



Table of Contents

VOLUME 1

	<u>Page</u>
EXECUTIVE SUMMARY.....	es-1
1.0 PURPOSE AND NEED	1-1
1.1 INTRODUCTION	1-1
1.2 PROGRAM OVERVIEW	1-1
1.3 PURPOSE AND NEED FOR THE PROPOSED ACTION	1-2
1.4 DECISIONS TO BE MADE.....	1-2
1.5 COOPERATING AGENCIES	1-2
1.5.1 FEDERAL AGENCIES	1-2
1.6 SCOPE OF THIS ENVIRONMENTAL IMPACT STATEMENT	1-4
1.6.1 RELATED NMD ACTIONS	1-5
1.6.2 RELATED ENVIRONMENTAL DOCUMENTATION	1-8
1.6.3 IMPACT ANALYSIS.....	1-8
1.7 PUBLIC PARTICIPATION	1-8
1.7.1 SCOPING PROCESS	1-8
1.7.2 SCOPING ISSUES, QUESTIONS, AND CONCERNS.....	1-9
1.7.3 DRAFT EIS PUBLIC REVIEW COMMENTS AND RESPONSES.....	1-9
2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION	2-1
2.1 NMD OBJECTIVES	2-1
2.2 NMD DEPLOYMENT CONCEPT	2-2
2.2.1 GROUND-BASED INTERCEPTORS	2-2
2.2.1.1 Ground-Based Interceptor Facility Design	2-4
2.2.1.2 Operational Concept	2-4
2.2.2 BATTLE MANAGEMENT, COMMAND AND CONTROL	2-11
2.2.2.1 Battle Management, Command and Control Facility Design	2-11
2.2.2.2 Operational Concept	2-11
2.2.3 IN-FLIGHT INTERCEPTOR COMMUNICATIONS SYSTEM.....	2-12
2.2.3.1 In-Flight Interceptor Communications System Facility Data Terminal Design	2-12
2.2.3.2 Operational Concept	2-12
2.2.4 X-BAND RADARS	2-14
2.2.4.1 X-Band Radar Facility Design	2-14
2.2.4.2 Operational Concept	2-16
2.2.5 UPGRADED EARLY WARNING RADAR.....	2-18
2.2.6 EARLY WARNING SATELLITES	2-18
2.2.7 SPACE-BASED INFRARED SYSTEM.....	2-18
2.2.8 NMD TESTING, TRAINING, AND EXERCISE CAPABILITY	2-19
2.2.9 NMD SUPPORT FACILITIES/INFRASTRUCTURE.....	2-19
2.2.9.1 NMD Element Support Infrastructure.....	2-19
2.2.9.2 Fiber Optic Cable Line (Communication Lines)	2-19
2.2.10 BASIC CONSTRUCTION REQUIREMENTS.....	2-20

2.2.11	DECOMMISSIONING AND DISPOSAL	2-20
2.3	NO-ACTION ALTERNATIVE	2-22
2.4	PROPOSED ACTION	2-22
2.4.1	GROUND-BASED INTERCEPTOR DEPLOYMENT ALTERNATIVES	2-22
2.4.1.1	Clear AFS, Alaska	2-24
2.4.1.2	Fort Greely, Alaska	2-26
2.4.1.3	Yukon Training Area (Fort Wainwright)/Eielson AFB	2-29
2.4.1.4	Grand Forks AFB, North Dakota	2-31
2.4.1.5	SRMSC Missile Site Radar, North Dakota	2-34
2.4.2	BMC2 DEPLOYMENT ALTERNATIVES	2-37
2.4.2.1	Clear AFS, Alaska	2-37
2.4.2.2	Fort Greely, Alaska	2-37
2.4.2.3	Yukon Training Area (Fort Wainwright)/Eielson AFB, Alaska	2-38
2.4.2.4	Grand Forks AFB, North Dakota	2-38
2.4.2.5	SRMSC Missile Site Radar, North Dakota	2-38
2.4.3	IN-FLIGHT INTERCEPTOR COMMUNICATIONS SYSTEM DEPLOYMENT ALTERNATIVES	2-38
2.4.4	X-BAND RADAR DEPLOYMENT ALTERNATIVES	2-39
2.4.4.1	Eareckson AS (Shemya Island), Alaska	2-39
2.4.4.2	Cavalier AFS, North Dakota	2-41
2.4.4.3	SRMSC Missile Site Radar, North Dakota	2-43
2.4.4.4	SRMSC Remote Sprint Launch Site 1, North Dakota	2-45
2.4.4.5	SRMSC Remote Sprint Launch Site 2, North Dakota	2-45
2.4.4.6	SRMSC Remote Sprint Launch Site 4, North Dakota	2-48
2.4.5	NMD SUPPORT FACILITIES AND INFRASTRUCTURE	2-50
2.4.5.1	Fiber Optic Cable Line—Alaska	2-50
2.4.5.2	Fiber Optic Cable Line—North Dakota	2-53
2.5	ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD	2-53
2.6	OTHER FUTURE ACTIONS IN THE REGIONS OF PROGRAM ACTIVITIES	2-55
2.7	COMPARISON OF ENVIRONMENTAL IMPACTS	2-57
3.0	AFFECTED ENVIRONMENT	3-1
3.1	INTRODUCTION	3-1
3.1.1	ALASKA INSTALLATIONS	3-1
3.1.2	NORTH DAKOTA INSTALLATIONS	3-4
3.2	AIR QUALITY	3-6
3.2.1	ALASKA INSTALLATIONS	3-9
3.2.1.1	Clear AFS—Air Quality	3-11
3.2.1.2	Eareckson AS—Air Quality	3-12
3.2.1.3	Eielson AFB—Air Quality	3-14

	3.2.1.4	Fort Greely—Air Quality	3-17
	3.2.1.5	Yukon Training Area (Fort Wainwright)—Air Quality	3-17
3.2.2		NORTH DAKOTA INSTALLATIONS	3-19
	3.2.2.1	Cavalier AFS—Air Quality	3-21
	3.2.2.2	Grand Forks AFB—Air Quality	3-22
	3.2.2.3	Missile Site Radar—Air Quality	3-24
	3.2.2.4	Remote Sprint Launch Site 1—Air Quality	3-24
	3.2.2.5	Remote Sprint Launch Site 2—Air Quality	3-24
	3.2.2.6	Remote Sprint Launch Site 4—Air Quality	3-24
3.3		AIRSPACE	3-25
	3.3.1	ALASKA INSTALLATIONS	3-28
	3.3.1.1	Eareckson AS—Airspace	3-28
	3.3.2	NORTH DAKOTA INSTALLATIONS	3-32
	3.3.2.1	Cavalier AFS—Airspace	3-32
	3.3.2.2	Missile Site Radar—Airspace	3-42
	3.3.2.3	Remote Sprint Launch Site 1—Airspace	3-42
	3.3.2.4	Remote Sprint Launch Site 2—Airspace	3-42
	3.3.2.5	Remote Sprint Launch Site 4—Airspace	3-42
3.4		BIOLOGICAL RESOURCES	3-43
	3.4.1	ALASKA INSTALLATIONS	3-43
	3.4.1.1	Clear AFS—Biological Resources	3-43
	3.4.1.2	Eareckson AS—Biological Resources	3-49
	3.4.1.3	Eielson AFB—Biological Resources	3-56
	3.4.1.4	Fort Greely—Biological Resources	3-60
	3.4.1.5	Yukon Training Area (Fort Wainwright)— Biological Resources	3-65
	3.4.1.6	Alaska—Fiber Optic Cable Line—Biological Resources	3-71
	3.4.2	NORTH DAKOTA INSTALLATIONS	3-109
	3.4.2.1	Cavalier AFS—Biological Resources	3-109
	3.4.2.2	Grand Forks AFB—Biological Resources	3-112
	3.4.2.3	Missile Site Radar—Biological Resources	3-116
	3.4.2.4	Remote Sprint Launch Site 1—Biological Resources	3-118
	3.4.2.5	Remote Sprint Launch Site 2—Biological Resources	3-120
	3.4.2.6	Remote Sprint Launch Site 4—Biological Resources	3-122
	3.4.2.7	North Dakota—Fiber Optic Cable Line— Biological Resources	3-124
3.5		CULTURAL RESOURCES	3-126
	3.5.1	ALASKA INSTALLATIONS	3-127
	3.5.1.1	Clear AFS—Cultural Resources	3-135
	3.5.1.2	Eareckson AS—Cultural Resources	3-137
	3.5.1.3	Eielson AFB—Cultural Resources	3-141
	3.5.1.4	Fort Greely—Cultural Resources	3-145

	3.5.1.5	Yukon Training Area (Fort Wainwright)— Cultural Resources	3-149
	3.5.1.6	Alaska—Fiber Optic Cable Line—Cultural Resources	3-151
3.5.2		NORTH DAKOTA INSTALLATIONS.....	3-152
	3.5.2.1	Cavalier AFS—Cultural Resources.....	3-155
	3.5.2.2	Grand Forks AFB—Cultural Resources	3-156
	3.5.2.3	Missile Site Radar—Cultural Resources	3-157
	3.5.2.4	Remote Sprint Launch Site 1—Cultural Resources	3-158
	3.5.2.5	Remote Sprint Launch Site 2—Cultural Resources	3-159
	3.5.2.6	Remote Sprint Launch Site 4—Cultural Resources	3-159
	3.5.2.7	North Dakota—Fiber Optic Cable Line—Cultural Resources	3-160
3.6		GEOLOGY AND SOILS.....	3-161
3.6.1		ALASKA INSTALLATIONS	3-161
	3.6.1.1	Clear AFS—Geology and Soils.....	3-161
	3.6.1.2	Eareckson AS—Geology and Soils	3-164
	3.6.1.3	Eielson AFB—Geology and Soils	3-166
	3.6.1.4	Fort Greely—Geology and Soils	3-168
	3.6.1.5	Yukon Training Area (Fort Wainwright)— Geology and Soils	3-172
	3.6.1.6	Fiber Optic Cable Line—Geology and Soils	3-175
3.6.2		NORTH DAKOTA INSTALLATIONS.....	3-179
	3.6.2.1	Cavalier AFS—Geology and Soils.....	3-179
	3.6.2.2	Grand Forks AFB—Geology and Soils	3-181
	3.6.2.3	Missile Site Radar—Geology and Soils.....	3-182
	3.6.2.4	Remote Sprint Launch Site 1—Geology and Soils	3-184
	3.6.2.5	Remote Sprint Launch Site 2—Geology and Soils	3-185
	3.6.2.6	Remote Sprint Launch Site 4—Geology and Soils	3-185
	3.6.2.7	North Dakota—Fiber Optic Cable Line— Geology and Soils	3-186
3.7		HAZARDOUS MATERIALS AND HAZARDOUS WASTE MANAGEMENT	3-188
3.7.1		ALASKA INSTALLATIONS	3-188
	3.7.1.1	Clear AFS—Hazardous Materials and Hazardous Waste Management	3-188
	3.7.1.2	Eareckson AS—Hazardous Materials and Hazardous Waste Management	3-194
	3.7.1.3	Eielson AFB—Hazardous Materials and Hazardous Waste Management	3-199

3.7.1.4	Fort Greely—Hazardous Materials and Hazardous Waste Management	3-203
3.7.1.5	Yukon Training Area (Fort Wainwright)—Hazardous Materials and Hazardous Waste Management	3-207
3.7.2	NORTH DAKOTA INSTALLATIONS.....	3-208
3.7.2.1	Cavalier AFS—Hazardous Materials and Hazardous Waste Management	3-208
3.7.2.2	Grand Forks AFB—Hazardous Materials and Hazardous Waste Management	3-213
3.7.2.3	Missile Site Radar—Hazardous Materials and Hazardous Waste Management	3-219
3.7.2.4	Remote Sprint Launch Site 1—Hazardous Materials and Hazardous Waste Management.....	3-222
3.7.2.5	Remote Sprint Launch Site 2—Hazardous Materials and Hazardous Waste Management.....	3-224
3.7.2.6	Remote Sprint Launch Site 4—Hazardous Materials and Hazardous Waste Management.....	3-224
3.8	HEALTH AND SAFETY/ELECTROMAGNETIC RADIATION	3-225
3.8.1	ALASKA INSTALLATIONS	3-231
3.8.1.1	Clear AFS—Health and Safety.....	3-231
3.8.1.2	Eareckson AS—Health and Safety	3-233
3.8.1.3	Eielson AFB—Health and Safety	3-237
3.8.1.4	Fort Greely—Health and Safety	3-240
3.8.1.5	Yukon Training Area (Fort Wainwright)—Health and Safety	3-242
3.8.2	NORTH DAKOTA INSTALLATIONS.....	3-244
3.8.2.1	Cavalier AFS—Health and Safety.....	3-244
3.8.2.2	Grand Forks AFB—Health and Safety	3-249
3.8.2.3	Missile Site Radar—Health and Safety	3-252
3.8.2.4	Remote Sprint Launch Site 1—Health and Safety	3-254
3.8.2.5	Remote Sprint Launch Site 2—Health and Safety	3-255
3.8.2.6	Remote Sprint Launch Site 4—Health and Safety	3-256
3.9	LAND USE AND AESTHETICS	3-258
3.9.1	ALASKA INSTALLATIONS	3-258
3.9.1.1	Clear AFS—Land Use.....	3-258
3.9.1.2	Eareckson AS—Land Use	3-261
3.9.1.3	Eielson AFB—Land Use	3-264
3.9.1.4	Fort Greely—Land Use	3-268
3.9.1.5	Yukon Training Area (Fort Wainwright)—Land Use.....	3-272
3.9.2	NORTH DAKOTA INSTALLATIONS.....	3-275
3.9.2.1	Cavalier AFS—Land Use.....	3-275
3.9.2.2	Grand Forks AFB—Land Use.....	3-277

3.9.2.3	Missile Site Radar—Land Use.....	3-281
3.9.2.4	Remote Sprint Launch Site 1—Land Use.....	3-285
3.9.2.5	Remote Sprint Launch Site 2—Land Use.....	3-288
3.9.2.6	Remote Sprint Launch Site 4—Land Use.....	3-291
3.10	NOISE	3-294
3.10.1	ALASKA INSTALLATIONS	3-298
3.10.1.1	Clear AFS—Noise.....	3-298
3.10.1.2	Eareckson AS—Noise	3-299
3.10.1.3	Eielson AFB—Noise	3-299
3.10.1.4	Fort Greely—Noise	3-301
3.10.1.5	Yukon Training Area (Fort Wainwright)—Noise ...	3-301
3.10.2	NORTH DAKOTA INSTALLATIONS.....	3-302
3.10.2.1	Cavalier AFS—Noise.....	3-302
3.10.2.2	Grand Forks AFB—Noise	3-304
3.10.2.3	Missile Site Radar—Noise	3-306
3.10.2.4	Remote Sprint Launch Site 1—Noise.....	3-306
3.10.2.5	Remote Sprint Launch Site 2—Noise.....	3-307
3.10.2.6	Remote Sprint Launch Site 4—Noise.....	3-308
3.11	SOCIOECONOMICS.....	3-310
3.11.1	ALASKA INSTALLATIONS	3-310
3.11.1.1	Clear AFS—Socioeconomics	3-310
3.11.1.2	Eareckson AS—Socioeconomics.....	3-316
3.11.1.3	Eielson AFB—Socioeconomics	3-316
3.11.1.4	Fort Greely—Socioeconomics.....	3-323
3.11.1.5	Yukon Training Area (Fort Wainwright)— Socioeconomics.....	3-329
3.11.2	NORTH DAKOTA INSTALLATIONS.....	3-329
3.11.2.1	Cavalier AFS—Socioeconomics	3-329
3.11.2.2	Grand Forks AFB—Socioeconomics	3-340
3.11.2.3	Missile Site Radar—Socioeconomics	3-350
3.11.2.4	Remote Sprint Launch Site 1—Socioeconomics ..	3-350
3.11.2.5	Remote Sprint Launch Site 2—Socioeconomics ..	3-350
3.11.2.6	Remote Sprint Launch Site 4—Socioeconomics ..	3-352
3.12	TRANSPORTATION.....	3-353
3.12.1	ALASKA INSTALLATIONS	3-353
3.12.1.1	Clear AFS—Transportation	3-355
3.12.1.2	Eielson AFB—Transportation.....	3-356
3.12.1.3	Fort Greely—Transportation.....	3-357
3.12.1.4	Yukon Training Area (Fort Wainwright)— Transportation.....	3-358
3.12.2	NORTH DAKOTA.....	3-359
3.12.2.1	Cavalier AFS—Transportation	3-359
3.12.2.2	Grand Forks AFB—Transportation.....	3-362
3.12.2.3	Missile Site Radar—Transportation.....	3-362
3.12.2.4	Remote Sprint Launch Site 1—Transportation	3-363
3.12.2.5	Remote Sprint Launch Site 2—Transportation	3-364
3.12.2.6	Remote Sprint Launch Site 4—Transportation	3-364

3.13	UTILITIES	3-366
3.13.1	ALASKA INSTALLATIONS	3-366
3.13.1.1	Clear AFS—Utilities	3-366
3.13.1.2	Eareckson AS—Utilities.....	3-370
3.13.1.3	Eielson AFB—Utilities	3-371
3.13.1.4	Fort Greely—Utilities.....	3-374
3.13.1.5	Yukon Training Area (Fort Wainwright)— Utilities.....	3-377
3.13.2	NORTH DAKOTA INSTALLATIONS.....	3-377
3.13.2.1	Cavalier AFS—Utilities	3-377
3.13.2.2	Grand Forks AFB—Utilities	3-380
3.13.2.3	Missile Site Radar—Utilities	3-384
3.13.2.4	Remote Sprint Launch Site 1—Utilities	3-386
3.13.2.5	Remote Sprint Launch Site 2—Utilities	3-387
3.13.2.6	Remote Sprint Launch Site 4—Utilities	3-387
3.14	WATER RESOURCES.....	3-388
3.14.1	ALASKA INSTALLATIONS	3-389
3.14.1.1	Clear AFS—Water Resources	3-389
3.14.1.2	Eareckson AS—Water Resources.....	3-391
3.14.1.3	Eielson AFB—Water Resources	3-395
3.14.1.4	Fort Greely —Water Resources	3-398
3.14.1.5	Yukon Training Area (Fort Wainwright)—Water Resources	3-401
3.14.1.6	Alaska—Fiber Optic Cable Line—Water Resources	3-401
3.14.2	NORTH DAKOTA INSTALLATIONS.....	3-407
3.14.2.1	Cavalier AFS—Water Resources	3-407
3.14.2.2	Grand Forks AFB—Water Resources	3-410
3.14.2.3	Missile Site Radar—Water Resources	3-413
3.14.2.4	Remote Sprint Launch Site 1—Water Resources	3-416
3.14.2.5	Remote Sprint Launch Site 2—Water Resources	3-418
3.14.2.6	Remote Sprint Launch Site 4—Water Resources	3-418
3.14.2.7	North Dakota—Fiber Optic Cable Line—Water Resources	3-421
3.15	ENVIRONMENTAL JUSTICE	3-423
3.15.1	ALASKA INSTALLATIONS	3-423
3.15.1.1	Clear AFS—Environmental Justice	3-426
3.15.1.2	Eareckson AS—Environmental Justice.....	3-426
3.15.1.3	Eielson AFB—Environmental Justice	3-426
3.15.1.4	Fort Greely—Environmental Justice	3-426
3.15.1.5	Yukon Training Area (Fort Wainwright)— Environmental Justice.....	3-427
3.15.2	NORTH DAKOTA INSTALLATIONS.....	3-427
3.15.2.1	Cavalier AFS—Environmental Justice	3-427

3.15.2.2	Grand Forks AFB—Environmental Justice	3-428
3.15.2.3	Missile Site Radar—Environmental Justice	3-428
3.15.2.4	Remote Sprint Launch Site 1—Environmental Justice	3-428
3.15.2.5	Remote Sprint Launch Site 2—Environmental Justice	3-428
3.15.2.6	Remote Sprint Launch Site 4—Environmental Justice	3-429
3.16	SUBSISTENCE	3-430
3.16.1	CLEAR AFS	3-431
3.16.2	EARECKSON AS	3-432
3.16.3	EIELSON AFB	3-432
3.16.4	FORT GREELY	3-432
3.16.5	YUKON TRAINING AREA (FORT WAINWRIGHT)	3-434
3.16.6	WESTERN ALEUTIANS—FIBER OPTIC CABLE ALIGNMENT ..	3-434
3.16.6.1	Communities Potentially Affected by the Project	3-435
3.16.6.2	Community Descriptions	3-436
3.16.6.3	Commercial Fishing in Communities	3-441
3.16.6.4	Subsistence Harvests and Activities in Communities	3-444

VOLUME 2

	<u>Page</u>
4.0 ENVIRONMENTAL CONSEQUENCES	4-1
4.1 INTRODUCTION	4-1
4.2 NO-ACTION ALTERNATIVE	4-2
4.2.1 AIR QUALITY	4-3
4.2.1.1 Alaska Installations	4-3
4.2.1.2 North Dakota Installations	4-6
4.2.2 AIRSPACE	4-9
4.2.2.1 Alaska Installations	4-9
4.2.2.2 North Dakota Installations	4-11
4.2.3 BIOLOGICAL RESOURCES.....	4-14
4.2.3.1 Alaska Installations	4-14
4.2.3.2 North Dakota Installations	4-18
4.2.4 CULTURAL RESOURCES.....	4-21
4.2.4.1 Alaska Installations	4-21
4.2.4.2 North Dakota Installations	4-24
4.2.5 GEOLOGY AND SOILS.....	4-27
4.2.5.1 Alaska Installations	4-27
4.2.5.2 North Dakota Installations	4-30
4.2.6 HAZARDOUS MATERIALS AND HAZARDOUS WASTE MANAGEMENT	4-32
4.2.6.1 Alaska Installations	4-32
4.2.6.2 North Dakota Installations	4-35
4.2.7 HEALTH AND SAFETY	4-39
4.2.7.1 Alaska Installations	4-39
4.2.7.2 North Dakota Installations	4-41
4.2.8 LAND USE AND AESTHETICS	4-44
4.2.8.1 Alaska Installations	4-44
4.2.8.2 North Dakota Installations	4-47
4.2.9 NOISE	4-50
4.2.9.1 Alaska Installations	4-50
4.2.9.2 North Dakota Installations	4-54
4.2.10 SOCIOECONOMICS.....	4-57
4.2.10.1 Alaska Installations	4-57
4.2.10.2 North Dakota Installations	4-59
4.2.11 TRANSPORTATION.....	4-61
4.2.11.1 Alaska Installations	4-61
4.2.11.2 North Dakota Installations	4-63
4.2.12 UTILITIES	4-67
4.2.12.1 Alaska Installations	4-67
4.2.12.2 North Dakota Installations	4-70
4.2.13 WATER RESOURCES.....	4-73
4.2.13.1 Alaska Installations	4-73
4.2.13.2 North Dakota Installations	4-76
4.2.14 ENVIRONMENTAL JUSTICE	4-79

	4.2.14.1	Alaska Installations	4-79
	4.2.14.2	North Dakota Installations	4-81
4.2.15	SUBSISTENCE.....		4-83
	4.2.15.1	Clear AFS—Subsistence.....	4-83
	4.2.15.2	Eareckson AS—Subsistence	4-83
	4.2.15.3	Eielson AFB—Subsistence	4-83
	4.2.15.4	Fort Greely—Subsistence	4-84
	4.2.15.5	Yukon Training Area (Fort Wainwright)— Subsistence	4-84
	4.2.15.6	Alaska—Fiber Optic Cable Line—Subsistence	4-85
4.3	PROPOSED ACTION.....		4-86
	4.3.1	GROUND-BASED INTERCEPTOR	4-86
	4.3.1.1	Air Quality	4-88
	4.3.1.2	Biological Resources	4-109
	4.3.1.3	Cultural Resources	4-123
	4.3.1.4	Geology and Soils	4-132
	4.3.1.5	Hazardous Materials and Hazardous Waste Management	4-138
	4.3.1.6	Health and Safety	4-161
	4.3.1.7	Land Use and Aesthetics.....	4-180
	4.3.1.8	Noise	4-189
	4.3.1.9	Socioeconomics.....	4-202
	4.3.1.10	Transportation	4-222
	4.3.1.11	Utilities.....	4-232
	4.3.1.12	Water Resources.....	4-243
	4.3.1.13	Environmental Justice.....	4-254
	4.3.1.14	Subsistence	4-258
	4.3.2	BMC2	4-261
	4.3.3	IFICS DATA TERMINAL	4-263
	4.3.3.1	Air Quality	4-264
	4.3.3.2	Biological Resources	4-267
	4.3.3.3	Cultural Resources	4-270
	4.3.3.4	Geology and Soils	4-272
	4.3.3.5	Hazardous Materials and Hazardous Waste Management	4-273
	4.3.3.6	Health and Safety	4-276
	4.3.3.7	Land Use and Aesthetics.....	4-278
	4.3.3.8	Noise	4-280
	4.3.3.9	Water Resources.....	4-282
	4.3.3.10	Environmental Justice.....	4-284
	4.3.3.11	Subsistence	4-285
4.3.4	X-BAND RADAR		4-286
	4.3.4.1	Air Quality	4-286
	4.3.4.2	Airspace	4-298
	4.3.4.3	Biological Resources	4-308
	4.3.4.4	Cultural Resources	4-321
	4.3.4.5	Geology and Soils	4-328

4.3.4.6	Hazardous Materials and Hazardous Waste Management	4-333
4.3.4.7	Health and Safety	4-350
4.3.4.8	Land Use and Aesthetics.....	4-378
4.3.4.9	Noise	4-385
4.3.4.10	Socioeconomics.....	4-394
4.3.4.11	Transportation	4-402
4.3.4.12	Utilities.....	4-409
4.3.4.13	Water Resources.....	4-417
4.3.4.14	Environmental Justice.....	4-427
4.3.4.15	Subsistence	4-429
4.3.5	FIBER OPTIC CABLE LINE	4-430
4.3.5.1	Alaska.....	4-433
4.3.5.2	North Dakota.....	4-454
4.4	DECOMMISSIONING AND DISPOSAL	4-459
4.5	UNAVOIDABLE ADVERSE ENVIRONMENTAL EFFECTS	4-460
4.6	RELATIONSHIP BETWEEN LOCAL SHORT-TERM USE OF THE ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY	4-462
4.7	IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES FROM IMPLEMENTATION OF THE PROPOSED ACTION	4-462
4.8	COMPATIBILITY OF THE PROPOSED ACTION AND NO-ACTION ALTERNATIVE WITH THE OBJECTIVES OF FEDERAL, REGIONAL, STATE, AND LOCAL LAND USE PLANS, POLICIES AND CONTROLS.	4-462
5.0	CONSULTATION AND COORDINATION.....	5-1
6.0	LIST OF PREPARERS	6-1
7.0	REFERENCES.....	7-1
8.0	INDEX	8-1

VOLUME 3

	<u>Page</u>
9.0 PUBLIC REVIEW COMMENTS AND RESPONSES	9-1
9.1 NMD DEPLOYMENT DRAFT EIS COMMENTS AND RESPONSES	9-1
9.1.1 WRITTEN COMMENT DOCUMENTS—NMD DEPLOYMENT DRAFT EIS.....	9-5
9.1.1.1 Written Comments	9-5
9.1.1.2 Response to Written Comments	9-5
9.1.2 E-MAIL COMMENT DOCUMENTS—NMD DEPLOYMENT DRAFT EIS.....	9-151
9.1.2.1 E-Mail Comments	9-151
9.1.2.2 Response to E-Mail Comments	9-151
9.1.3 TRANSCRIPT COMMENT DOCUMENTS—NMD DEPLOYMENT DRAFT EIS.....	9-207
9.1.3.1 Transcript Comments	9-207
9.1.3.2 Response to Transcript Comments	9-207
9.2 UEWR SUPPLEMENT TO THE NMD DEPLOYMENT DRAFT EIS COMMENTS AND RESPONSES	9-387
9.2.1 WRITTEN COMMENT DOCUMENTS—UEWR SUPPLEMENT .	9-391
9.2.1.1 Written Comments	9-391
9.2.1.2 Response to Written Comments	9-391
9.2.2 E-MAIL COMMENT DOCUMENTS—UEWR SUPPLEMENT.....	9-499
9.2.2.1 E-Mail Comments	9-499
9.2.2.2 Response to E-Mail Comments	9-499
9.2.3 TRANSCRIPT COMMENT DOCUMENTS—UEWR SUPPLEMENT	9-512
9.2.3.1 Transcript Comments	9-512
9.2.3.2 Response to Transcript Comments	9-512

VOLUME 4

APPENDICES

A	GLOSSARY OF TERMS AND ACRONYMS/ABBREVIATIONS
B	NOTICE OF INTENT AND NOTICE OF AVAILABILITY
C	ENVIRONMENTAL IMPACT STATEMENT MAILING LIST
D	AGENCY LETTERS AND CERTIFICATIONS
E	ELECTROMAGNETIC RADIATION
F	BIOLOGICAL RESOURCES
G	DRAFT COASTAL CONSISTENCY DETERMINATION
H	UPGRADED EARLY WARNING RADAR ANALYSIS
I	PERMITS

FIGURES

1.4-1	NMD Deployment Decision	1-3
2.2-1	The NMD Concept of Operations	2-3
2.2.1-1	Ground-Based Interceptor, Conceptual Facility Layout	2-5
2.2.1-2	Ground-Based Interceptor Silo, Conceptual Layout	2-7
2.2.1-3	Ground-Based Interceptor Deployment Concept	2-9
2.2.3-1	In-Flight Interceptor Communications System, Conceptual Facility Layout	2-13
2.2.4-1	X-Band Radar, Conceptual Facility Layout	2-15
2.4-1	NMD Element Deployment Options	2-23
2.4.1-1	Potential Ground-Based Interceptor, Clear Air Force Station, Alaska	2-25
2.4.1-2	Potential Ground-Based Interceptor, Fort Greely, Alaska	2-27
2.4.1-3	Potential Ground-Based Interceptor, Yukon Training Area (Fort Wainwright)/Eielson AFB, Alaska	2-30
2.4.1-4	Potential Ground-Based Interceptor and BMC2 Locations, Grand Forks Air Force Base, North Dakota	2-32
2.4.1-5	Potential Ground-Based Interceptor and BMC2 Locations, Missile Site Radar, North Dakota	2-35
2.4.4-1	Potential X-Band Radar Location, Eareckson Air Station, Alaska	2-40
2.4.4-2	Potential X-Band Radar Location, Cavalier Air Force Station, North Dakota	2-42
2.4.4-3	Potential X-Band Radar Location, Missile Site Radar, North Dakota ...	2-44
2.4.4-4	Potential X-Band Radar Location, Remote Sprint Launch Site 1, North Dakota	2-46
2.4.4-5	Potential X-Band Radar Location, Remote Sprint Launch Site 2, North Dakota	2-47
2.4.4-6	Potential X-Band Radar Location, Remote Sprint Launch Site 4, North Dakota	2-49
2.4.5-1	Whittier or Seward to Eareckson Air Station Fiber Optic Cable Line Alignment, Alaska	2-51
2.4.5-2	Ocean Fiber Optic Cable Line Laying Concept, Alaska	2-52
3.3-1	The Six Classes of Non-Military Airspace	3-26
3.3-2	Low and High Altitude En Route Airways and Jet Routes, Western Aleutians, Alaska	3-30
3.3-3	Special Use Airspace, North Dakota	3-34
3.3-4	Military Training Routes, North Dakota	3-36
3.3-5	Low Altitude Airways, North Dakota	3-38
3.3-6	High Altitude Jet Routes, North Dakota	3-39
3.3-7	Airports/Airfields, North Dakota	3-40
3.4-1	Vegetation, Clear Air Force Station, Alaska	3-44
3.4-2	Wetlands, Clear Air Force Station, Alaska	3-48
3.4-3	Vegetation, Eareckson Air Station, Alaska	3-51
3.4-4	Wetlands, Eareckson Air Station, Alaska	3-55
3.4-5	Vegetation, Eielson Air Force Base, Alaska	3-58

3.4-6	Wetlands, Eielson Air Force Base, Alaska	3-61
3.4-7	Vegetation, Fort Greely, Alaska	3-63
3.4-8	Wetlands, Potential GBI Site, Fort Greely, Alaska	3-66
3.4-9	Vegetation, Yukon Training Area, Alaska	3-68
3.4-10	Wetlands, Potential GBI Site, Yukon Training Area, Alaska	3-70
3.4-11	Vegetation, Cavalier Air Station, North Dakota	3-111
3.4-12	Vegetation and Wetlands, Grand Forks Air Force Base, North Dakota.....	3-113
3.4-13	Vegetation and Wetlands, Missile Site Radar, North Dakota	3-117
3.4-14	Vegetation and Wetlands, Remote Sprint Launch Site 1, North Dakota.....	3-119
3.4-15	Vegetation and Wetlands, Remote Sprint Launch Site 2, North Dakota.....	3-121
3.4-16	Vegetation and Wetlands, Remote Sprint Launch Site 4, North Dakota.....	3-123
3.7-1	Installation Restoration Program (IRP) Sites, Clear Air Force Station, Alaska	3-191
3.7-2	Installation Restoration Program (IRP) Sites, Eareckson Air Station, Alaska	3-196
3.7-3	Installation Restoration Program (IRP) Sites, Eielson Air Force Base, Alaska.....	3-201
3.7-4	Installation Restoration Program (IRP) Sites, Cavalier Air Force Station, North Dakota	3-211
3.7-5	Installation Restoration Program (IRP) and Solid Waste Management Unit Sites, Grand Forks Air Force Base, North Dakota.....	3-216
3.8-1	Existing Health and Safety Issues, Clear Air Force Station, Alaska ..	3-232
3.8-2	Existing Health and Safety Issues, Eareckson Air Station, Alaska....	3-234
3.8-3	Equipment Distribution at Eareckson Air Station.....	3-236
3.8-4	Existing Health and Safety Issues, Eielson Air Force Base, Alaska...	3-239
3.8-5	Existing Health and Safety Issues, Fort Greely, Alaska	3-241
3.8-6	Fire Protection Status, Fort Greely, Alaska	3-243
3.8-7	Existing Health and Safety Issues, Yukon Training Area, Alaska	3-245
3.8-8	Fire Protection Status, Yukon Training Area, Alaska	3-246
3.8-9	Equipment Distribution in Northeast North Dakota	3-248
3.8-10	Existing Health and Safety Issues, Grand Forks Air Force Base, North Dakota	3-251
3.9-1	Existing Land Use, Clear Air Force Station, Alaska	3-260
3.9-2	Existing Land Use, Eareckson Air Station, Alaska	3-263
3.9-3	Existing Land Use, Eielson Air Force Base, Alaska	3-266
3.9-4	Existing Land Use, Fort Greely, Alaska	3-269
3.9-5	Existing Land Use, Yukon Training Area, Alaska.....	3-273
3.9-6	Existing Land Use, Cavalier Air Force Station, North Dakota	3-278
3.9-7	Existing Land Use, Grand Forks Air Force Base, North Dakota	3-280
3.9-8	Existing Land Use, Missile Site Radar, North Dakota	3-283
3.9-9	Existing Land Use, Remote Sprint Launch Site 1, North Dakota	3-287
3.9-10	Existing Land Use, Remote Sprint Launch Site 2, North Dakota	3-290

3.9–11	Existing Land Use, Remote Sprint Launch Site 4, North Dakota	3-293
3.10–1	Noise Zones, Eielson Air Force Base, Alaska	3-300
3.10–2	Noise Zones, Grand Forks Air Force Base, North Dakota	3-305
3.11–1	Urban Distribution of the Population of Denali Borough	3-311
3.11–2	Alaska Natives as a Proportion of the Total Population in Denali Borough and its Communities, 1990	3-312
3.11–3	The 1990 Distribution of Jobs in Denali Borough	3-312
3.11–4	Median Household Income in Denali Borough and its Communities, 1990	3-314
3.11–5	The Proportion of Residents Earning Below Poverty Level Incomes in Denali Borough and its Communities, 1990	3-314
3.11–6	The Distribution of the Housing Stock of Denali Borough, 1990	3-315
3.11–7	The Ratio of Vacant to Occupied Housing in the Communities of Denali Borough, 1990	3-316
3.11–8	Population Change in Fairbanks North Star Borough 1960-1997	3-317
3.11–9	Population Rate of Growth Index Comparing Alaska and Fairbanks North Star Borough 1960-1997	3-318
3.11–10	Urban Distribution of the Population of Fairbanks North Star Borough	3-318
3.11–11	Urban Distribution of Jobs in Fairbanks North Star Borough, 1990 .	3-319
3.11–12	Median Household Income in Fairbanks North Star Borough and its Surrounding Communities, 1990	3-320
3.11–13	Proportion of Residents Living Beneath the Poverty Level, 1990	3-321
3.11–14	The Distribution of the Housing Stock of Fairbanks North Star Borough, 1990	3-321
3.11–15	The Ratio of Vacant to Occupied Housing in the Communities of Fairbanks North Star Borough, 1990	3-322
3.11–16	Index of Population Growth, Alaska and Southeast Fairbanks Census Area, 1970-1997	3-324
3.11–17	Distribution of the Population of Southeast Fairbanks Census Area, 1990	3-324
3.11–18	Distribution of the Population of Southeast Fairbanks Census Area, 1997	3-325
3.11–19	Distribution of Jobs within the Urban Communities Surrounding Fort Greely, 1990	3-326
3.11–20	Unemployment Rates in the Communities Comprising the ROI, 1990	3-326
3.11–21	Median Household Income in the Communities Surrounding Fort Greely, 1990	3-327
3.11–22	The Proportion of Residents Earning Below Poverty Level Incomes in the Communities Surrounding Fort Greely, 1990	3-327
3.11–23	The Distribution of Housing Among the Communities Surrounding Fort Greely	3-328
3.11–24	The Ratio of Vacant to Occupied Housing in the Communities Surrounding Fort Greely, 1990	3-328
3.11–25	Commuting Patterns in the ROI	3-330
3.11–26	Population Change in the Four-County ROI	3-331

3.11-27	Population Index, Comparing the Four-County Region with North Dakota.....	3-331
3.11-28	1990 Population Density	3-332
3.11-29	Jobs in the ROI	3-333
3.11-30	Index of Job Change in the ROI	3-333
3.11-31	Per Capita Income, 1970-1994	3-335
3.11-32	Retail Sales in the ROI, 1980-1994	3-336
3.11-33	Index of Change in Real Retail Sales in the ROI, 1980-1994	3-336
3.11-34	Per Capita Retail Sales in the ROI, 1980-1994	3-337
3.11-35	Housing Vacancy Rates in the ROI in 1990	3-338
3.11-36	Total Taxable Property Value in the ROI 1996	3-339
3.11-37	Per Capita Local Property Tax 1996	3-339
3.11-38	Per Capita Local Government Expenditure 1992.....	3-340
3.11-39	Agriculture Land as a Percent of Total Taxable Value 1996	3-340
3.11-40	Population Change in the Five-County ROI	3-341
3.11-41	Index of Population Change, Comparing the Five-County Region with North Dakota	3-342
3.11-42	1990 Population Density	3-343
3.11-43	Jobs in the ROI	3-344
3.11-44	Index of Job Change in the ROI	3-344
3.11-45	Per Capita Income, 1970-1994	3-346
3.11-46	The Components of Total Personal Income.....	3-347
3.11-47	Index of the Change in Retail Sales in the ROI, 1980-1994	3-347
3.11-48	Retail Sales in the ROI, 1980-1994	3-348
3.11-49	Housing Vacancy Rates in the ROI in 1990	3-349
3.11-50	Total Taxable Property Value in the ROI 1996	3-350
3.11-51	Per Capita Local Property Tax 1996	3-351
3.11-52	Per Capita Local Government Expenditure 1992.....	3-351
3.11-53	Agriculture Land as a Percent of Total Taxable Value 1996	3-352
3.12-1	Central Alaska Highways, Alaska.....	3-354
3.12-2	Major Roadways in Northeast North Dakota, North Dakota	3-360
3.14-1	Water Resources, Clear Air Force Station, Alaska.....	3-390
3.14-2	Water Resources, Eareckson Air Station, Alaska	3-392
3.14-3	Water Resources, Eielson Air Force Base, Alaska	3-396
3.14-4	Water Resources, Fort Greely, Alaska.....	3-399
3.14-5	General Circulation, North Pacific Ocean, Alaska.....	3-405
3.14-6	Water Resources, Cavalier Air Force Station, North Dakota.....	3-408
3.14-7	Water Resources, Grand Forks Air Force Base, North Dakota	3-411
3.14-8	Water Resources, Missile Site Radar, North Dakota	3-414
3.14-9	Water Resources, Remote Sprint Launch Site 1, North Dakota	3-417
3.14-10	Water Resources, Remote Sprint Launch Site 2, North Dakota	3-419
3.14-11	Water Resources, Remote Sprint Launch Site 4, North Dakota	3-420
3.15-1	Census Areas within the Installation's Region of Influence, Alaska ..	3-424
3.16-1	Commercial Fisheries Regions and Areas, Alaska.....	3-442
4.3.4.7-1	Power Density Levels at Ground Level for the XBR Compared to IEEE Guidelines	4-355

TABLES

1.5–1	Cooperating Agencies	1-3
1.7–1	Scoping Meeting Locations, Dates, and Times	1-9
1.7–2	Public Hearing Locations, Dates, and Times.....	1-10
2–1	NMD Deployment Preferred Alternative.....	2-1
2.2–1	NMD Deployment Element Requirements	2-2
2.2.1–1	Ground-Based Interceptor Facility Requirements.....	2-6
2.2.3–1	In-Flight Interceptor Communications System Facility Requirements.....	2-12
2.2.4–1	X-Band Radar Facility Requirements	2-16
2.4.1–1	NMD System Facility Requirements, Ground-Based Interceptor, Clear AFS, Alaska.....	2-24
2.4.1–2	NMD System Facility Requirements, Ground-Based Interceptor, Fort Greely, Alaska	2-28
2.4.1–3	NMD System Facility Requirements, Ground-Based Interceptor, Yukon Training Area/Eielson AFB, Alaska.....	2-31
2.4.1–4	NMD System Facility Requirements, Ground-Based Interceptor, Grand Forks AFB, North Dakota.....	2-33
2.4.1–5	NMD System Facility Requirements, Ground-Based Interceptor, Missile Site Radar, North Dakota.....	2-36
2.4.4–1	X-Band Radar Facility Requirements, Eareckson AS, Alaska	2-41
2.4.4–2	X-Band Radar Facility Requirements, Missile Site Radar, North Dakota.....	2-43
2.7–1	Summary of Environmental Impacts for the No-action Alternative	2-58
2.7–2	Summary of Environmental Impacts for Deployment of the Ground-Based Interceptor	2-61
2.7–3	Summary of Environmental Impacts for Deployment of the Battle Management Command and Control.....	2-64
2.7–4	Summary of Environmental Impacts for Deployment of the In- Flight Interceptor Communications System (IFICS) Data Terminal	2-66
2.7–5	Summary of Environmental Impacts for Deployment of the X-Band Radar.....	2-67
2.7–6	Summary of Environmental Impacts for Deployment of the Fiber Optic Cable Line.....	2-70
2.7–7	Summary of Environmental Impacts for the Upgraded Early Warning Radars.....	2-71
3.2–1	Permissible PSD Incremental Increase (by Area Classification)	3-9
3.2–2	Federal and Alaska State Ambient Air Quality Standards	3-10
3.2–3	1997 Air Emissions Inventory—Clear AFS.....	3-13
3.2–4	Air Emissions Inventory—Eareckson AS.....	3-14
3.2–5	1997 Air Emission Inventory—Eielson AFB.....	3-15
3.2–6	Fort Greely Assessable Emissions Summary—1997	3-18
3.2–7	Federal and North Dakota State Ambient Air Quality Standards	3-20
3.2–8	1997 Air Emissions Inventory—Cavalier AFS.....	3-22
3.2–9	1997 Air Emissions Inventory—Grand Forks AFB	3-23
3.3–1	Special Use Airspace in the North Dakota Airspace Use ROI	3-35

3.4-1	Sensitive Species with Federal or State Status Under the Endangered Species Act Potentially Occurring in Project Areas.....	3-53
3.4-2	Marine Mammals Potentially Occurring in the Project Area.....	3-98
3.4-3	Summary of 10 Largest Marine Bird Colonies Adjacent to Proposed Fiber Optic Cable Line Route Through Prince William Sound, Alaska.....	3-102
3.4-4	Summary of 10 Largest Marine Bird Colonies Adjacent to Proposed Fiber Optic Cable Line Route Through the Gulf of Alaska	3-103
3.4-5	Summary of 10 Largest Marine Bird Colonies Adjacent to Proposed Fiber Optic Cable Line Route Along the Aleutian Islands and Through the Bering Sea	3-103
3.4-6	Sensitive Species at Grand Forks Air Force Base	3-115
3.6-1	Soils at Cavalier AFS.....	3-180
3.6-2	Soils at Grand Forks AFB.....	3-182
3.6-3	Soils at Missile Site Radar	3-183
3.6-4	Soils at Remote Sprint Launch Site 1.....	3-184
3.6-5	Soils at Remote Sprint Launch Site 2.....	3-185
3.6-6	Soils at Remote Sprint Launch Site 4.....	3-186
3.7-1	IRP Sites at Clear AFS Near Potential NMD Sites.....	3-192
3.7-2	IRP Sites at Eareckson AS Near Potential NMD Sites	3-197
3.8-1	IEEE Personnel Exposure Limits for Uncontrolled Environments.....	3-229
3.8-2	Electroexplosive Standards	3-230
3.9-1	Urban/Populated Areas within 30 Kilometers (19 Miles) of the Cavalier AFS Site	3-276
3.9-2	Urban/Populated Areas within 30 Kilometers (19 Miles) of the Missile Site Radar	3-284
3.9-3	Urban/Populated Areas within 30 Kilometers (19 Miles) of Remote Sprint Launch Site 1	3-286
3.9-4	Urban/Populated Areas within 30 Kilometers (19 Miles) of Remote Sprint Launch Site 2.....	3-289
3.9-5	Urban/Populated Areas within 30 Kilometers (19 Miles) of Remote Sprint Launch Site 4	3-292
3.10-1	Perceived Changes in Loudness due to Changes in Sound Pressure Level	3-294
3.10-2	Noise Levels of Common Sources	3-295
3.10-3	Land Use Compatibility for Noise	3-296
3.10-4	Federal Highway Administration Noise Abatement Criteria	3-297
3.10-5	Noise Levels Expected in Various Areas	3-298
3.10-6	Estimated Traffic Noise Levels for the Fort Greely Area.....	3-302
3.10-7	Estimated Traffic Noise Levels for the Cavalier AFS Area	3-303
3.10-8	Estimated Traffic Noise Levels for Cities Near Cavalier AFS	3-303
3.10-9	Estimated Traffic Noise Levels for the Grand Forks AFB Area.....	3-304
3.10-10	Estimated Traffic Noise Levels for the Missile Site Radar Area.....	3-306
3.10-11	Estimated Traffic Noise Levels for the Remote Sprint Launch Site 1 Area	3-307

3.10–12	Estimated Traffic Noise Levels for the Remote Sprint Launch Site 2 Area	3-308
3.10–13	Estimated Traffic Noise Levels for the Remote Sprint Launch Site 4 Area	3-309
3.12–1	Roadway Levels of Service	3-353
3.12–2	Peak-Hour Traffic Volumes and Levels of Service	3-355
3.12–3	Peak-Hour Traffic Volumes and Levels of Service	3-361
3.15–1	Minority and Low Income Populations for Potential Sites in Alaska ..	3-425
3.15–2	Minority and Low Income Populations for Potential Sites in North Dakota.....	3-427
3.16–1	Coastal Communities from Whittier to Shemya Potentially Affected by the Project	3-436
3.16–2	Demographic Data for Selected Coastal Communities	3-438
3.16–3	Commercial Fisheries Participation and Harvest for Selected Coastal Communities, 1996.....	3-443
3.16–4	Selected Subsistence Harvests and Subsistence Activities for Selected Coastal Communities	3-445
4.3.1.1–1	Anticipated Emergency Generator Emissions	4-90
4.3.1.1–2	Comparison of Current and Projected Annual Emissions Due to Construction of the GBI and BMC2 at Clear AFS.....	4-92
4.3.1.1–3	Comparison of Current and Projected Annual Emissions Due to the Operation of the GBI and BMC2 at Clear AFS	4-93
4.3.1.1–4	Comparison of Current and Projected Annual Emissions Due to Construction of the GBI and BMC2 at Fort Greely	4-95
4.3.1.1–5	Comparison of Current and Projected Annual Emissions Due to the Operation of the GBI and BMC2 at Fort Greely.....	4-96
4.3.1.1–6	Comparison of Current and Projected Annual Emissions Due to Construction of the GBI and BMC2 at Yukon Training Area/Eielson AFB.....	4-98
4.3.1.1–7	Comparison of Current and Projected Annual Emissions Due to the Operation of the GBI and BMC2 at Yukon Training Area/Eielson AFB.....	4-99
4.3.1.1–8	Comparison of Current and Projected Annual Emissions Due to Construction of the GBI and BMC2 at Grand Forks AFB	4-102
4.3.1.1–9	Comparison of Current and Projected Annual Emissions Due to the Operation of the GBI and BMC2 at Grand Forks AFB	4-103
4.3.1.1–10	Comparison of Current and Projected Annual Emissions Due to Construction of the GBI and BMC2 at Missile Site Radar	4-105
4.3.1.1–11	Comparison of Current and Projected Annual Emissions Due to the Operation of the GBI and BMC2 at Missile Site Radar	4-106
4.3.1.5–1	Hazardous Materials and Wastes—Construction Activities	4-139
4.3.1.6–1	Results of Air Force Toxic Program Modeling.....	4-167
4.3.1.8–1	Estimated Traffic Noise for GBI Construction and Operation at Alaskan Sites.....	4-192
4.3.1.8–2	Estimated Traffic Noise for GBI Construction and Operation at North Dakota Sites	4-196
4.3.3.1–1	Potential IFICS-related Construction Emissions.....	4-264

4.3.3.1–2	Anticipated Emergency Generator Emissions	4-265
4.3.3.1–3	Potential IFICS Data Terminal Site Full-Time Generator Emissions ...	4-265
4.3.4.1–1	Comparison of Current and Projected Annual Emissions Due to Construction of the X-Band Radar at Eareckson AS	4-288
4.3.4.1–2	Comparison of Current and Projected Annual Emissions Due to the Operation of the X-Band Radar at Eareckson AS	4-288
4.3.4.1–3	Comparison of Current and Projected Annual Emissions Due to Construction of the X-Band Radar at Cavalier AFS	4-290
4.3.4.1–4	Comparison of Current and Projected Annual Emissions Due to the Operation of the X-Band Radar at Cavalier AFS.....	4-291
4.3.4.1–5	Comparison of Current and Projected Annual Emissions Due to Construction of the X-Band Radar at Missile Site Radar.....	4-293
4.3.4.1–6	Comparison of Current and Projected Annual Emissions Due to the Operation of the X-Band Radar at Missile Site Radar	4-294
4.3.4.1–7	Comparison of Current and Projected Annual Emissions Due to Construction of the X-Band Radar at Remote Sprint Launch Site 1 ..	4-296
4.3.4.6–1	Hazardous Materials and Wastes—Construction Activities	4-334
4.3.4.7–1	Distances Required to Prevent High Power Effects from the XBR to Communications-Electronics Equipment	4-352
4.3.4.7–2	Interference to Fly-by-Wire Aircraft from the X-Band Radar.....	4-353
4.3.4.7–3	Comparison of EMR Exposures	4-356
4.3.4.7–4	Required Separation Distances for Electroexplosive Devices in the Main Beam and Sidelobe of the XBR for the Presence, Shipping, and Handling/Loading Phases	4-357
4.3.4.9–1	Estimated Traffic Noise for XBR Construction and Operation at North Dakota Sites	4-388
4.3.5–1	Summary of Impacts—Plankton, Algae, and Marine Invertebrates ...	4-435
4.3.5–2	Summary of Impacts—Fishes	4-436
4.3.5–3	Summary of Impacts—Fisheries	4-437
4.3.5–4	Summary of Impacts—Terrestrial Habitats.....	4-441
4.3.5–5	Summary of Impacts—Marine Mammals	4-443
4.3.5–6	Summary of Impacts—Marine Birds.....	4-444
4.3.5–7	Summary of Impacts—Endangered, Threatened and Species of Special Concern	4-446
4.3.5–8	Impact Summary—Physical Oceanography	4-451
4.3.5–9	Community-Based Commercial and Subsistence Fishing Impacts ...	4-453
9.1–1	Public Hearing Locations, Dates, and Actual Times.....	9-2
9.1.1–1	Public Comments on the Draft EIS (Written Documents)	9-6
9.1.1–2	Responses to Written Comments	9-130
9.1.2–1	Public Comments on the Draft EIS (E-Mail Documents)	9-151
9.1.2–2	Responses to E-Mail Comments.....	9-201
9.1.3–1	Public Comments on the Draft EIS (Transcript Documents)	9-207
9.1.3–2	Responses to Transcript Comments	9-377
9.2–1	Public Hearing Location, Date, and Actual Time	9-388
9.2.1–1	Public Comments on the UEWR Supplement (Written Documents) ..	9-392
9.2.1–2	Responses to Written Comments	9-477
9.2.2–1	Public Comments on the UEWR Supplement (E-Mail Documents)....	9-500

9.2.2-2	Responses to E-Mail Comments.....	9-510
9.2.3-1	Public Comments on the UEWR Supplement (Transcript Documents).....	9-512
9.2.3-2	Responses to Transcript Comments	9-540

EXHIBITS

9.1.1-1	Reproductions of Written Comment Documents.....	9-10
9.1.2-1	Reproductions of E-Mail Comment Documents.....	9-154
9.1.3-1	Reproductions of Transcript Comment Documents	9-212
9.2.1-1	Reproductions of Written Comment Documents.....	9-393
9.2.2-1	Reproductions of E-Mail Comment Documents.....	9-501
9.2.3-1	Reproductions of Transcript Documents.....	9-513