATION

- 11.1 Considered to have low oral toxicity. See also section 3.
- 11.2 LD₅₀ (rat – oral) > 2g/Kg (OECD 401)
- 11.3 LC₅₀ (freshwater fish) > 1,414 mg/L (OECD 203, 96h)
- 11.4 LC₅₀ (Daphnia) > 1,131 mg/L (OECD 202, Part 1, 48h)
- 11.5 EC₁₀ (bacteria) >10,000 mg/L (DIN 38412, Part 8, 16h)

12. ECOLOGICAL INFORMATION

- 12.1 FULLY BIODEGRADABLE: 90% in 5 days (OECD 301E)
- 12.2 COD 835 mg O₂/g test substance (OECD 301D)
- 12.3 BOD 7 418 mg O₂/g test substance (OECD 301D)
- 12.4 Water Danger Class (WGK) 1

13. DISPOSAL CONSIDERATION

- 13.1 Controlled incineration or landfill in accordance with local, state or national Regulations.

14. TRANSPORT INFORMATION

- 14.1 Not restricted under any transport regulations.

15. REGULATORY INFORMATION

- 15.1 Not classified as hazardous under any regulations.

16. OTHER INFORMATION

- 16.1 All components are registered in accordance with EINECS AND TSCA.
- 16.2 Revised to comply with renumbering of WGK classes.

The above information is accurate to the best of our knowledge. However, since data, safety standards, and government regulations are subject to change and the conditions of handling and use or misuse are beyond our control, **Cryotech Deicing Technology, a division of General Atomics International Services Corporation makes no warranty, either express or implied, with respect to the completeness or continuing accuracy of the information contained herein and disclaims all liability for reliance thereon.** Cryotech Deicing Technology assumes no responsibility for any injury or loss resulting from the use of the product described herein. User should satisfy himself that he has all current data relevant to his particular use.

Date: 24 September 2002

OCTAGON PROCESS INC. -- TYPE I DEICING FLUID SAE/AMS 1424 -- 6850-01-435-6471

===== Product Identification =====

Product ID:TYPE I DEICING FLUID SAE/AMS 1424

MSDS Date:06/10/1998

FSC:6850

NIIN:01-435-6471

MSDS Number: CJDLD

=== Responsible Party ===

Company Name:OCTAGON PROCESS INC.

Address:596 RIVER ROAD

City:EDGEWATER

State:NJ

ZIP:07020-1105

Country:US

Info Phone Num:201-313-1187/FAX -1057 (CAROL)

Emergency Phone Num:201-417-1056

Preparer's Name:J.J. BURGARD

Chemtrec Ind/Phone:(800)424-9300

CAGE:82925

=== Contractor Identification ===

Company Name:OCTAGON PROCESS INC.

Address:596 RIVER ROAD

Box:City:EDGEWATER

State:NJ

ZIP:07020

Country:US

Phone:201-945-9400

Contract Num:SP045099MC492

CAGE:82925

===== Composition/Information on Ingredients =====

Ingred Name:MANUFACTURER LISTS NOTHING UNDER "INGREDIENTS" IMPLYING
THAT THERE ARE NO HAZARDOUS INGREDIENTS PER HAZ COM STD.

Fraction by Wt: 100%

Other REC Limits:NONE RECOMMENDED

===== Hazards Identification =====

LD50 LC50 Mixture:NONE SPECIFIED BY MANUFACTURER.

Routes of Entry: Inhalation:NO Skin:YES Ingestion:NO

Reports of Carcinogenicity:NTP:NO IARC:NO OSHA:NO

Health Hazards Acute and Chronic:ACUTE: CONTACT MAY CAUSE EYE

IRRITATION. NO ADVERSE EFFECTS ON SKIN CONTACT OR INHALATION.

ACCIDENTAL INGESTION MAY CAUSE SLIGHT STOMACH DISTRESS. CHRONIC:

NONE SPECIFIED BY MANUFACTURER.

Explanation of Carcinogenicity:NO INGREDIENT OF A CONCENTRATION OF 0.1%
OR GREATER IS LISTED AS A CARCINOGEN OR SUSPECTED CARCINOGEN.

Effects of Overexposure:EYES-STINGING SENSATION, REDNESS, IRRITATION.
INGESTED-SLIGHT STOMACH DISTRESS.

Medical Cond Aggravated by Exposure:PRE-EXISTING EYE DISEASE MAY BE
AGGRAVATED.

===== First Aid Measures =====

First Aid:EYES-FLOOD WITH WATER FOR 15 MINUTES. IF IRRITATION PERSISTS,
GET MEDICAL ATTENTION. SKIN-WASH EXPOSED AREAS WITH MILD SOAP AND

GIVE OXYGEN. IF BREATHING HAS STOPPED, ADMINISTER ARTIFICIAL RESPIRATION (MOUTH TO MOUTH IDS PREFERRED) IF TRAINED, GET IMMEDIATE MEDICAL ATTENTION. IN GESTION-IN CASE OF ACCIDENTAL INGESTION, ADMINISTER 4-8 OZ. OF WATER TO DILUTE STOMACH CONTENTS. DO NOT INDUCE VOMITING, THE POTENTIAL OF LUNG DAMAGE IS GREATER THAN THE POISONING HAZARD. IF STOMACH DISTRESS PERSISTS, GET MEDICAL ATTENTION.

===== Fire Fighting Measures =====

Flash Point Method:PMCC
Flash Point:>100.C, 212.F
Extinguishing Media:THIS PRODUCT WILL NOT BURN.
Fire Fighting Procedures:KEEP FIRE-EXPOSED CONTAINERS COOL WITH WATER SPRAY.
Unusual Fire/Explosion Hazard:NONE.

===== Accidental Release Measures =====

Spill Release Procedures:PRODUCT MAY BE SLIPPERY WHEN SPILLED. SPREAD GRANULAR COVER ON AREA. IN CONFINED AREAS WEAR PROPER PROTECTIVE EQUIPMENT. COMPLY WITH SPILL NOTIFICATION REQUIREMENTS. ALL RESPONSE ACTIVITIES MUST COMPLY WITH HAZPOWER (29 CFR 1910.120).

===== Handling and Storage =====

Handling and Storage Precautions:STORE IN A COOL, DRY PLACE AWAY FROM OXIDIZERS. KEEP CONTAINERS CLOSED WHEN NOT IN USE. PROTECT FROM HIGH MOISTURE PICKUP
Other Precautions:MAINTENANCE PRECAUTIONS: NONE. OTHER PRECAUTIONS: USE THIS PRODUCT ONLY AS RECOMMENDED - SEE MANUFACTURER'S DIRECTIONS.

===== Exposure Controls/Personal Protection =====

Respiratory Protection:GENERALLY NOT REQUIRED WITH NORMAL RECOMMENDED USE. PROTECT AGAINST INHALATION OF LARGE VOLUMES OF MIST DURING APPLICATION.
Ventilation:LOCAL EXHAUST: YES. MECHANICAL (GENERAL): FAN. SPECIAL: N/A. OTHER: N/A.
Protective Gloves:RUBBER OR PVC.
Eye Protection:ALWAYS WEAR EYE PROTECTION WHEN HANDLING CHEMICALS.
Other Protective Equipment:WHEN DEICING/ANTI-ICING AIRCRAFT, USE A FACE SHIELD & SLICKER SUIT; DO NOT WEAR CONTACT LENSES. PROVIDE LOCAL EMERGENCY SHOWERS AND EYEWASH STATIONS.
Work Hygienic Practices:ALL USERS SHOULD CONSULT MSDS BEFORE HANDLING THIS MATERIAL. WASH HANDS & FACE AFTER USING THIS PRODUCT. LAUNDER CONTAMINATED CLOTHING BEFORE RESUE.
Supplemental Safety and Health
OTHER ENGINEERING CONTROLS: NONE. TRADE NAME/SYNONYMS: MAX FLIGHT.
CHEMICAL NAMES/SYNONYMS: AMS 1428 TY IV ANTI-ICING/DEICING FLUID.
CHEMICAL FAMILY: GLYCOLS. FORMULA: MIXTURE. PRODUCT CODE: 1003000.
LOCATION: 1594.

===== Physical/Chemical Properties =====

HCC:V5
Boiling Pt:=115.6C, 240.F
Vapor Pres:<0.1 MMHG
Vapor Density:>1, AIR=1
Spec Gravity:1.04

Evaporation Rate & Reference:<1.0 (N-BUTYL ACETATE=1)
Solubility in Water:COMPLETE
Appearance and Odor:GREEN COLORED LIQUID WITH MILD ODOR.

===== Stability and Reactivity Data =====

Stability Indicator/Materials to Avoid:YES
HIGH TEMPERATURES AND STRONG OXIDIZERS.
Stability Condition to Avoid:NONE.
Hazardous Decomposition Products:INCOMPLETE COMBUSTION MAY PRODUCE
OXIDES OF CARBON AND NITROGEN.

===== Disposal Considerations =====

Waste Disposal Methods:PRODUCT IS BIODEGRADABLE. DISPOSE OF WASTE IN
COMPLIANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.

===== Regulatory Information =====

SARA Title III Information:THIS PRODUCT CONTAINS NO SUBSTANCES
REGULATED UNDER SARA III SECTION 313 SUPPLIER NOTIFICATION
REQUIREMENTS.

Federal Regulatory Information:PRODUCT CONTAINS NO MATERIALS LISTED BY
OSHA SUBPART Z (29CFR 1910.1000). ALL COMPONENTS ARE LISTED IN THE
TSCA INVENTORY.

State Regulatory Information:NEW JERSEY RIGHT TO KNOW INFORMATION:
7732-18-5, WATER; 57-55-6, PROPYLENE GLYCOL; TRADE SECRET REGISTRY
NUMBER 148661000000-5015P.

===== Other Information =====

Disclaimer (provided with this information by the compiling agencies):
This information is formulated for use by elements of the Department
of Defense. The United States of America in no manner whatsoever,
expressly or implied, warrants this information to be accurate and
disclaims all liability for its use. Any person utilizing this
document should seek competent professional advice to verify and
assume responsibility for the suitability of this information to their
particular situation.



DEPARTMENT OF THE AIR FORCE
319TH CIVIL ENGINEER SQUADRON
GRAND FORKS AIR FORCE BASE, NORTH DAKOTA

15 SEP 2004

MEMORANDUM FOR Dr. Terry Dwelle, State Health Officer
North Dakota Department of Health
600 East Boulevard Avenue, Dept 301
Bismarck, ND 58505-0200

FROM: 319 CES/CEV
525 Tuskegee Airmen Blvd
Grand Forks AFB, ND 58205-6434

SUBJECT: Environmental Assessment for Grand Forks Air Force Base, North Dakota.

Dear Dr. Dwelle:

The U.S. Air Force is preparing an environmental assessment (EA) on Deicer Recovery. Attached is a copy of the EA. Please review the document and identify any additional resources within your agency's responsibility that may be impacted by the action. Comments should be sent within 15 days of receipt of this letter to:

Mrs. Diane Strom, 319 CES/CEVA
525 Tuskegee Airmen Blvd
Grand Forks AFB, ND 58205-6434

Your assistance in providing information is greatly appreciated. If you have any questions, please call Mrs. Diane Strom at 701-747-6394, or email diane.strom@grandforks.af.mil.

A handwritten signature in black ink, appearing to read "Wayne A. Koop", is positioned above the printed name.

WAYNE A. KOOP, R.E.M.
Environmental Management Flight Chief

Attachment: EA

cc:
North Dakota Game and Fish
State Historical Society of North Dakota

Publisher's Affidavit

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Office of..... }
County of..... }

I hereby certify that the within instrument
was filed in this office for record on the
day of A.D.
at o'clock M. and
was duly recorded in Book
of on page

.....
By Deputy,
.....

.....
Attorney for
.....

2294

AFFIDAVIT OF PUBLICATION

STATE OF NORTH DAKOTA }
COUNTY OF GRAND FORKS }

SS:

1934 of said State and County being
first duly sworn, on oath says:

That { she } is { a representative of the GRAND FORKS HERALD, INC.,
he }

publisher of the Grand Forks Herald, Morning Edition, a daily newspaper of general circulation, printed and published in the City of Grand Forks, in said County and State, and has been during the time hereinafter mentioned, and that the advertisement of

Public Notice - Decker
a printed copy of which is hereto annexed, was printed and published in every copy of the following issues of said newspaper, for a period of 2 time (s) to wit:

<u>9-28</u>	Yr. <u>07</u>	Yr. _____
<u>10-2</u>	Yr. <u>08</u>	Yr. _____
_____	Yr. _____	Yr. _____
_____	Yr. _____	Yr. _____

and that the full amount of the fee for the publication of the annexed notice inures solely to the benefit of the publishers of said newspaper; that no agreement or understanding for a division thereof has been made with any other person and that no part thereof has been agreed to be paid to any person whomsoever and the amount of said fee is \$ 17.94;

That said newspaper was, at the time of the aforesaid publication, the duly elected and qualified Official Newspaper within said County, and qualified in accordance with the law of the State of North Dakota to do legal printing in said County and State.

Publication Fee \$ 17.94

Subscribed and sworn to before me this 11 day of
Oct A.D. 04

Elaine Fawcett

Notary Public, Grand Forks, ND

**AIR FORCE BASE
PUBLIC NOTIFICATION**
Grand Forks Air Force Base has proposed an Aircraft Deicer and anti-icing fluid recovery operation.
An environmental assessment has been conducted and a finding of no significant impact has been determined for this action.
Anyone who would like to view the support documents to this action should contact the 319th Air Refueling Wing Public Affairs Office within the next 30 days at 747-6017.
(September 28, October 2, 2004)

EL
NO
A
7, 2007

News

Public notice

Grand Forks Air Force Base has proposed an aircraft deicer and anti-icing fluid recovery operation.

An environmental assessment has been conducted and a finding of no significant impact has been determined for this action.

Anyone who would like to view the support documents to this action should contact the 319th Air Refueling Wing public affairs office within the next 30 days at 747-5017.

Polling locations for base

Residents living south of Eielson Elementary School, including the off-base housing area and dormitories, are in District-Precinct 18-01 and may vote at Weivoda Carpet Girl, located at 5800

Gateway Dr. in Grand Forks, N.D., from 7 a.m. to 8 p.m. All other base residents are in District-Precinct 19-02 and may vote at the community hall in Emerado from 9 a.m. to 8 p.m. For details call the Grand Forks County auditor at 701-780-8200.

Flu vaccine shortage

The immunization clinic has not received any flu vaccine. Due to strict guidelines because of the shortage, some adjustments will be made on who receives the vaccine. When the vaccine is received information will be posted on the daily administrative messages and on Channel 3. People who received the vaccine at a different location should notify immunizations to have the database updated.

For details call Staff Sgt. Monica Malone at 747-5451.

Childcare guidelines

Individuals regularly caring for another family's child more than 10 hours a week must be licensed to provide care in on-base quarters. This does not include:

- ♦ Individuals who occasionally provide care for a friend or neighbor
- ♦ Individuals providing babysitting on an occasional basis for another family.
- ♦ Teenagers babysitting for families on evenings or weekends.
- ♦ Childcare provided in the parent's own home.
- ♦ Parent cooperatives where one of the parents provides supervision for other parents children on an exchange

basis and no fees are involved.

- ♦ Temporary full-time care of a child during a parent's absence for temporary duty or deployment by the person listed on the AF Form 357, Family Care Plan.

For more information call the family child care office at 747-3158

Street snow removal

Schmitz, Inc. is the contractor responsible for base street and parking lot snow removal.

They are available 24 hours a day, seven days a week to handle any base street or parking lot snow removal issues.

Anyone with questions can call the snow removal hotline at 594-8985. If a question still exists or cannot be resolved, call Tech. Sgt. Ken Bowlin, quality assurance evaluator, at 747-5821.

North Dakota
Department of Commerce

Community Services

Economic
Development & Finance

Tourism

Workforce Development



ry Center

1600 E. Century Ave

Suite 2

PO Box 2057

Bismarck, ND 58502-2057

Phone 701-328-5300

Fax 701-328-5320

www.ndcommerce.com

December 16, 2004

Diane M. Strom
Dept. of the Air Force
319 CES/CEVA
525 Tuskegee Airmen Blvd.
Grand Forks AFB, ND 58205-6434

"Letter of Clearance" In Conformance with the North Dakota Federal Program
Review System - State Application Identifier No.: ND041216-0541.

Dear Ms. Strom:

SUBJECT: FONSI - Deicer Recovery

The above referenced FONSI has been reviewed through the North Dakota Federal
Program Review Process. As a result of the review, clearance is given to the project
only with respect to this consultation process.

If the proposed project changes in duration, scope, description, budget, location or
area of impact, from the project description submitted for review, then it is necessary
to submit a copy of the completed application to this office for further review.

We also request the opportunity for complete review of applications for renewal or
continuation grants within one year after the date of this letter.

Please use the above SAI number for reference to the above project with this office.
Your continued cooperation in the review process is much appreciated.

Sincerely,

A handwritten signature in black ink, appearing to read "James R. Boyd".

James R. Boyd
Manager of Governmental Services

mb





**STATE
HISTORICAL
SOCIETY**
OF NORTH DAKOTA

John Hoeven
Governor of North Dakota

September 30, 2004

North Dakota
State Historical Board

Diane K. Larson
Bismarck - President

Marvin L. Kaiser
Williston - Vice President

Albert I. Berger
Grand Forks - Secretary

Chester E. Nelson, Jr.
Bismarck

Gerold Gemtholz
Valley City

A. Ruric Todd III
Jamestown

Sara Otte Coleman
*Director
Tourism Division*

Kathi Gilmore
State Treasurer

Alvin A. Jaeger
Secretary of State

Douglass Prchal
*Director
Parks and Recreation
Department*

David A. Sprynczynatyk
*Director
Department of Transportation*

John E. Von Rueden
Bismarck

Merlan E. Paaverud, Jr.
Director

Diane Strom, 319 CES/CEVA
525 Tuskegee Airmen Blvd
Grand Forks AFB, ND 58205-6434

ND SHPO Ref.: 97-0527av, Draft FONSI, Deicer Recovery Operation, Grand Forks AFB, ND.

Dear Ms. Strom:

We have reviewed the Finding of No Significant Impact for a deicer recovery operation (draft version) at the Grand Forks Air Force Base, ND.

We have no comments on the draft FONSI.

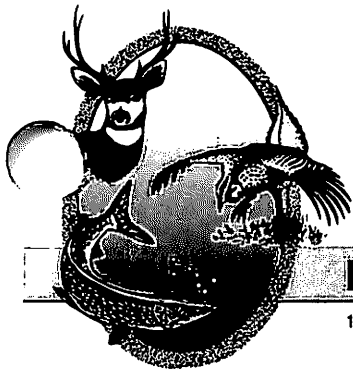
Thank you for the opportunity to review this project. Please include the ND SHPO Reference number listed above in any further correspondence for this specific project. If you have any questions please contact Duane Klinner at (701) 328-3576.

Sincerely,

Duane Klinner for

Merlan E. Paaverud, Jr.
State Historic Preservation Officer
(North Dakota)

Accredited by the
American Association
of Museums



"VARIETY IN HUNTING AND FISHING"

NORTH DAKOTA GAME AND FISH DEPARTMENT

100 NORTH BISMARCK EXPRESSWAY BISMARCK, NORTH DAKOTA 58501-5095 PHONE 701-328-6300 FAX 701-328-6352

September 30, 2004

Diane M. Strom
319 CES/CEVA
525 Tuskegee Airmen Blvd
Grand Forks AFB, ND 58205-6434

Dear Ms. Strom:

RE: FONSI for Deicer Recovery

The North Dakota Game and Fish Department has reviewed this project for wildlife concerns. We do not believe this project will have any significant adverse effects on wildlife or wildlife habitat, including endangered species, based on the information provided.

Sincerely,

A handwritten signature in cursive script that reads "Steve Dyke".

(for) Michael G. McKenna
Chief
Conservation & Communication Division

js

Rec 4 Oct 04

NORTH DAKOTA DEPARTMENT OF HEALTH
Environmental Health Section



Location:

1200 Missouri Avenue
Bismarck, ND 58504-5264

Fax #:

701-328-5200

Mailing Address:

P.O. Box 5520
Bismarck, ND 58506-5520

November 1, 2004

Ms. Diane Strom
319 CES/CEVA
525 Tuskegee Airmen Blvd.
Grand Forks AFB, ND 58205-6434

Re: Environmental Assessment for Deicer Recovery
Grand Forks Air Force Base, Grand Forks County

Dear Ms. Strom:

This department has reviewed the information concerning the above-referenced project submitted under date of September 15, 2004, with respect to possible environmental impacts.

This department believes that environmental impacts from the proposed construction will be minor and can be controlled by proper construction methods. With respect to construction, we have the following comments:

1. Care is to be taken during construction activity near any water of the state to minimize adverse effects on a water body. This includes minimal disturbance of stream beds and banks to prevent excess siltation, and the replacement and revegetation of any disturbed area as soon as possible after work has been completed. Caution must also be taken to prevent spills of oil and grease that may reach the receiving water from equipment maintenance, and/or the handling of fuels on the site. Guidelines for minimizing degradation to waterways during construction are attached.
2. Projects disturbing more than one acre are required to have an NDPDES permit to discharge storm water runoff until the site is stabilized by the reestablishment of vegetation or other permanent cover. For more information on the construction storm water discharge permit, visit the Department's website or contact the Division of Water Quality at (701) 328-5210.

The department owns no land in or adjacent to the proposed improvements, nor does it have any projects scheduled in the area. In addition, we believe the proposed activities are consistent with the State Implementation Plan for the Control of Air Pollution for the State of North Dakota.

Environmental Health
Section Chief's Office
701-328-5150

Air
Quality
701-328-5188

Municipal
Facilities
701-328-5211

Waste
Management
701-328-5166

Water
Quality
701-328-5210

Ms. Diane Strom

2.

November 1, 2004

If you have any questions regarding our comments, please feel free to contact this office.

Sincerely,

A handwritten signature in black ink, appearing to read "L. David Glatt", written over the printed name.

L. David Glatt, P.E., Chief
Environmental Health Section

LDG:cc
Attach.



NORTH DAKOTA DEPARTMENT OF HEALTH

Environmental Health Section

Location:

1200 Missouri Avenue
Bismarck, ND 58504-5264

Fax #:

701-328-5200

Mailing Address:

P.O. Box 5520
Bismarck, ND 58506-5520

December 2000

Construction and Environmental Disturbance Requirements

These represent the minimum requirements of the North Dakota Department of Health. They ensure that minimal environmental degradation occurs as a result of construction or related work which has the potential to affect the waters of the State of North Dakota. All projects will be designed and implemented to restrict the losses or disturbances of soil, vegetative cover, and pollutants (chemical or biological) from a site.

Soils

Prevent the erosion of exposed soil surfaces and trapping sediments being transported. Examples include, but are not restricted to, sediment dams or berms, diversion dikes, hay bales as erosion checks, riprap, mesh or burlap blankets to hold soil during construction, and immediately establishing vegetative cover on disturbed areas after construction is completed. Fragile and sensitive areas such as wetlands, riparian zones, delicate flora, or land resources will be protected against compaction, vegetation loss, and unnecessary damage.

Surface Waters

All construction which directly or indirectly impacts aquatic systems will be managed to minimize impacts. All attempts will be made to prevent the contamination of water at construction sites from fuel spillage, lubricants, and chemicals, by following safe storage and handling procedures. Stream bank and stream bed disturbances will be controlled to minimize and/or prevent silt movement, nutrient upsurges, plant dislocation, and any physical, chemical, or biological disruption. The use of pesticides or herbicides in or near these systems is forbidden without approval from this Department.

Fill Material

Any fill material placed below the high water mark must be free of top soils, decomposable materials, and persistent synthetic organic compounds (in toxic concentrations). This includes, but is not limited to, asphalt, tires, treated lumber, and construction debris. The Department may require testing of fill materials. All temporary fills must be removed. Debris and solid wastes will be removed from the site and the impacted areas restored as nearly as possible to the original condition.

Environmental Health
Section Chief's Office
701-328-5150

Air
Quality
701-328-5188

Municipal
Facilities
701-328-5211

Waste
Management
701-328-5166

Water
Quality
701-328-5210



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 319TH AIR REFUELING WING (AMC)
GRAND FORKS AIR FORCE BASE, NORTH DAKOTA

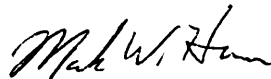
6 December 2004

MEMORANDUM FOR 319 CES/CEVA

FROM: 319 ARW/JA

SUBJECT: Environmental Assessment and FONSI for Deicer Recovery

1. **ISSUE/RECOMMENDATION:** The proposed Environmental Assessment and FONSI are legally sufficient.
2. **LAW:** National Environmental Policy Act, 32 CFR Part 989
3. **FACTS:** GFAPB would purchase or lease all necessary infrastructure modifications and equipment for the collection and disposal of deicing and anti-icing fluid left on the ramp after spraying aircraft.
4. **DISCUSSION:** From a legal viewpoint, the proposed collection does not have a significant environmental impact. The Environmental Assessment describes alternatives and impacts to the environment.
5. If you have any questions, I can be reached at ext. 73618.



MARK W. HANSON, GS-12, DAF
Chief, General Law