BAKKEN PIPELINE FACILITY RESPONSE PLAN

GATHERING SYSTEM PIPELINES

GRAYSON MILL OPERATING, LLC

INITIAL – JUNE 2012
AMENDED – NOVEMBER 2017, DECEMBER 2021

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Grayson Exhibit 6 - Facility Response Plan

Timothy Dawson, ALJ - Office of Administrative Hearings

EXHIBIT
6

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RESPONSE PLAN COVER SHEET

This Facility Response Plan (FRP) has been submitted by previous operators to EPA Region 8 for review and approval.

Date Submitted to EPA (Initial)	June 12, 2012 (by Statoil Pipeline LLC)
Date Submitted to EPA (Amended)	November 2, 2017 (by Equinor)

Owner/Operator of Zone:	Grayson Mill Operating, LLC
Zone Name:	GMO Bakken Gathering Pipeline
Zone Address:	GMO Williston Office (Physical) 14689 Brigham Drive Williston, ND 58801
Mailing Address:	GMO Williston Office (Mailing) 14689 Brigham Drive Williston, ND 58801
Facility Phone No.:	None; use contact list for operators' contact information
Largest Aboveground Oil Storage Tank Capacity:	Trenton Oil Facility: 80,000 barrels (bbl) / 3,360,000 gallons
North American Industrial Classification System (NAICS) Code:	486110 – Petroleum pipelines, crude 486210 – Gas, natural, pipeline operation 486910 – Natural Gas liquids pipeline transportation 486990 – Pipeline transportation (except crude oil, natural gas, refined petroleum products) for saltwater byproducts

INTRODUCTION

The purpose of this Regional Pipeline and Hazardous Materials Safety Administration (PHMSA) Plan is to provide guidelines to quickly, safely and effectively respond to a spill. The Gathering System Pipeline (Pipeline) is owned and operated by Grayson Mill Operating, LLC (GMO).

This Plan is intended to satisfy the requirements of the Oil Pollution Act of 1990 (OPA 90) and has been prepared in accordance with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) and the EPA Region 8 Regional Contingency Plan. Specifically, this Plan is intended to satisfy:

- PHMSA U.S. Department of Transportation (DOT) requirements for an OPA 90 plan (49 CFR 194);
- Occupational Safety and Health Administration (OSHA) requirements for emergency response plans (29 CFR 1910); and
- PHMSA DOT requirements for Transportation of Natural Gas and other Gas by Pipeline (49 CFR 192.615).

RECORD OF CHANGE

DATE	SEQUENCE NUMBER	REVISION NUMBER	PREPARED BY
June 2012	NA	Original	Statoil Pipelines LLC
December 2017	3097		Statoil Pipelines LLC
August 2018			Equinor
December 2021			WSP

DATE	PLAN SECTION	DESCRIPTION OF CHANGES
Jun-12	NA	Draft Bakken BU Gathering System ER Plan submitted to Equinor.
Jul-13	NA	Tactical Plans revised and completed
Aug-13	PHMSA 6 - Sensitive Areas / Response Tactics	Updated text and figures. Revised draft Bakken BU Gathering System ER Plan and submitted to Equinor.
	Figure 6.6-1 - Valve Location Maps	
	C - Hazard Evaluation and Risk	
	Analysis C.6 Product Characteristics and	
	Hazards Figure C.6-2 - MSDS	
May-14	NA	Revised draft Bakken BU Gathering System ER Plan and submitted to Equinor.
Sep-15	PHMSA Figure 1C and 6.6-1 DOT regulated pipelines	Updated figures
May-16	Sections 1,3,7 and Appendix A, B and C - Bakken BU Gathering System ER Plan	Updated text and figures. Revised Bakken BU Gathering System ER Plan
	PHMSA 3 - Notifications/Telephone Numbers	
	3.1 Emergency Information and Notification Procedures	
	Table 3-1.3 - Internal Notifications and Telephone Numbers	
	PHMSA 1 - Introduction Distribution List	
	PHMSA 1 - Introduction Information Summary	
	PHMSA 1 - Introduction Figure 1C Overview Map	
	PHMSA 7 - Sustained Response Actions 7.4 Waste Management	
	PHMSA 7 - Facility Specific Disposal Letters	

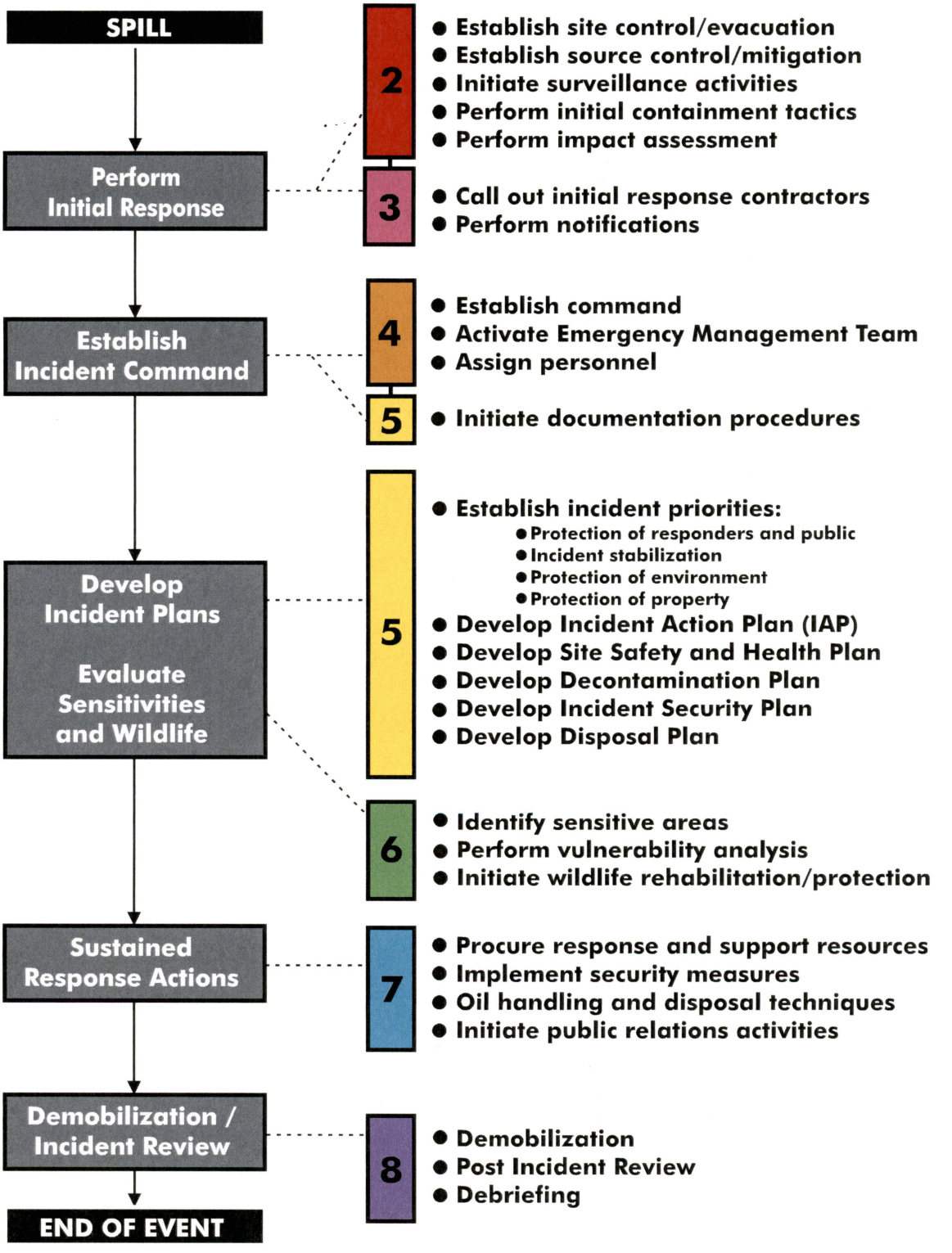
DATE	PLAN SECTION	DESCRIPTION OF CHANGES
	PHMSA B - Contractor Response Equipment. B.1 Cooperatives and Contractors. B1.1 OSRO Classification	
	PHMSA C - Hazard Evaluation and Risk Analysis. C.1 Spill Detection	
	PHMSA C - Hazard Evaluation and Risk Analysis. C.4 Spill Volume Calculations	
May-17	PHMSA 3 - Notifications/Telephone Numbers. 3.1 Emergency Information and Notification Procedures. - Internal Notifications and Telephone Numbers. Emergency Response Personnel and Business Unit Notifications	Updated text and figures.
	PHMSA 1 - Introduction. Figure 1C Overview Map	
	PHMSA 6 - Sensitive Areas/Response Tactics. Figure 6.6-1 Valve Location Map	
	PHMSA B - Contractor Response Equipment. B.1 Cooperatives and Contractors. B1.1 OSRO Classification	
	PHMSA 7 - Sustained Response Actions 7.1 Response Resources. 7.1.1 Response Equipment	
Jun-17	PHMSA 2 - Initial Response Actions. Release Response Sequence Flow Chart	Updated text, figures, and additional information. Revised Bakken BU Gathering System Pipelines submitted to Equinor.
	PHMSA 1 - Introduction. Figure 1C Overview Map. Figure 1D Pipeline System Overview Map	
	PHMSA 6 - Sensitive Areas/Response Tactics. Figure 6.6-1 Valve Location Map.	
	PHMSA 6 - Sensitive Areas/Response Tactics. 6.8 Pipeline Sensitive Maps. 6.9 Tactical Overview Map	
	PHMSA B - Contractor Response Equipment. B.1 Cooperatives and Contractors. B1.1 OSRO Classification	
	PHMSA 7 - Sustained Response Actions. 7.1 Response Resources. Figure 7.1-1 Regional Company and Response Contractor's Equipment List	
	PHMSA 3 - Notifications/Telephone Numbers. 3.1 Emergency Information and Notification Procedures. Internal Notifications and Telephone Numbers. USCG Classified OSRO's/Non-Classified OSRO's	
	PHMSA F - Additional Information	

DATE	PLAN SECTION	DESCRIPTION OF CHANGES
	PHMSA 3 - Notifications/Telephone Numbers. 3.1 Emergency Information and Notification Procedures. Internal Notifications and Telephone Numbers. Emergency Response Personnel and Business Unit Notifications	
Oct-17	PHMSA 3 - Notifications/Telephone Numbers. 3.1 Emergency Information and Notification Procedures. Internal Notifications and Telephone Numbers	Updated text and additional information. Revised sections and submitted to Equinor. DOT Letter of Correction
	PHMSA 1 - Introduction	
	PHMSA F - Additional Information	
Nov-17	PHMSA 1 - Section 1.2 Plan Review and Update Procedure	Revised sections submitted to Equinor.
Dec-17	PHMSA 1 - Introduction 1.4 Agency Submittal/Approval Letters	Revised sections submitted to Equinor.
	DOT Letter of Correction (10/30/2017)	
May-18	PHMSA F - Additional Information	Updated text and figures
	PHMSA 3 - Notifications/Telephone Numbers. 3.1 Emergency Information and Notification Procedures. Internal Notifications and Telephone Numbers	
	PHMSA 1 - Introduction. Information Summary.	
	PHMSA 6 - Sensitive Areas/Response Tactics	
Jun-18	PHMSA F - Additional Information	Updated text, figures, and additional information.
	PHMSA 2 - Initial Response Actions. Release Response Sequence Flow Chart	
Jul-18	PHMSA 3 - Notifications/Telephone Numbers. 3.1 Emergency Information and Notification Procedures. Internal Notifications and Telephone Numbers	Updated text and figures.
	PHMSA A - Training/Exercises	
	PHMSA B - Contractor Response Equipment. B.1 Cooperatives and Contractors. B1.1 OSRO Classification	
	PHMSA 1 - Introduction. Distribution List. Information Summary	
	PHMSA 6 - Sensitive Areas/Response Tactics. Figure 6.6-1 Valve Location Maps	

DATE	PLAN SECTION	DESCRIPTION OF CHANGES
Aug-18	NA	Draft Gathering System Pipelines FRP, Changing Statoil to Equinor
Nov-21	NA	Update FRP, changing Equinor to Grayson Mill Operating, LLC

GRAYSON MILL
ENERGY

Response Procedures Flow Chart



1 INFORMATION SUMMARY

1.1 FACILITY INFORMATION

TABLE 1-1 FACILITY INFORMATION

Owner/Operator of Facility	Grayson Mill Operating, LLC (GMO)
Facility Name:	Bakken Pipeline Facility Response Plan, Gathering System Pipelines
Facility Address (street address or route):	GMO Williston Office 14649 Brigham Drive Williston, ND 58801
Mailing Address:	GMO Williston Office 14649 Brigham Drive Williston, ND 58801
Facility Telephone:	None; use contact list for operators' contact information
Description of Zone:	The pipeline carries Bakken Crude Oil, Bakken Natural Gas Condensate, Bakken Natural Gas Vapor, Bakken Fresh water, and Bakken Saltwater in areas depicted in Figure 1C and Figure 1D.
Included Counties:	Richland and Roosevelt Counties, Montana. McKenzie, Mountrail and Williams Counties, North Dakota.
Alignment Maps:	Maintained at GMO Williston Office
Worst Case Discharge:	Trenton Oil Facility – 80,000 bbl
Spill Detection and Mitigation Procedures:	Refer to Section 2 and Appendix C.
Statement of Significant and Substantial Harm:	The response zone in this system contains all pipelines operated by GMO; some greater than 6 5/8 inches in outside diameter and are longer than 10 miles. The Missouri section of pipeline is 8-inch in diameter and 14.7 miles, crosses a major waterway (Missouri River) and, although the pipeline is greater than 5 miles from public drinking water intake, it is upgradient of a drinking water intake and traverses a wellhead protection area. Therefore, in accordance with 49 CFR 194103 (c), the entire response zone associated with the Missouri line will be treated as if expected to cause significant and substantial harm. A second section of pipeline (East Main1), 8-inches in diameter and 6.69 miles long, crosses the Little Middy River, which is a tributary to the Missouri River, but the confluence is downstream of the drinking water intake.

TABLE 1-2 LINE SECTIONS

SECTION	LENGTH (miles)	DIAMETER	STATE	COUNTIES	PRODUCTS
124th Twin Valley	5.911	6-inch Poly	North Dakota	McKenzie	Saltwater
124th Twin Valley (High-Pressure Gas)	1.409	8-inch Steel	North Dakota	McKenzie	Gas
124th Twin Valley (Low-Pressure Gas)	1.36	10-inch Poly	North Dakota	McKenzie	Gas
159th Two Rivers	2.018	8-inch Poly	North Dakota	McKenzie	Saltwater
31 Bugs	1.65	8-inch Poly	North Dakota	McKenzie	Fresh Water
31 Bugs	1.634	8-inch Poly	North Dakota	McKenzie	Saltwater
31 Bugs	1.68	8-inch Steel	North Dakota	McKenzie	Oil
35th Lee Water Line	0.546	10-inch Poly	North Dakota	McKenzie	Fresh Water
37th Two Rivers	2.933	8-inch Poly	North Dakota	McKenzie	Saltwater
40th Enderud	2.824	10-inch Poly	North Dakota	McKenzie	Gas
40th Enderud	2.86	8-inch Poly	North Dakota	McKenzie	Saltwater
40th Twin Valley	2.8	8-inch Poly	North Dakota	McKenzie	Saltwater
40th Valley (Low-Pressure Gas)	2.955	10-inch Poly	North Dakota	McKenzie	Gas
40th Valley (High-Pressure Gas)	1.565	8-inch Steel	North Dakota	McKenzie	Gas
40th TwinValley (Low-Pressure Gas)	1.716	8-inch Steel	North Dakota	McKenzie	Gas
41st Twin Valley	4.118	8-inch Poly	North Dakota	McKenzie	Saltwater
41st Twin Valley (High-Pressure Gas)	4.539	8-inch Steel	North Dakota	McKenzie	Gas
41st Twin Valley (Low-Pressure Gas)	4.123	8-inch Poly	North Dakota	McKenzie	Gas
41st Twin Valley (Skarston 1-12 1H)	0.111	8-inch Poly	North Dakota	McKenzie	Saltwater
41st Twin Valley (Skarston 1-12 1H)	0.085	8-inch Poly	North Dakota	McKenzie	Gas
Abelmann 23-14 1H	0.057	8-inch Steel	North Dakota	McKenzie	Oil
Abelmann 23-14 1H	0.083	8-inch Poly	North Dakota	McKenzie	Saltwater
Abelmann 23-14 1H	0.051	8-inch Poly	North Dakota	McKenzie	Fresh Water
Abelmann State 21-16 1H	0.008	8-inch Steel	North Dakota	McKenzie	Oil
Abelmann State 21-16 1H	0.039	8-inch Poly	North Dakota	McKenzie	Saltwater
Abelmann State 21-16 1H	0.078	8-inch Poly	North Dakota	McKenzie	Fresh Water

SECTION	LENGTH (miles)	DIAMETER	STATE	COUNTIES	PRODUCTS
Abelmann State 21-16 2H Ron 28-33 1H	0.17	4-inch Poly	North Dakota	McKenzie	Saltwater
Abelmann State 21-16 2H Ron 28-33 1H	0.058	4-inch Poly	North Dakota	McKenzie	Fresh Water
Abelmann State 21-16 2H Ron 28-33 1H	0.064	4-inch Steel	North Dakota	McKenzie	Oil
Albert B 27-34	1.954	4-inch Steel	North Dakota	McKenzie	Oil
Albert B 27-34	1.964	4-inch Poly	North Dakota	McKenzie	Saltwater
Albert B 27-34	1.959	8-inch Poly	North Dakota	McKenzie	Fresh Water
Albert B 27-34 1H 2TFH 6TFH 7H	0.086	8-inch Poly	North Dakota	McKenzie	Fresh Water
Albert B 27-34 1H 2TFH 6TFH 7H	0.053	4.5-inch Poly	North Dakota	McKenzie	Saltwater
Albert B 27-34 1H 2TFH 6TFH 7H	0.065	4.5-inch Poly	North Dakota	McKenzie	Oil
Alexander Belle Fourche	0.184	6-inch Steel	North Dakota	McKenzie	Oil
Banks State 16-21 3H 4TFH, Enderud 9-4 4TFH	0.165	6-inch Poly	North Dakota	McKenzie	Gas
Banks State 16-21 3H 4TFH, Enderud 9-4 4TFH	0.149	6-inch Poly	North Dakota	McKenzie	Saltwater
Banks SWD 1	0.614	8-inch Poly	North Dakota	McKenzie	Saltwater
Banks SWD 2	0.108	6-inch Poly	North Dakota	McKenzie	Saltwater
Beaux 18-19 1H Johnston 7-6 1H	0.214	4.5-inch Poly	North Dakota	McKenzie	Saltwater
Bill & Edna to Timber Creek Flow Line	0.862	10-inch Poly	North Dakota	McKenzie	Fresh Water
Bill & Edna to Timber Creek Flow Line	0.863	8-inch Poly	North Dakota	McKenzie	Saltwater
Bill & Edna to Timber Creek Flow Line	0.867	8-inch Steel	North Dakota	McKenzie	Oil
Bill 14-23 1H 2TFH Edna 11-2 21H 2TFH 7H	0.126	4.5-inch Steel	North Dakota	McKenzie	Oil
Bill 14-23 1H 2TFH Edna 11-2 21H 2TFH 7H	0.128	4.5-inch Poly	North Dakota	McKenzie	Saltwater
Bill 14-23 1H 2TFH Edna 11-2 21H 2TFH 7H	0.181	8-inch Poly	North Dakota	McKenzie	Fresh Water
Bill 14-23 3H 4TFH 5TFH Edna 11-2 3H 4TFH 5TFH 6H	0.105	4-inch Poly	North Dakota	McKenzie	Fresh Water
Bill 14-23 3H 4TFH 5TFH Edna 11-2 3H 4TFH 5TFH 6H	0.142	4-inch Poly	North Dakota	McKenzie	Saltwater
Bill 14-23 3H 4TFH 5TFH Edna 11-2 3H 4TFH 5TFH 6H	0.134	4-inch Steel	North Dakota	McKenzie	Oil
Bratcher 10-3 2H 3TFH, Lonnie 15-22 1H 2TFH	0.241	4-inch Poly	North Dakota	McKenzie	Saltwater
Bratcher 10-3 2H 3TFH, Lonnie 15-22 1H 2TFH	0.218	4-inch Steel	North Dakota	McKenzie	Oil
Bratcher 10-3 2H 3TFH, Lonnie 15-22 1H 2TFH	0.04	8-inch Poly	North Dakota	McKenzie	Fresh Water

SECTION	LENGTH (miles)	DIAMETER	STATE	COUNTIES	PRODUCTS
Bratcher 10-3 4H & Lonnie 15-22 3H & 4TFH	0.263	4-inch Poly	North Dakota	McKenzie	Saltwater
Bratcher 10-3 4H & Lonnie 15-22 3H & 4TFH	0.174	8-inch Poly	North Dakota	McKenzie	Fresh Water
Bratcher 10-3 4H & Lonnie 15-22 3H & 4TFH	0.187	4-inch Steel	North Dakota	McKenzie	Oil
Broderson 30-31 1TFH 2H Garmann 19-18 1H 2TFH	0.032	8-inch Poly	North Dakota	McKenzie	Saltwater
Broderson 30-31 3H 4TFH Garmann 19-18-3H 4TFH	0.105	4-inch Poly	North Dakota	McKenzie	Gas
Broderson 30-31 3H 4TFH Garmann 19-18-3H 4TFH	0.143	4-inch Poly	North Dakota	McKenzie	Saltwater
Bugs 27-22 1H 2TFH 7H Lloyd 34-3 2H 3TFH	0.174	12-inch Poly	North Dakota	McKenzie	Fresh Water
Bugs 27-22 1H 2TFH 7H Lloyd 34-3 2H 3TFH	0.139	4-inch Steel	North Dakota	McKenzie	Oil
Bugs 27-22 1H 2TFH 7H Lloyd 34-3 2H 3TFH	0.065	8-inch Poly	North Dakota	McKenzie	Saltwater
Cathodic Protection 151-101-14	0.169	0-inch	North Dakota	McKenzie	Electricity
Charbon	6.677	8-inch Poly	North Dakota	McKenzie	Fresh Water
Charbon	8.965	8-inch Poly	North Dakota	McKenzie	Saltwater
Charbon	8.988	4-inch Steel	North Dakota	McKenzie	Oil
Cheryl 17-20 #1H & Richard 8-5 #1H	0.255	8-inch Poly	North Dakota	McKenzie	Gas
Cheryl 17-20 #1H & Richard 8-5 #1H	0.235	4-inch Poly	North Dakota	McKenzie	Saltwater
Cheryl 17-20 #1H & Richard 8-5 #1H	0.109	6-inch Steel	North Dakota	McKenzie	Gas
Cheryl 17-20 3TFH 4H & Richard 8-5 #2H	0.099	8-inch Poly	North Dakota	McKenzie	Gas
Cheryl 17-20 3TFH 4H & Richard 8-5 #2H	0.245	4.5-inch Poly	North Dakota	McKenzie	Saltwater
Cheryl 17-20 3TFH 4H & Richard 8-5 #2H	0.253	6-inch Steel	North Dakota	McKenzie	Gas
Cora 20-17 1H 2TFH	1.19	8-inch Poly	North Dakota	McKenzie	Saltwater
Cora 20-17 1H 2TFH	1.181	8-inch Steel	North Dakota	McKenzie	Oil
Cora 20-17 1H 2TFH	0.844	8-inch Poly	North Dakota	McKenzie	Fresh Water
Cora 20-17 3TFH 4H 5H 6TFH	0.061	8-inch Poly	North Dakota	McKenzie	Fresh Water
Cora 20-17 3TFH 4H 5H 6TFH	0.091	8-inch Steel	North Dakota	McKenzie	Oil
Cora 20-17 3TFH 4H 5H 6TFH	0.06	8-inch Poly	North Dakota	McKenzie	Saltwater
Dale 20-17 1H Figaro 29-32 2H	0.16	4-inch Poly	North Dakota	McKenzie	Saltwater
Dale 20-17 1H Figaro 29-32 2H	0.097	4-inch Steel	North Dakota	McKenzie	Oil

SECTION	LENGTH (miles)	DIAMETER	STATE	COUNTIES	PRODUCTS
Dale 20-17 1H Figaro 29-32 2H	0.061	8-inch Poly	North Dakota	McKenzie	Fresh Water
ECS SWD	0.051	8-inch Poly	North Dakota	McKenzie	Saltwater
Enderud 9-4 Banks State 16-21	0.185	6-inch Steel	North Dakota	McKenzie	Gas
Enderud 9-4 Banks State 16-21	0.17	10-inch Poly	North Dakota	McKenzie	Gas
Enderud 9-4 Banks State 16-21	0.151	8-inch Poly	North Dakota	McKenzie	Saltwater
Figaro 29-32 1H	0.081	4-inch Steel	North Dakota	McKenzie	Oil
Figaro 29-32 1H	0.085	12-inch Poly	North Dakota	McKenzie	Fresh Water
Figaro 29-32 1H	0.076	4-inch Poly	North Dakota	McKenzie	Saltwater
Forest 26-35 1H	0.211	4.5-inch Poly	North Dakota	McKenzie	Saltwater
Forest 26-35 1H	0.109	8-inch Poly	North Dakota	McKenzie	Fresh Water
Forest 26-35 1H	0.182	4.5-inch Poly	North Dakota	McKenzie	Oil
Green	3.458	10-inch Poly	North Dakota	McKenzie	Fresh Water
Green	3.459	8-inch Poly	North Dakota	McKenzie	Saltwater
Green	2.479	8-inch Steel	North Dakota	McKenzie	Oil
Greenstein 30-31 1H	0.083	8-inch Poly	North Dakota	McKenzie	Fresh Water
Greenstein 30-31 1H	0.05	4.5-inch Steel	North Dakota	McKenzie	Oil
Greenstein 30-31 1H	0.071	4.5-inch Poly	North Dakota	McKenzie	Saltwater
Greenstein 30-31 3TFH 4H	0.294	8-inch Poly	North Dakota	McKenzie	Fresh Water
Greenstein 30-31 3TFH 4H	0.292	4-inch Poly	North Dakota	McKenzie	Saltwater
Greenstein 30-31 3TFH 4H	0.303	4-inch Steel	North Dakota	McKenzie	Oil
Gunderson 15-22 3H 4TFH 5H	0.188	8-inch Poly	North Dakota	McKenzie	Saltwater
Gunderson 15-22 3H 4TFH 5H	0.229	6-inch Steel	North Dakota	McKenzie	Gas
Heinz 18-19 1H	0.222	4.5-inch Steel	North Dakota	McKenzie	Oil
Heinz 18-19 1H	0.192	8-inch Poly	North Dakota	McKenzie	Saltwater
Hilly 22-15 1H Marvin 27-34 1H	0.146	4.5-inch Poly	North Dakota	McKenzie	Saltwater
Hilly 22-15 1H Marvin 27-34 1H	0.027	8-inch Poly	North Dakota	McKenzie	Fresh Water
Hilly 22-15 1H Marvin 27-34 1H	0.508	4.5-inch Steel	North Dakota	McKenzie	Oil

SECTION	LENGTH (miles)	DIAMETER	STATE	COUNTIES	PRODUCTS
Hovde 33-4 1H	0.121	8-inch Poly	North Dakota	McKenzie	Freshwater
Hovde 33-4 1H	0.176	4.5-inch Poly	North Dakota	McKenzie	Saltwater
Hovde 33-4 1H	0.198	4.5-inch Steel	North Dakota	McKenzie	Oil
Jay 24-13 1H 2H 3TFH 4H 5H Sax 25-36 1H	0.655	8-inch Poly	North Dakota	McKenzie	Saltwater
Knight 35-26 1H	0.1	8-inch Poly	North Dakota	McKenzie	Saltwater
Knight 35-26 1H	0.123	10-inch Poly	North Dakota	McKenzie	Gas
Knight 35-26 1H	0.061	8-inch Steel	North Dakota	McKenzie	Gas
Knight 35-26 1H	0.063	8-inch Steel	North Dakota	McKenzie	Gas
Lloyd 34-3 1H	0.074	8-inch Steel	North Dakota	McKenzie	Oil
Lloyd 34-3 1H	0.057	8-inch Poly	North Dakota	McKenzie	Saltwater
Lloyd 34-3 1H	0.09	8-inch Poly	North Dakota	McKenzie	Fresh Water
Margaret 5-8 1H	0.089	4.5-inch Steel	North Dakota	McKenzie	Oil
Margaret 5-8 1H	0.096	4.5-inch Poly	North Dakota	McKenzie	Saltwater
Margaret 5-8 1H	0.179	8-inch Poly	North Dakota	McKenzie	Fresh Water
Margaret 5-8 3TFH 4H 5H 6TFH	0.104	4-inch Steel	North Dakota	McKenzie	Oil
Margaret 5-8 3TFH 4H 5H 6TFH	0.036	4-inch Poly	North Dakota	McKenzie	Saltwater
Margaret 5-8 3TFH 4H 5H 6TFH	0.215	8-inch Poly	North Dakota	McKenzie	Fresh Water
Maston 34-27 Johnston 7-6	0.046	8-inch Steel	North Dakota	McKenzie	Gas
Missouri	6.915	8-inch Steel	North Dakota	McKenzie	Oil
Missouri	0.015	8-inch Steel	North Dakota	McKenzie	Oil
Mrachek	2.351	8-inch Poly	North Dakota	McKenzie	Fresh Water
Mrachek	3.23	8-inch Poly	North Dakota	McKenzie	Saltwater
Mrachek	3.227	4.5-inch Steel	North Dakota	McKenzie	Oil
Mrachek 15-22 1H	0.038	4.5-inch Steel	North Dakota	McKenzie	Oil
Mrachek 15-22 1H	0.017	8-inch Steel	North Dakota	McKenzie	Fresh Water
Mrachek 15-22 1H	0.043	4.5-inch Poly	North Dakota	McKenzie	Saltwater
Mrachek Trust 22-15 1H	0.102	4-inch Poly	North Dakota	McKenzie	Saltwater

SECTION	LENGTH (miles)	DIAMETER	STATE	COUNTIES	PRODUCTS
Mrachek Trust 22-15 1H	0.085	4-inch Steel	North Dakota	McKenzie	Oil
Mrachek Trust 22-15 1H	0.117	4-inch Poly	North Dakota	McKenzie	Fresh Water
Nohly	1.079	8-inch Poly	North Dakota	McKenzie	Saltwater
Papineau	0.136	4.5-inch Steel	North Dakota	McKenzie	Oil
Papineau	0.195	8-inch Poly	North Dakota	McKenzie	Saltwater
Papineau	0.058	8-inch Poly	North Dakota	McKenzie	Fresh Water
Patent Gate	8.276	8-inch Poly	North Dakota	McKenzie	Fresh Water
Patent Gate	6.422	8-inch Poly	North Dakota	McKenzie	Saltwater
Patent Gate	8.277	8-inch Steel	North Dakota	McKenzie	Oil
Raymond 17-20 1H	0.139	8-inch Poly	North Dakota	McKenzie	Fresh Water
Raymond 17-20 1H	0.045	4.5-inch Steel	North Dakota	McKenzie	Oil
Raymond 17-20 1H	0.07	4.5-inch Poly	North Dakota	McKenzie	Saltwater
Roscoe 2h-8	0.047	8-inch Poly	North Dakota	McKenzie	Saltwater
Roscoe 2h-8	0.063	6-inch Poly	North Dakota	McKenzie	Gas
Safely Trust 28-33 1H	0.105	4.5-inch Steel	North Dakota	McKenzie	Oil
Safely Trust 28-33 1H	0.18	4.5-inch Poly	North Dakota	McKenzie	Saltwater
Safely Trust 28-33 1H	0.107	8-inch Poly	North Dakota	McKenzie	Fresh Water
Samson 29-32 1H 2TFH Topaz 20-17 1H 2TFH	0.178	6-inch Poly	North Dakota	McKenzie	Gas
Samson 29-32 1H 2TFH Topaz 20-17 1H 2TFH	0.188	4-inch Poly	North Dakota	McKenzie	Saltwater
Samson 29-32 3H 4TFH Topaz 3H 4TFH	0.104	4-inch Poly	North Dakota	McKenzie	Saltwater
Samson 29-32 3H 4TFH Topaz 3H 4TFH	0.118	6-inch Poly	North Dakota	McKenzie	Gas
Sax 25-36 1H 2TFH 3H 4TFH 5H 6 TFH 7H	0.052	10-inch Poly	North Dakota	McKenzie	Gas
Sax 25-36 1H 2TFH 3H 4TFH 5H 6 TFH 7H	0.072	8-inch Poly	North Dakota	McKenzie	Saltwater
Sedlacek Trust 33-4 1H	0.256	8-inch Poly	North Dakota	McKenzie	Saltwater
South Alexander	6.261	8-inch Poly	North Dakota	McKenzie	Saltwater
South Alexander	6.827	8-inch Steel	North Dakota	McKenzie	Oil
South Alexander	4.61	8-inch Poly	North Dakota	McKenzie	Fresh Water

SECTION	LENGTH (miles)	DIAMETER	STATE	COUNTIES	PRODUCTS
Stallion 33-28 1H	0.247	4.5-inch Poly	North Dakota	McKenzie	Saltwater
Stallion 33-28 1H	0.191	4.5-inch Steel	North Dakota	McKenzie	Oil
Stallion 33-28 1H	0.039	8-inch Poly	North Dakota	McKenzie	Fresh Water
Timber Creek	8.857	10-inch Poly	North Dakota	McKenzie	Fresh Water
Timber Creek	8.366	8-inch Poly	North Dakota	McKenzie	Saltwater
Timber Creek	10.785	8-inch Steel	North Dakota	McKenzie	Oil
Timber Creek Connect	1.803	8-inch Steel	North Dakota	McKenzie	Oil
Timber Creek Connect	1.804	8-inch Poly	North Dakota	McKenzie	Saltwater
Timber Creek Connect	1.78	8-inch Poly	North Dakota	McKenzie	Fresh Water
Tjelde 29-32 1H	0.092	4.5-inch Steel	North Dakota	McKenzie	Oil
Tjelde 29-32 1H	0.18	8-inch Poly	North Dakota	McKenzie	Fresh Water
Tjelde 29-32 1H	0.106	4.5-inch Poly	North Dakota	McKenzie	Saltwater
Two Rivers Clark 1-35H	0.9	8-inch Poly	North Dakota	McKenzie	Saltwater
Two Rivers SWD	1.821	8-inch Poly	North Dakota	McKenzie	Saltwater
Viking 16-15 1H 3TFH 4H	0.378	4-inch Poly	North Dakota	McKenzie	Saltwater
Viking 16-15 1H 3TFH 4H	0.384	4-inch Steel	North Dakota	McKenzie	Oil
Viking 16-15 1H 3TFH 4H	0.389	8-inch Poly	North Dakota	McKenzie	Fresh Water
Wil E Coyote 9-2H	0.084	6-inch Poly	North Dakota	McKenzie	Saltwater
William 25-36 1H	0.146	8-inch Poly	North Dakota	McKenzie	Fresh Water
William 25-36 1H	0.175	8-inch Poly	North Dakota	McKenzie	Saltwater
William 25-36 1H	0.1	8-inch Steel	North Dakota	McKenzie	Oil
Missouri River Bore	0.838	8-inch Steel	North Dakota	McKenzie & Williams	Oil
4-Way CDP	0.389	20-inch Poly	North Dakota	Mountrail	Gas
56Domaskin	5.664	8-inch Steel	North Dakota	Mountrail	Oil
56Domaskin	3.726	12-inch Poly	North Dakota	Mountrail	Gas
56Domaskin	3.909	4.5-inch Poly	North Dakota	Mountrail	Saltwater
56Domaskin	4.289	8-inch Poly	North Dakota	Mountrail	Saltwater

SECTION	LENGTH (miles)	DIAMETER	STATE	COUNTIES	PRODUCTS
56Domaskin	0.334	4.5-inch Poly	North Dakota	Mountrail	Gas
56Domaskin	0.12	8-inch Poly	North Dakota	Mountrail	Gas
56Panzer	0.007	12-inch Poly	North Dakota	Mountrail	Gas
56Panzer	0.003	4.5-inch Poly	North Dakota	Mountrail	Saltwater
56Panzer	4.47	8-inch Poly	North Dakota	Mountrail	Saltwater
56Panzer	2.896	12-inch Poly	North Dakota	Mountrail	Gas
57Bakke	0.195	6-inch Poly	North Dakota	Mountrail	Gas
57Bakke	0.754	12-inch Poly	North Dakota	Mountrail	Gas
57Bakke	0.954	8-inch Steel	North Dakota	Mountrail	Oil
57Bakke	0.931	4.5-inch Poly	North Dakota	Mountrail	Saltwater
58Holm	2.031	4-inch Steel	North Dakota	Mountrail	Oil
58Holm	1.997	4-inch Poly	North Dakota	Mountrail	Saltwater
58Omar	0.049	6-inch Poly	North Dakota	Mountrail	Gas
58Omar	0.451	12-inch Poly	North Dakota	Mountrail	Gas
58Omar	0.473	4.5-inch Poly	North Dakota	Mountrail	Saltwater
58Omar	0.491	4-inch Steel	North Dakota	Mountrail	Oil
59WestMain	7.484	8-inch Poly	North Dakota	Mountrail	Saltwater
59WestMain	7.476	12-inch Poly	North Dakota	Mountrail	Gas
59WestMain	7.479	8-inch Steel	North Dakota	Mountrail	Oil
59WestMain	2.477	8-inch Poly	North Dakota	Mountrail	Saltwater
60RossAlger	2.606	8-inch Steel	North Dakota	Mountrail	Oil
60RossAlger	2.502	4.5-inch Poly	North Dakota	Mountrail	Gas
60RossAlger	2.608	4.5-inch Poly	North Dakota	Mountrail	Saltwater
61Brown	1.164	12-inch Poly	North Dakota	Mountrail	Gas
61Brown	1.16	4.5-inch Steel	North Dakota	Mountrail	Oil
61Brown	1.113	4.5-inch Poly	North Dakota	Mountrail	Saltwater
61Brown	1.129	6-inch Steel	North Dakota	Mountrail	Oil

SECTION	LENGTH (miles)	DIAMETER	STATE	COUNTIES	PRODUCTS
61Brown	1.134	8-inch Poly	North Dakota	Mountrail	Saltwater
85North	1.244	8-inch Steel	North Dakota	Mountrail	Gas
87North	0.006	6-inch Poly	North Dakota	Mountrail	Gas
87North	1.106	8-inch Poly	North Dakota	Mountrail	Gas
87North	1.078	4.5-inch Poly	North Dakota	Mountrail	Saltwater
87North	1.104	4.5-inch Steel	North Dakota	Mountrail	Oil
90Barstad	1.873	8-inch Poly	North Dakota	Mountrail	Gas
90Barstad	1.65	4.5-inch Poly	North Dakota	Mountrail	Saltwater
90Barstad	1.614	8-inch Poly	North Dakota	Mountrail	Saltwater
90Barstad	1.598	4.5-inch Poly	North Dakota	Mountrail	Saltwater
90Barstad	2.262	8-inch Poly	North Dakota	Mountrail	Saltwater
90Barstad	3.421	8-inch Steel	North Dakota	Mountrail	Oil
90Ross	0.824	8-inch Steel	North Dakota	Mountrail	Oil
93Hynek	1.057	12-inch Poly	North Dakota	Mountrail	Gas
93Hynek	2.109	4.5-inch Poly	North Dakota	Mountrail	Saltwater
93Hynek	2.112	4.5-inch Steel	North Dakota	Mountrail	Oil
93Hynek	2.131	6-inch Steel	North Dakota	Mountrail	Oil
93Hynek	2.119	8-inch Poly	North Dakota	Mountrail	Saltwater
Adix 25 1H	0.087	4.5-inch Steel	North Dakota	Mountrail	Oil
Adix 25 1H	0.067	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Adix 25 1H	0.079	6-inch Poly	North Dakota	Mountrail	Gas
Alger 16-21 1H	0.069	4.5-inch Steel	North Dakota	Mountrail	Oil
Alger 16-21 1H	0.061	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Alger 16-21 1H	0.084	6-inch Poly	North Dakota	Mountrail	Gas
Alger State 16-21 1H Holm 9-4 1H	0.042	4.5-inch Steel	North Dakota	Mountrail	Oil
Alger State 16-21 1H Holm 9-4 1H	0.028	6-inch Poly	North Dakota	Mountrail	Gas
Alger State 16-21 2TFH Holm 9-4 3TFH	0.064	4.5-inch Steel	North Dakota	Mountrail	Oil

SECTION	LENGTH (miles)	DIAMETER	STATE	COUNTIES	PRODUCTS
Alger State 16-21 2TFH Holm 9-4 3TFH	0.085	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Alger State 16-21 2TFH Holm 9-4 3TFH	0.092	6-inch Poly	North Dakota	Mountrail	Gas
Alger State 16-21 3H 4TFH Holm 9-4 4H	0.001	4.5-inch Steel	North Dakota	Mountrail	Oil
Alger State 16-21 3H 4TFH Holm 9-4 4H	0.006	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Alger State 16-21 3H 4TFH Holm 9-4 4H	0.004	6-inch Poly	North Dakota	Mountrail	Gas
Anderson	6.079	12-inch Poly	North Dakota	Mountrail	Gas
Anderson	6.089	8-inch Steel	North Dakota	Mountrail	Oil
Anderson	6.087	4-inch Poly	North Dakota	Mountrail	Saltwater
Anderson	1.998	6-inch Poly	North Dakota	Mountrail	Gas
Anderson 28-33 1H	0.044	4.5-inch Steel	North Dakota	Mountrail	Oil
Anderson 28-33 1H	0.131	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Anderson 28-33 1H	0.089	6-inch Poly	North Dakota	Mountrail	Gas
Anderson 28-33 2TFH 3H	0.156	4.5-inch Steel	North Dakota	Mountrail	Oil
Anderson 28-33 2TFH 3H	0.166	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Anderson 28-33 2TFH 3H	0.153	6-inch Poly	North Dakota	Mountrail	Gas
Anderson 28-33 4TFH	0.154	4.5-inch Steel	North Dakota	Mountrail	Oil
Anderson 28-33 4TFH	0.139	6-inch Poly	North Dakota	Mountrail	Gas
Anderson 28-33 4TFH	0.067	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Arvid Anderson 14-11 1H	0.023	4.5-inch Steel	North Dakota	Mountrail	Oil
Arvid Anderson 14-11 1H	0.044	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Arvid Anderson 14-11 1H	0.025	6-inch Poly	North Dakota	Mountrail	Gas
Arvid Anderson 14-11 2TFH 3H	0.263	12-inch Poly	North Dakota	Mountrail	Gas
Arvid Anderson 14-11 4TFH	0.042	4.5-inch Steel	North Dakota	Mountrail	Oil
Arvid Anderson 14-11 4TFH	0.07	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Arvid Anderson 14-11 4TFH	0.034	6-inch Poly	North Dakota	Mountrail	Gas
Bakke 1-26H Clifford Bakke 26-35 4H	0.132	4.5-inch Steel	North Dakota	Mountrail	Oil
Bakke 1-26H Clifford Bakke 26-35 4H	0.002	8-inch Poly	North Dakota	Mountrail	Saltwater

SECTION	LENGTH (miles)	DIAMETER	STATE	COUNTIES	PRODUCTS
Bakke 1-26H Clifford Bakke 26-35 4H	0.123	6-inch Poly	North Dakota	Mountrail	Gas
Bakke 1-26H Clifford Bakke 26-35 4H	0.14	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Bakke 23 1H	0.061	4.5-inch Steel	North Dakota	Mountrail	Oil
Bakke 23 1H	0.043	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Bakke 23 1H	0.011	6-inch Poly	North Dakota	Mountrail	Gas
Brown 30-19 1H	0.154	8-inch Steel	North Dakota	Mountrail	Oil
Brown 30-19 1H	0.158	12-inch Poly	North Dakota	Mountrail	Gas
Brown 30-19 1H	0.154	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Brown 30-19 1H	0.217	6-inch Steel	North Dakota	Mountrail	Oil
Brown 30-19 1H	0.188	8-inch Poly	North Dakota	Mountrail	Saltwater
Bures 20-29 1TFH 2H Charlie Sorenson 17-8 1H	0.142	6-inch Steel	North Dakota	Mountrail	Gas
Bures 20-29 1TFH 2H Charlie Sorenson 17-8 1H	2.268	4.5-inch Steel	North Dakota	Mountrail	Oil
Bures 20-29 1TFH 2H Charlie Sorenson 17-8 1H	2.194	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Bures 20-29 4TFH Charlie Sorenson 17-8 3TFH	0.174	4.5-inch Steel	North Dakota	Mountrail	Oil
Bures 20-29 4TFH Charlie Sorenson 17-8 3TFH	1.275	12-inch Poly	North Dakota	Mountrail	Gas
Bures-Charlie Sorenson Far East	0.118	8-inch Poly	North Dakota	Mountrail	Saltwater
Bures-Charlie Sorenson Far East	0.122	8-inch Steel	North Dakota	Mountrail	Oil
Bures-Charlie Sorenson Far East	0.158	12-inch Poly	North Dakota	Mountrail	Gas
Bures-Charlie Sorenson Far West	0.279	12-inch Poly	North Dakota	Mountrail	Gas
Bures-Charlie Sorenson Far West	0.19	8-inch Steel	North Dakota	Mountrail	Oil
Bures-Charlie Sorenson Far West	0.196	8-inch Poly	North Dakota	Mountrail	Saltwater
Bures-Charlie Sorenson-93 Hynek	0.028	12-inch Poly	North Dakota	Mountrail	Gas
Bures-Charlie Sorenson-93 Hynek	0.004	8-inch Poly	North Dakota	Mountrail	Saltwater
Carkuff 22 1H	0.067	4.5-inch Steel	North Dakota	Mountrail	Oil
Carkuff 22 1H	0.089	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Carkuff 22 1H	0.072	6-inch Poly	North Dakota	Mountrail	Gas
Clifford Bakke 26-35 1H	0.057	4.5-inch Steel	North Dakota	Mountrail	Oil

SECTION	LENGTH (miles)	DIAMETER	STATE	COUNTIES	PRODUCTS
Clifford Bakke 26-35 1H	0.038	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Clifford Bakke 26-35 1H	0.057	6-inch Poly	North Dakota	Mountrail	Gas
Clifford Bakke 26-35 2H 3H	0.201	4.5-inch Steel	North Dakota	Mountrail	Oil
Clifford Bakke 26-35 2H 3H	0.187	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Clifford Bakke 26-35 2H 3H	0.214	6-inch Poly	North Dakota	Mountrail	Gas
Cvancara 20-17 1H Sorenson 29-32 2H	0.35	4.5-inch Steel	North Dakota	Mountrail	Oil
Cvancara 20-17 1H Sorenson 29-32 2H	0.425	8-inch Poly	North Dakota	Mountrail	Gas
Cvancara 20-17 1H Sorenson 29-32 2H	0.322	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Cvancara 20-17 2TFH 3H 4TFH	0.303	4.5-inch Steel	North Dakota	Mountrail	Oil
Cvancara 20-17 2TFH 3H 4TFH	0.158	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Cvancara 20-17 2TFH 3H 4TFH	0.246	6-inch Poly	North Dakota	Mountrail	Gas
Domaskin 30-31 1H	0.077	4.5-inch Steel	North Dakota	Mountrail	Oil
Domaskin 30-31 1H	0.08	6-inch Poly	North Dakota	Mountrail	Gas
Domaskin 30-31 2H 3H Jack Cvancara 19-18	0.189	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Domaskin 30-31 2H 3H Jack Cvancara 19-18	0.238	6-inch Poly	North Dakota	Mountrail	Gas
Esther Hynek 10-11 1H	0.041	4.5-inch Steel	North Dakota	Mountrail	Oil
Esther Hynek 10-11 1H	0.021	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Esther Hynek 10-11 2TFH 6TFH 7H	0.022	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Esther Hynek 10-11 3H 4TFH	0.02	6-inch Poly	North Dakota	Mountrail	Gas
Esther Hynek 10-11 3H 4TFH	0.046	4-inch Poly	North Dakota	Mountrail	Saltwater
Esther Hynek 10-11 3H 4TFH	0.048	8-inch Steel	North Dakota	Mountrail	Oil
Hospital 31-36 1H	0.028	4.5-inch Steel	North Dakota	Mountrail	Oil
Hospital 31-36 1H	0.023	6-inch Poly	North Dakota	Mountrail	Gas
Hospital 31-36 1H	0.047	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Hospital 31-36 3H 4TFH 5H 6TFH	0.015	8-inch Poly	North Dakota	Mountrail	Gas
Hospital 31-36 3H 4TFH 5H 6TFH	0.297	4-inch Poly	North Dakota	Mountrail	Saltwater
Hynek 2 1H	0.005	8-inch Steel	North Dakota	Mountrail	Oil

SECTION	LENGTH (miles)	DIAMETER	STATE	COUNTIES	PRODUCTS
Jack Cvancara 19-18 1H	0.052	4.5-inch Steel	North Dakota	Mountrail	Oil
Jack Cvancara 19-18 1H	0.083	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Jack Cvancara 19-18 1H	0.041	6-inch Poly	North Dakota	Mountrail	Gas
Jerome Anderson 15-10 1H	0.051	4.5-inch Steel	North Dakota	Mountrail	Oil
Jerome Anderson 15-10 1H	0.056	6-inch Poly	North Dakota	Mountrail	Gas
Jerome Anderson 15-10 1H	0.071	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Jerome Anderson 15-10 2TFH 6H 7TFH	0.097	4.5-inch Steel	North Dakota	Mountrail	Oil
Jerome Anderson 15-10 2TFH 6H 7TFH	0.092	6-inch Poly	North Dakota	Mountrail	Gas
Jerome Anderson 15-10 2TFH 6H 7TFH	0.072	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Liffrig 29-20 1TFH	0.022	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Liffrig 29-20 2H 3TFH 5H	0.073	4.5-inch Steel	North Dakota	Mountrail	Oil
Liffrig 29-20 2H 3TFH 5H	0.055	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Liffrig 29-20 2H 3TFH 5H	0.075	6-inch Poly	North Dakota	Mountrail	Gas
Liffrig 29-20 4H	0.158	4.5-inch Poly	North Dakota	Mountrail	Gas
Liffrig 29-20 4H	0.158	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Liffrig 29-20 4H	0.193	6-inch Steel	North Dakota	Mountrail	Oil
Manitou State 36 1H	0.033	4.5-inch Steel	North Dakota	Mountrail	Oil
Manitou State 36 1H	0.053	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Manitou State 36 1H	0.093	6-inch Poly	North Dakota	Mountrail	Gas
Panzer 22-23 1H 2TFH	0.269	4.5-inch Steel	North Dakota	Mountrail	Oil
Panzer 22-23 1H 2TFH	0.256	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Panzer 22-23 1H 2TFH	0.235	6-inch Poly	North Dakota	Mountrail	Gas
Panzer 22-23 4H 5TFH	0.137	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Roger Sorenson 8-5 2TFH 3H 6TFH	0.375	12-inch Poly	North Dakota	Mountrail	Gas
Roger Sorenson 8-5 2TFH 3H 6TFH	0.393	4-inch Steel	North Dakota	Mountrail	Oil
Roger Sorenson 8-5 2TFH 3H 6TFH	0.41	4-inch Poly	North Dakota	Mountrail	Saltwater
Roger Sorenson 8-5 4TFH 5H	0.003	4.5-inch Steel	North Dakota	Mountrail	Oil

SECTION	LENGTH (miles)	DIAMETER	STATE	COUNTIES	PRODUCTS
Roger Sorenson 8-5 4TFH 5H	0.053	6-inch Poly	North Dakota	Mountrail	Gas
Ross-Alger 6-7 1H	0.003	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Ross-Alger 6-7 2TFH	0.163	4.5-inch Steel	North Dakota	Mountrail	Oil
Ross-Alger 6-7 2TFH	0.139	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Ross-Alger 6-7 2TFH	0.175	6-inch Poly	North Dakota	Mountrail	Gas
Ross-Alger 6-7 3H	0.296	4.5-inch Steel	North Dakota	Mountrail	Oil
Ross-Alger 6-7 3H	0.276	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Ross-Alger 6-7 3H	0.274	6-inch Poly	North Dakota	Mountrail	Gas
Scha 33-34 1H	0.057	4.5-inch Steel	North Dakota	Mountrail	Oil
Scha 33-34 1H	0.075	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Scha 33-34 1H	0.022	6-inch Poly	North Dakota	Mountrail	Gas
Scha 33-34 2TFH	0.135	4.5-inch Steel	North Dakota	Mountrail	Oil
Scha 33-34 2TFH	0.078	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Scha 33-34 2TFH	0.078	6-inch Poly	North Dakota	Mountrail	Gas
Scha 33-34 3H 4TFH	0.173	4.5-inch Steel	North Dakota	Mountrail	Oil
Scha 33-34 3H 4TFH	0.174	6-inch Poly	North Dakota	Mountrail	Gas
Scha 33-34 3H 4TFH	0.143	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Sorenson 29-32 1H	0.005	4.5-inch Steel	North Dakota	Mountrail	Oil
Sorenson 29-32 1H	0.024	4.5-inch Poly	North Dakota	Mountrail	Saltwater
South Ross SWD 1	0.281	8-inch Poly	North Dakota	Mountrail	Saltwater
South Ross SWD 2	0.996	12-inch Poly	North Dakota	Mountrail	Gas
South Ross SWD 2	1.665	8-inch Poly	North Dakota	Mountrail	Saltwater
State-Anderson	1.728	8-inch Steel	North Dakota	Mountrail	Oil
State-Anderson	1.729	4-inch Poly	North Dakota	Mountrail	Saltwater
State-Hynek	2.165	12-inch Poly	North Dakota	Mountrail	Gas
State-Hynek	2.181	8-inch Steel	North Dakota	Mountrail	Oil
State-Hynek	1.027	4-inch Poly	North Dakota	Mountrail	Saltwater

SECTION	LENGTH (miles)	DIAMETER	STATE	COUNTIES	PRODUCTS
Strobeck 27-34 1H	0.11	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Strobeck 27-34 2H 3TFH 4H 5TFH	0.231	4.5-inch Steel	North Dakota	Mountrail	Oil
Strobeck 27-34 2H 3TFH 4H 5TFH	0.186	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Strobeck 27-34 2H 3TFH 4H 5TFH	0.225	6-inch Poly	North Dakota	Mountrail	Gas
Strobeck 27-34 6H 7H 8TFH	0.206	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Vachal 3-34 1H	0.068	4.5-inch Steel	North Dakota	Mountrail	Oil
Vachal 3-34 1H	0.051	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Vachal 3-34 1H	0.088	6-inch Poly	North Dakota	Mountrail	Gas
Vachal 3-34 2TFH	0.195	4.5-inch Steel	North Dakota	Mountrail	Oil
Vachal 3-34 2TFH	0.165	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Vachal 3-34 2TFH	0.191	6-inch Poly	North Dakota	Mountrail	Gas
Vachal 3-34 3H 4TFH	0.033	4.5-inch Steel	North Dakota	Mountrail	Oil
Vachal 3-34 3H 4TFH	0.035	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Vachal 3-34 3H 4TFH	0.036	4.5-inch Poly	North Dakota	Mountrail	Gas
Wright 4-33 1H	0.047	4.5-inch Steel	North Dakota	Mountrail	Oil
Wright 4-33 1H	0.029	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Wright 4-33 1H	0.053	6-inch Poly	North Dakota	Mountrail	Gas
Wright 4-33 2TFH 5H	0.203	4.5-inch Steel	North Dakota	Mountrail	Oil
Wright 4-33 2TFH 5H	0.175	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Wright 4-33 2TFH 5H	0.199	6-inch Poly	North Dakota	Mountrail	Gas
Wright 4-33 3TFH 4H	0.182	4.5-inch Steel	North Dakota	Mountrail	Oil
Wright 4-33 3TFH 4H	0.141	4.5-inch Poly	North Dakota	Mountrail	Saltwater
Wright 4-33 3TFH 4H	0.187	6-inch Poly	North Dakota	Mountrail	Gas
Voss SWD	1.527	8-inch Poly	Montana	Richland	Saltwater
Gobbs	1.959	8-inch Poly	Montana	Roosevelt	Saltwater
Hawkins	1.551	8-inch Poly	Montana	Roosevelt	Saltwater
Lanark	8.239	8-inch Poly	Montana	Roosevelt	Saltwater
Nelson	0.854	8-inch Poly	Montana	Roosevelt	Saltwater
Roosevelt SWD 1	0.643	8-inch Poly	Montana	Roosevelt	Saltwater

SECTION	LENGTH (miles)	DIAMETER	STATE	COUNTIES	PRODUCTS
48Jackson	1.313	4.5-inch Steel	North Dakota	Williams	Oil
48Jackson	1.256	4.5-inch Poly	North Dakota	Williams	Saltwater
48Jackson	1.188	8-inch Poly	North Dakota	Williams	Fresh Water
52Boots	0.538	8-inch Poly	North Dakota	Williams	Fresh Water
52Boots	0.535	4.5-inch Poly	North Dakota	Williams	Saltwater
52Boots	0.538	4.5-inch Steel	North Dakota	Williams	Oil
52Delorme	0.292	8-inch Poly	North Dakota	Williams	Fresh Water
52Delorme	0.303	4.5-inch Poly	North Dakota	Williams	Saltwater
52Delorme	0.307	4.5-inch Steel	North Dakota	Williams	Oil
520x	1.843	8-inch Poly	North Dakota	Williams	Fresh Water
520x	1.903	8-inch Poly	North Dakota	Williams	Saltwater
52Pyramid	1.789	4.5-inch Steel	North Dakota	Williams	Oil
52Pyramid	1.18	6-inch Poly	North Dakota	Williams	Saltwater
52Pyramid	0.424	8-inch Poly	North Dakota	Williams	Fresh Water
54 Heller	0.204	0-inch	North Dakota	Williams	Electricity
54Borsheim	2.806	6-inch Steel	North Dakota	Williams	Oil
54Borsheim	2.799	8-inch Poly	North Dakota	Williams	Saltwater
54Borsheim	2.793	8-inch Poly	North Dakota	Williams	Fresh Water
56Sukut	3.768	8-inch Poly	North Dakota	Williams	Fresh Water
56Sukut	3.871	8-inch Poly	North Dakota	Williams	Saltwater
56Sukut	3.894	6-inch Steel	North Dakota	Williams	Oil
57Strand	2.355	8-inch Poly	North Dakota	Williams	Fresh Water
57Strand	2.357	4.5-inch Poly	North Dakota	Williams	Saltwater
57Strand	2.36	4-inch Steel	North Dakota	Williams	Oil
58Arnson	3.961	6-inch Steel	North Dakota	Williams	Oil
58Arnson	4.454	8-inch Poly	North Dakota	Williams	Fresh Water
58Arnson	4.526	6-inch Poly	North Dakota	Williams	Saltwater

SECTION	LENGTH (miles)	DIAMETER	STATE	COUNTIES	PRODUCTS
60th Melissa 31-30	2.918	8-inch Steel	North Dakota	Williams	Oil
60th Melissa 31-30	3.047	8-inch Poly	North Dakota	Williams	Fresh Water
60th Melissa 31-30	2.924	8-inch Poly	North Dakota	Williams	Saltwater
60th Melissa 31-30 (High-Pressure Gas East)	1.992	8-inch Steel	North Dakota	Williams	Gas
60th Melissa 31-30 (High-Pressure Gas West)	1.536	8-inch Steel	North Dakota	Williams	Gas
62Irgens	1.727	8-inch Poly	North Dakota	Williams	Fresh Water
62Irgens	1.713	8-inch Poly	North Dakota	Williams	Saltwater
62Irgens	1.723	8-inch Steel	North Dakota	Williams	Oil
62Irgens	0.473	8-inch Steel	North Dakota	Williams	Gas
62Irgens North	0.491	8-inch Poly	North Dakota	Williams	Fresh Water
62Irgens North	0.493	8-inch Poly	North Dakota	Williams	Saltwater
62Kalil	2.042	8-inch Poly	North Dakota	Williams	Fresh Water
62Kalil	2.04	4.5-inch Poly	North Dakota	Williams	Saltwater
62Kalil	2.045	4.5-inch Steel	North Dakota	Williams	Oil
62Sam	1	8-inch Poly	North Dakota	Williams	Fresh Water
62Sam	1.056	4.5-inch Poly	North Dakota	Williams	Saltwater
62Sam	1.045	4.5-inch Steel	North Dakota	Williams	Oil
64BCD	3.975	8-inch Poly	North Dakota	Williams	Fresh Water
64BCD	4.015	6-inch Poly	North Dakota	Williams	Saltwater
64BCD	4.031	6-inch Steel	North Dakota	Williams	Oil
A Tufto 18-19 1H L Tufto 7-6 1H	0.114	4.5-inch Steel	North Dakota	Williams	Oil
A Tufto 18-19 1H L Tufto 7-6 1H	0.084	8-inch Poly	North Dakota	Williams	Fresh Water
A Tufto 18-19 1H L Tufto 7-6 1H	0.138	4.5-inch Poly	North Dakota	Williams	Saltwater
Abe	5.683	8-inch Poly	North Dakota	Williams	Fresh Water
Abe	3.02	8-inch Poly	North Dakota	Williams	Saltwater
Abe	6.248	8-inch Steel	North Dakota	Williams	Oil
Abe 30-31 1H	0.032	8-inch Poly	North Dakota	Williams	Fresh Water

SECTION	LENGTH (miles)	DIAMETER	STATE	COUNTIES	PRODUCTS
Abe 30-31 1H	0.123	8-inch Steel	North Dakota	Williams	Oil
Abe 30-31 1H	0.096	8-inch Poly	North Dakota	Williams	Saltwater
Abe Owan 21-16 1H	0.096	4.5-inch Poly	North Dakota	Williams	Saltwater
Abe Owan 21-16 1H	0.079	8-inch Steel	North Dakota	Williams	Oil
Abe Owan 21-16 1H	0.148	4.5-inch Poly	North Dakota	Williams	Fresh Water
Arnson 13-24 1H	0.089	4.5-inch Poly	North Dakota	Williams	Saltwater
Arnson 13-24 1H	0.111	4.5-inch Steel	North Dakota	Williams	Oil
Arnson 13-24 1H	0.051	4.5-inch Poly	North Dakota	Williams	Fresh Water
Aune	6.177	8-inch Poly	North Dakota	Williams	Fresh Water
Aune	8.221	8-inch Poly	North Dakota	Williams	Saltwater
Aune	9.968	8-inch Steel	North Dakota	Williams	Oil
Aune-Savage	1.531	10-inch Steel	North Dakota	Williams	Oil
Bennett	1.765	4.5-inch Steel	North Dakota	Williams	Oil
Bennett	1.815	4.5-inch Poly	North Dakota	Williams	Saltwater
Bennett	1.728	8-inch Poly	North Dakota	Williams	Fresh Water
Blanche 27-22 1H	0.125	4.5-inch Steel	North Dakota	Williams	Oil
Blanche 27-22 1H	0.099	4.5-inch Poly	North Dakota	Williams	Saltwater
Boots 13-24 1H	0.093	4.5-inch Steel	North Dakota	Williams	Oil
Boots 13-24 1H	0.103	8-inch Poly	North Dakota	Williams	Fresh Water
Boots 13-24 1H	0.072	4.5-inch Poly	North Dakota	Williams	Saltwater
Borsheim Trust 33-28	0.169	4.5-inch Poly	North Dakota	Williams	Fresh Water
Borsheim Trust 33-28	0.258	4.5-inch Poly	North Dakota	Williams	Saltwater
Borsheim Trust 33-28	0.223	4.5-inch Steel	North Dakota	Williams	Oil
Brad Olson 9-16 1H	0.057	4.5-inch Poly	North Dakota	Williams	Saltwater
Brad Olson 9-16 1H	0.04	4.5-inch Steel	North Dakota	Williams	Oil
Brad Olson 9-16 2h 3H	0.094	4.5-inch Steel	North Dakota	Williams	Oil
Brad Olson 9-16 2h 3H	0.126	4.5-inch Poly	North Dakota	Williams	Saltwater

SECTION	LENGTH (miles)	DIAMETER	STATE	COUNTIES	PRODUCTS
Brad Olson 9-16 2h 3H	0.09	4.5-inch Poly	North Dakota	Williams	Fresh Water
Cathodic Protection 155-100-7	0.189	0-inch	North Dakota	Williams	Electricity
Cathodic Protection 155-100-7	0.204	0-inch	North Dakota	Williams	Electricity
Charles 3-10 1H Corridor A	0.172	8-inch Poly	North Dakota	Williams	Saltwater
Charles 3-10 1H Corridor A	0.134	4.5-inch Steel	North Dakota	Williams	Oil
Charles 3-10 1H Corridor B	0.146	8-inch Poly	North Dakota	Williams	Saltwater
Charles 3-10 1H Corridor B	0.17	8-inch Poly	North Dakota	Williams	Fresh Water
Charles 3-10 1H Corridor B	0.097	8-inch Steel	North Dakota	Williams	Oil
Dave Arnson 8-5 1H O'Neill 17-20 1H	0.044	8-inch Poly	North Dakota	Williams	Fresh Water
Dave Arnson 8-5 1H O'Neill 17-20 1H	0.296	4-inch Steel	North Dakota	Williams	Oil
Dave Arnson 8-5 1H O'Neill 17-20 1H	0.354	4-inch Poly	North Dakota	Williams	Saltwater
Delorme 12-1 1H	0.124	4-inch Poly	North Dakota	Williams	Saltwater
Delorme 12-1 1H	0.087	4-inch Steel	North Dakota	Williams	Oil
Delorme 12-1 1H	0.082	8-inch Poly	North Dakota	Williams	Fresh Water
Dominek 13-24 1H	0.086	8-inch Poly	North Dakota	Williams	Fresh Water
Dominek 13-24 1H	0.052	4.5-inch Steel	North Dakota	Williams	Oil
Dominek 13-24 1H	0.082	4.5-inch Poly	North Dakota	Williams	Saltwater
Donald 12-1 1H	0.097	8-inch Steel	North Dakota	Williams	Oil
Donald 12-1 1H	0.092	8-inch Poly	North Dakota	Williams	Fresh Water
Donald 12-1 1H	0.133	8-inch Poly	North Dakota	Williams	Saltwater
East Fork	4.488	8-inch Poly	North Dakota	Williams	Fresh Water
East Fork	1.218	8-inch Poly	North Dakota	Williams	Saltwater
East Fork	4.121	8-inch Steel	North Dakota	Williams	Oil
East fork (High-Pressure Gas)	2.269	8-inch Steel	North Dakota	Williams	Gas
East Fork 32-29 Folvag 5-8	0.156	8-inch Steel	North Dakota	Williams	Oil
East Fork 32-29 Folvag 5-8	0.189	8-inch Steel	North Dakota	Williams	Gas
East Fork 32-29 Folvag 5-8	0.174	8-inch Poly	North Dakota	Williams	Saltwater

SECTION	LENGTH (miles)	DIAMETER	STATE	COUNTIES	PRODUCTS
East Fork 32-29 Folvag 5-8	0.184	8-inch Poly	North Dakota	Williams	Fresh Water
East Main 1	1.908	8-inch Poly	North Dakota	Williams	Fresh Water
East Main 1	5.737	8-inch Poly	North Dakota	Williams	Saltwater
East Main 1	6.687	8-inch Steel	North Dakota	Williams	Oil
East Main 2	6.85	8-inch Poly	North Dakota	Williams	Fresh Water
East Main 2	8.684	8-inch Poly	North Dakota	Williams	Saltwater
East Main 2	8.682	8-inch Steel	North Dakota	Williams	Oil
East Main 3	8.4	8-inch Poly	North Dakota	Williams	Fresh Water
East Main 3	8.408	8-inch Steel	North Dakota	Williams	Oil
East Main 3	8.407	8-inch Poly	North Dakota	Williams	Saltwater
Erickson 8-17 1H	0.173	8-inch Poly	North Dakota	Williams	Fresh Water
Erickson 8-17 1H	0.193	4.5-inch Steel	North Dakota	Williams	Oil
Erickson 8-17 1H	0.198	4.5-inch Poly	North Dakota	Williams	Saltwater
Erickson 8-17 3H	0.087	4.5-inch Steel	North Dakota	Williams	Oil
Erickson 8-17 3H	0.085	8-inch Poly	North Dakota	Williams	Fresh Water
Erickson 8-17 3H	0.121	4.5-inch Poly	North Dakota	Williams	Saltwater
Everett 5-8 1H	0.021	6-inch Steel	North Dakota	Williams	Oil
Field 18-19 1H	0.133	4.5-inch Poly	North Dakota	Williams	Saltwater
Field 18-19 1H	0.101	4.5-inch Steel	North Dakota	Williams	Oil
Field 18-19 2H	0.117	4-inch Poly	North Dakota	Williams	Saltwater
Field 18-19 2H	0.061	4-inch Steel	North Dakota	Williams	Oil
Field Trust 7-6 1H Field 18-19 3H	0.089	4-inch Poly	North Dakota	Williams	Fresh Water
Field Trust 7-6 1H Field 18-19 3H	0.284	4-inch Poly	North Dakota	Williams	Saltwater
Field Trust 7-6 1H Field 18-19 3H	0.243	4-inch Steel	North Dakota	Williams	Oil
Field Trust 7-6 3TFH 4 H 5TFH 6J 8TFH	0.064	6-inch Poly	North Dakota	Williams	Saltwater
Field Trust 7-6 3TFH 4 H 5TFH 6J 8TFH	0.157	8-inch Poly	North Dakota	Williams	Fresh Water
Field Trust 7-6 3TFH 4 H 5TFH 6J 8TFH	0.052	6-inch Steel	North Dakota	Williams	Oil

SECTION	LENGTH (miles)	DIAMETER	STATE	COUNTIES	PRODUCTS
Folvag 5-8 1 2 7 8 East Fork 32-29 1 2 7 8	0.151	6-inch Poly	North Dakota	Williams	Saltwater
Folvag 5-8 1 2 7 8 East Fork 32-29 1 2 7 8	0.055	8-inch Steel	North Dakota	Williams	Oil
Folvag 5-8 1 2 7 8 East Fork 32-29 1 2 7 8	0.132	8-inch Poly	North Dakota	Williams	Fresh Water
Folvag 5-8 1 2 7 8 East Fork 32-29 1 2 7 8	0.073	8-inch Steel	North Dakota	Williams	Gas
Gathman 30-19 1H	0.11	4.5-inch Steel	North Dakota	Williams	Oil
Gathman 30-19 1H	0.144	6-inch Poly	North Dakota	Williams	Saltwater
Groethe 27-34 1H	0.083	8-inch Poly	North Dakota	Williams	Fresh Water
Groethe 27-34 1H	0.16	4.5-inch Poly	North Dakota	Williams	Saltwater
Groethe 27-34 1H	0.123	4.5-inch Steel	North Dakota	Williams	Oil
Harvey 15-22 1H Kari 10-3 1H	0.077	4-inch Steel	North Dakota	Williams	Fresh Water
Harvey 15-22 1H Kari 10-3 1H	0.197	4-inch Poly	North Dakota	Williams	Oil
Harvey 15-22 1H Kari 10-3 1H	0.19	4-inch Steel	North Dakota	Williams	Saltwater
Hawkeye 16-21 1H	0.34	8-inch Poly	North Dakota	Williams	Oil
Hawkeye 16-21 1H	0.345	4-inch Poly	North Dakota	Williams	Saltwater
Hawkeye 16-21 1H	0.324	8-inch Poly	North Dakota	Williams	Fresh Water
Heen 26-35 1H	0.046	4-inch Poly	North Dakota	Williams	Saltwater
Heen 26-35 1H	0.045	8-inch Poly	North Dakota	Williams	Fresh Water
Heen 26-35 1H	0.029	4-inch Steel	North Dakota	Williams	Oil
Heen 26-35 1H 3TFH Smith Farm 23-14 2H 3TFH	0.065	4-inch Poly	North Dakota	Williams	Saltwater
Heen 26-35 1H 3TFH Smith Farm 23-14 2H 3TFH	0.073	4-inch Steel	North Dakota	Williams	Oil
Heen 26-35 1H 3TFH Smith Farm 23-14 2H 3TFH	0.067	4-inch Poly	North Dakota	Williams	Fresh Water
Heen 26-35 1H 3TFH Smith Farm 23-14 2H 3TFH	0.114	2-inch Poly	North Dakota	Williams	Fresh Water
Heen 26-35 1H 3TFH Smith Farm 23-14 2H 3TFH	0.114	2-inch Poly	North Dakota	Williams	Fresh Water
Irwin 15-22 1H Russel 10-3 1H	0.053	4-inch Steel	North Dakota	Williams	Oil
Irwin 15-22 1H Russel 10-3 1H	0.102	6-inch Poly	North Dakota	Williams	Saltwater
Irwin 15-22 1H Russel 10-3 1H	0.03	8-inch Poly	North Dakota	Williams	Fresh Water
Irwin 15-22 1H Russel 10-3 1H	0.091	6-inch Poly	North Dakota	Williams	Saltwater

SECTION	LENGTH (miles)	DIAMETER	STATE	COUNTIES	PRODUCTS
Jack 21-16 1H and Ruth 28-33 1H	0.025	6-inch Steel	North Dakota	Williams	Oil
Jack 21-16 1H and Ruth 28-33 1H	0.025	8-inch Poly	North Dakota	Williams	Saltwater
Jack 21-16 1H and Ruth 28-33 1H	0.028	8-inch Poly	North Dakota	Williams	Fresh Water
Jack and Ruth	1.093	4-inch Poly	North Dakota	Williams	Saltwater
Jack and Ruth	1.098	6-inch Steel	North Dakota	Williams	Oil
Jack and Ruth	1.118	8-inch Poly	North Dakota	Williams	Fresh Water
Jack and Ruth	1.101	8-inch Steel	North Dakota	Williams	Gas
Jack Erickson 6-31 1H	0.104	6-inch Poly	North Dakota	Williams	Saltwater
Jackson 35-34 1H	0.056	8-inch Poly	North Dakota	Williams	Fresh Water
Jake 2-11 1H & 2TFH	0.1	8-inch Poly	North Dakota	Williams	Saltwater
Jake 2-11 1H & 2TFH	0.074	12-inch Poly	North Dakota	Williams	Fresh Water
Jake 2-11 1H & 2TFH	0.097	8-inch Steel	North Dakota	Williams	Oil
Jake 2-11 3TFH 4H 5TFH & 6H	0.356	12-inch Poly	North Dakota	Williams	Freshwater
Jake 2-11 3TFH 4H 5TFH & 6H	0.33	8-inch Steel	North Dakota	Williams	Oil
Jake 2-11 3TFH 4H 5TFH & 6H	0.335	8-inch Poly	North Dakota	Williams	Saltwater
Jarold 1H & 2TFH	0.222	4-inch Poly	North Dakota	Williams	Saltwater
Jarold 1H & 2TFH	0.224	4-inch Steel	North Dakota	Williams	Oil
Jarold 1H & 2TFH	0.136	4-inch Poly	North Dakota	Williams	Fresh Water
Judy 22-15 1H	0.148	4-inch Poly	North Dakota	Williams	Fresh Water
Judy 22-15 1H	0.191	6-inch Poly	North Dakota	Williams	Saltwater
Judy 22-15 1H	0.034	4-inch Steel	North Dakota	Williams	Oil
Judy 22-15 1H	0.032	6-inch Poly	North Dakota	Williams	Saltwater
Judy 22-15 1H	0.137	4-inch Steel	North Dakota	Williams	Oil
Judy 22-15 1H	0.163	8-inch Steel	North Dakota	Williams	Gas
Judy 22-15 1H	0.002	8-inch Steel	North Dakota	Williams	Gas
Judy-Irgens Tie-in	0.218	8-inch Poly	North Dakota	Williams	Fresh Water
Judy-Irgens Tie-in	0.402	8-inch Steel	North Dakota	Williams	Oil

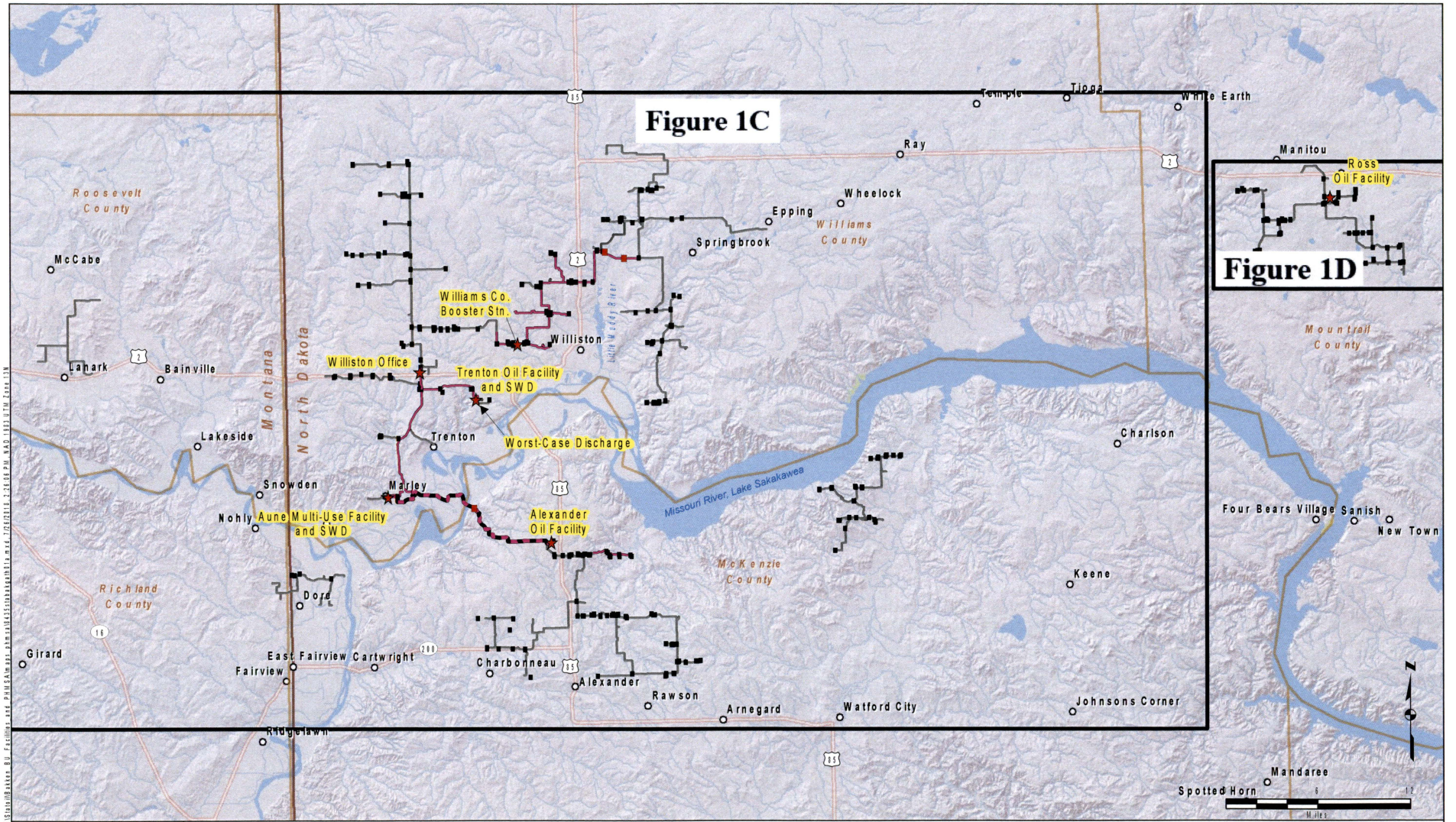
SECTION	LENGTH (miles)	DIAMETER	STATE	COUNTIES	PRODUCTS
Judy-Irgens Tie-in	0.413	6-inch Poly	North Dakota	Williams	Saltwater
Judy-Irgens Tie-in	0.295	8-inch Steel	North Dakota	Williams	Gas
Kalil 25-36 1H	0.102	8-inch Poly	North Dakota	Williams	Fresh Water
Kalil 25-36 1H	0.148	4.5-inch Steel	North Dakota	Williams	Oil
Kalil 25-36 1H	0.127	4.5-inch Poly	North Dakota	Williams	Saltwater
Kalil Farms 14-23 1H MacMaster 11-2 1H	0.299	4.5-inch Steel	North Dakota	Williams	Oil
Kalil Farms 14-23 1H MacMaster 11-2 1H	0.058	8-inch Poly	North Dakota	Williams	Fresh Water
Kalil Farms 14-23 1H MacMaster 11-2 1H	0.229	4.5-inch Poly	North Dakota	Williams	Saltwater
Knoshaug 14-11-1H	5.606	8-inch Poly	North Dakota	Williams	Fresh Water
Knoshaug 14-11-1H	9.39	8-inch Poly	North Dakota	Williams	Saltwater
Knoshaug 14-11-1H	9.348	8-inch Steel	North Dakota	Williams	Oil
Larsen 3-10 1H	0.04	8-inch Poly	North Dakota	Williams	Fresh Water
Larsen 3-10 1H	0.024	4.5-inch Poly	North Dakota	Williams	Saltwater
Larsen 3-10 1H	0.004	4.5-inch Steel	North Dakota	Williams	Oil
Lindale-Irgens Pond	0.058	8-inch Poly	North Dakota	Williams	Fresh Water
Lindale-Irgens Pond	0.052	8-inch Poly	North Dakota	Williams	Fresh Water
Lindale-Larson 3-10 Pond	0.043	8-inch Poly	North Dakota	Williams	Fresh Water
Lindale-Larson 3-10 Pond	0.035	8-inch Poly	North Dakota	Williams	Fresh Water
Lougheed 2-11	1.581	8-inch Steel	North Dakota	Williams	Oil
Lougheed 2-11	1.858	8-inch Steel	North Dakota	Williams	Gas
Lougheed 2-11	1.853	6-inch Poly	North Dakota	Williams	Saltwater
Lougheed 2-11	1.581	8-inch Poly	North Dakota	Williams	Fresh Water
Lucy Hanson 15-22	0.61	8-inch Poly	North Dakota	Williams	Fresh Water
Lucy Hanson 15-22	0.633	8-inch Poly	North Dakota	Williams	Saltwater
Lucy Hanson 15-22	0.631	6-inch Steel	North Dakota	Williams	Oil
Lucy Hanson 15-22 3TFH 4H 5TFH 6H	0.506	6-inch Poly	North Dakota	Williams	Saltwater
Lucy Hanson 15-22 3TFH 4H 5TFH 6H	0.507	6-inch Steel	North Dakota	Williams	Oil

SECTION	LENGTH (miles)	DIAMETER	STATE	COUNTIES	PRODUCTS
Lucy Hanson 15-22 3TFH 4H 5TFH 6H	0.577	8-inch Poly	North Dakota	Williams	Fresh Water
M Macklin 15-22 1H 2TFH 7H	0.472	5-inch Steel	North Dakota	Williams	Oil
M Macklin 15-22 1H 2TFH 7H	0.484	8-inch Poly	North Dakota	Williams	Fresh Water
M Macklin 15-22 1H 2TFH 7H	0.474	5-inch Poly	North Dakota	Williams	Saltwater
M Macklin 15-22 3TFH 4H 5H 6TFH	2.337	8-inch Poly	North Dakota	Williams	Saltwater
M Macklin 15-22 3TFH 4H 5H 6TFH	2.339	6-inch Steel	North Dakota	Williams	Oil
M Macklin 15-22 3TFH 4H 5H 6TFH	2.333	8-inch Poly	North Dakota	Williams	Fresh Water
Marcia 3-10 1H & 2TFH	0.07	8-inch Steel	North Dakota	Williams	Oil
Marcia 3-10 1H & 2TFH	0.079	8-inch Poly	North Dakota	Williams	Saltwater
Marcia 3-10 1H & 2TFH	0.049	12-inch Poly	North Dakota	Williams	Fresh Water
Marcia and Jake	5.087	8-inch Steel	North Dakota	Williams	Oil
Marcia and Jake	5.098	8-inch Poly	North Dakota	Williams	Saltwater
Marcia and Jake	5.024	8-inch Poly	North Dakota	Williams	Fresh Water
Marcia and Jake	0.016	8-inch Steel	North Dakota	Williams	Oil
Mark 4-9 1H	0.107	8-inch Poly	North Dakota	Williams	Fresh Water
Mark 4-9 1H	0.107	4.5-inch Steel	North Dakota	Williams	Oil
Mark 4-9 1H	0.138	4.5-inch Poly	North Dakota	Williams	Saltwater
Martin 32-31 1H	0.241	4.5-inch Poly	North Dakota	Williams	Saltwater
Martin 32-31 1H	0.202	8-inch Poly	North Dakota	Williams	Fresh Water
Martin 32-31 1H	0.267	8-inch Steel	North Dakota	Williams	Oil
Michael Owan 26-35-1H	0.087	4.5-inch Poly	North Dakota	Williams	Saltwater
Michael Owan 26-35-1H	0.084	8-inch Poly	North Dakota	Williams	Freshwater
Missouri	4.315	8-inch Steel	North Dakota	Williams	Oil
Missouri	2.599	8-inch Steel	North Dakota	Williams	Oil
Mortenson 5-32 1H	0.076	4.5-inch Steel	North Dakota	Williams	Oil
Mortenson 5-32 1H	0.104	4.5-inch Poly	North Dakota	Williams	Saltwater
Mortenson 5-32 1H	0.071	8-inch Poly	North Dakota	Williams	Fresh Water

SECTION	LENGTH (miles)	DIAMETER	STATE	COUNTIES	PRODUCTS
Myron 9-4 1H	0.144	4.5-inch Steel	North Dakota	Williams	Oil
Myron 9-4 1H	0.178	4.5-inch Poly	North Dakota	Williams	Saltwater
Myron 9-4 1H	0.06	8-inch Poly	North Dakota	Williams	Fresh Water
North-South Main	12.185	12-inch Poly	North Dakota	Williams	Fresh Water
North-South Main	14.93	12-inch Poly	North Dakota	Williams	Saltwater
North-South Main	15.421	8-inch Steel	North Dakota	Williams	Oil
Olson 10-15 1H	0.056	4.5-inch Poly	North Dakota	Williams	Saltwater
Olson 10-15 1H	0.112	8-inch Poly	North Dakota	Williams	Fresh Water
Olson 10-15 1H	0.036	4.5-inch Steel	North Dakota	Williams	Oil
Owan 29-32 1H	0.107	4.5-inch Steel	North Dakota	Williams	Oil
Owan 29-32 1H	0.09	8-inch Poly	North Dakota	Williams	Fresh Water
Owan-Nehring 27-34 1H	0.077	8-inch Poly	North Dakota	Williams	Fresh Water
Owan-Nehring 27-34 1H	0.053	4.5-inch Steel	North Dakota	Williams	Oil
Owan-Nehring 27-34 1H	0.069	4.5-inch Poly	North Dakota	Williams	Saltwater
Rangeland	2.626	8-inch Poly	North Dakota	Williams	Saltwater
Rangeland	2.626	8-inch Steel	North Dakota	Williams	Oil
Rangeland	2.621	8-inch Poly	North Dakota	Williams	Fresh Water
Rangeland (High-Pressure Gas)	2.611	8-inch Steel	North Dakota	Williams	Gas
Rose 12-13 1H	0.063	4.5-inch Steel	North Dakota	Williams	Oil
Rose 12-13 1H	0.09	4.5-inch Poly	North Dakota	Williams	Saltwater
Rose 12-13 1H	0.817	8-inch Steel	North Dakota	Williams	Oil
Rose 12-13 1H	0.823	8-inch Poly	North Dakota	Williams	Saltwater
Rose 12-13 1H	0.82	8-inch Poly	North Dakota	Williams	Fresh Water
Rose 12-13 3H 4TFH 5TFH 6TFH	0.079	4.5-inch Steel	North Dakota	Williams	Oil
Rose 12-13 3H 4TFH 5TFH 6TFH	0.07	4.5-inch Poly	North Dakota	Williams	Saltwater
Rose 12-13 3H 4TFH 5TFH 6TFH	0.053	8-inch Poly	North Dakota	Williams	Fresh Water
Russell-Irwin	1.232	8-inch Poly	North Dakota	Williams	Fresh Water

SECTION	LENGTH (miles)	DIAMETER	STATE	COUNTIES	PRODUCTS
Russell-Irwin	1.237	8-inch Poly	North Dakota	Williams	Saltwater
Russell-Irwin	1.238	8-inch Steel	North Dakota	Williams	Oil
Shorty 4-9F 8TFH 7h 6TFH 5H 4TFH	0.457	8-inch Steel	North Dakota	Williams	Gas
Shorty 4-9F 8TFH 7h 6TFH 5H 4TFH	0.532	8-inch Steel	North Dakota	Williams	Oil
Shorty 4-9F 8TFH 7h 6TFH 5H 4TFH	0.557	8-inch Poly	North Dakota	Williams	Saltwater
Shorty 4-9F 8TFH 7h 6TFH 5H 4TFH	0.556	8-inch Poly	North Dakota	Williams	Fresh Water
Sjol	1.941	4.5-inch Poly	North Dakota	Williams	Saltwater
Sjol	1.838	4.5-inch Steel	North Dakota	Williams	Oil
Sjol	0.722	8-inch Poly	North Dakota	Williams	Fresh Water
Smith Farm 23-14 Heen 26-35	0.023	6-inch Poly	North Dakota	Williams	Saltwater
Smith Farm 23-14 Heen 26-35	0.025	6-inch Steel	North Dakota	Williams	Oil
Smith Farm 23-14 Heen 26-35	0.085	8-inch Poly	North Dakota	Williams	Fresh Water
State 36-1	0.633	8-inch Poly	North Dakota	Williams	Saltwater
State 36-1	0.63	8-inch Steel	North Dakota	Williams	Oil
State 36-1	0.634	8-inch Poly	North Dakota	Williams	Fresh Water
State 36-1 1H	0.636	8-inch Poly	North Dakota	Williams	Fresh Water
State 36-1 1H	0.672	4.5-inch Steel	North Dakota	Williams	Oil
State 36-1 1H	0.093	4.5-inch Steel	North Dakota	Williams	Oil
State 36-1 1H	0.317	6-inch Poly	North Dakota	Williams	Saltwater
State 36-1 1H Corridor A	0.042	8-inch Poly	North Dakota	Williams	Fresh Water
State 36-1 2H	0.09	4.5-inch Steel	North Dakota	Williams	Oil
State 36-1 2H	0.09	8-inch Poly	North Dakota	Williams	Fresh Water
State 36-1 2H	0.09	6-inch Poly	North Dakota	Williams	Saltwater
Stony Creek SWD	0.144	6-inch Poly	North Dakota	Williams	Saltwater
Strand 16-9 1H	0.026	4.5-inch Steel	North Dakota	Williams	Oil
Strand 16-9 1H	0.024	8-inch Poly	North Dakota	Williams	Fresh Water
Strand 16-9 1H	0.024	4.5-inch Poly	North Dakota	Williams	Saltwater

SECTION	LENGTH (miles)	DIAMETER	STATE	COUNTIES	PRODUCTS
Syverson 1-12H 1H 2TFH 8H	0.167	8-inch Steel	North Dakota	Williams	Gas
Syverson 1-12H 1H 2TFH 8H	0.287	8-inch Poly	North Dakota	Williams	Fresh Water
Syverson 1-12H 1H 2TFH 8H	0.258	5-inch Steel	North Dakota	Williams	Oil
Syverson 1-12H 1H 2TFH 8H	0.247	5-inch Poly	North Dakota	Williams	Saltwater
Syverson 3TFH 4H 5TFH 6H 7TFH	0.256	6-inch Steel	North Dakota	Williams	Oil
Syverson 3TFH 4H 5TFH 6H 7TFH	0.254	6-inch Poly	North Dakota	Williams	Saltwater
Syverson 3TFH 4H 5TFH 6H 7TFH	0.212	8-inch Steel	North Dakota	Williams	Gas
Syverson 3TFH 4H 5TFH 6H 7TFH	0.14	8-inch Poly	North Dakota	Williams	Fresh Water
Trenton Oil	4.626	8-inch Poly	North Dakota	Williams	Fresh Water
Trenton Oil	4.626	8-inch Poly	North Dakota	Williams	Saltwater
Trenton Oil	4.729	8-inch Steel	North Dakota	Williams	Oil
Trenton Water Line	1.952	12-inch Poly	North Dakota	Williams	Fresh Water
Wagenman 29-32 1H 2H	1.375	6-inch Steel	North Dakota	Williams	Oil
Wagenman 29-32 1H 2H	1.39	8-inch Poly	North Dakota	Williams	Saltwater
Wagenman 29-32 1H 2H	1.547	8-inch Poly	North Dakota	Williams	Fresh Water
Weisz 11-14 1H	0.104	4-inch Steel	North Dakota	Williams	Oil
Weisz 11-14 1H	0.116	4-inch Poly	North Dakota	Williams	Saltwater
Weisz 11-14 1H	0.124	8-inch Poly	North Dakota	Williams	Fresh Water
Wing 4-33 1H	0.014	8-inch Poly	North Dakota	Williams	Fresh Water
Wing 4-33 1H	0.105	4.5-inch Steel	North Dakota	Williams	Oil
Wing 4-33 1H	0.138	4.5-inch Poly	North Dakota	Williams	Saltwater
Zine 12-1 1H	0.254	4.5-inch Poly	North Dakota	Williams	Saltwater
Zine 12-1 1H	0.225	4.5-inch Steel	North Dakota	Williams	Oil
Zine 12-1 1H	0.176	8-inch Poly	North Dakota	Williams	Fresh Water



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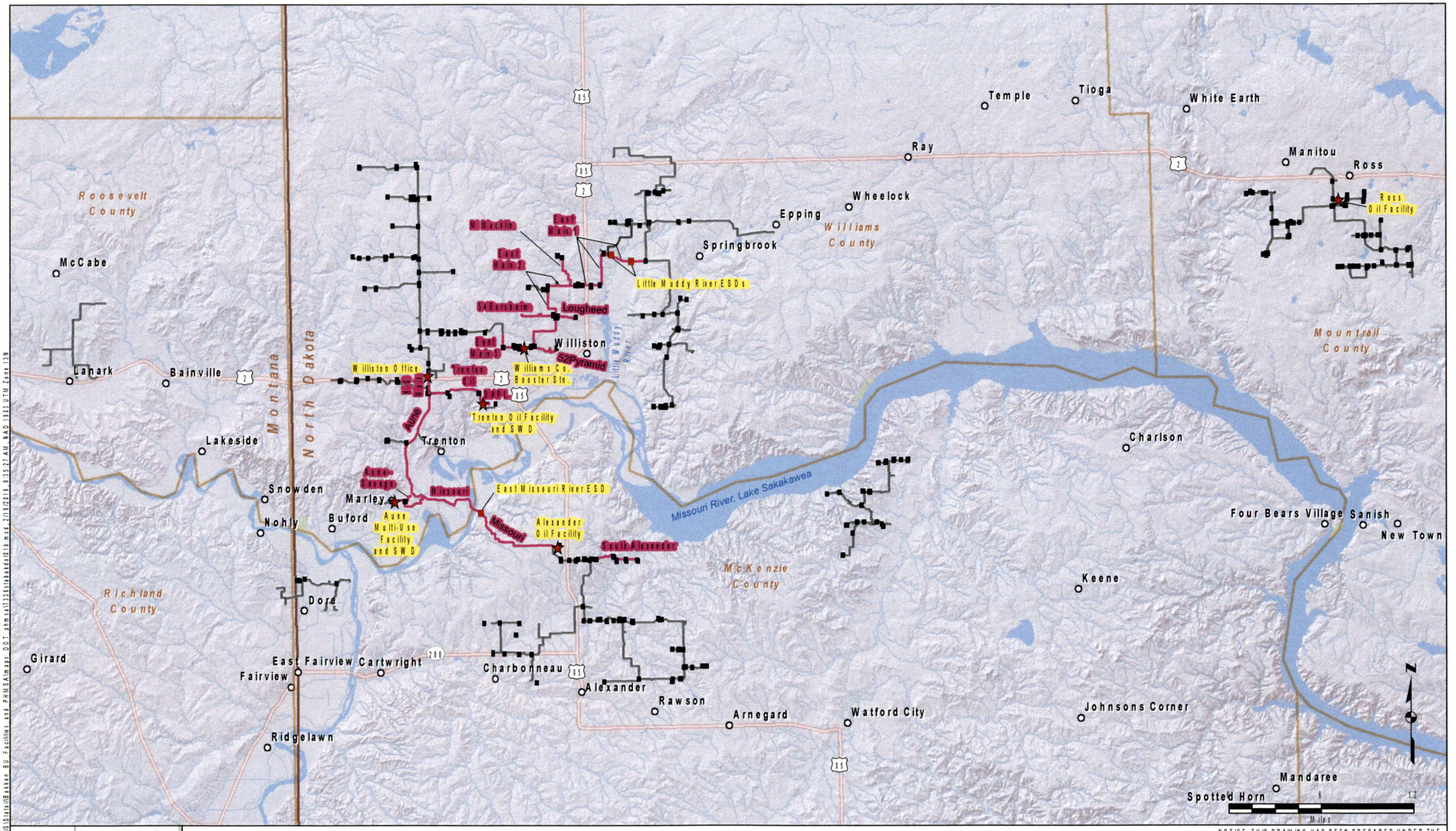
BAKKEN PIPELINE FACILITY RESPONSE PLAN
GATHERING SYSTEM PIPELINES

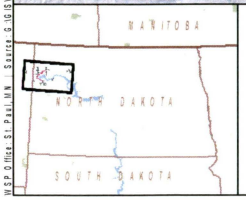
PREPARED FOR

GRAYSON MILL OPERATING, LLC

FIGURE 1A

PHMSA OVERVIEW MAP





Pipeline Corridor (DOT Regulated)
Pipeline Corridor
Valve
Emergency Shut Down (ESD) Valve
Figure Extent
Oil or Multi-Use Facility Location

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BAKKEN PIPELINE FACILITY RESPONSE PLAN
PHMSA REGULATED PIPELINES

PREPARED FOR

GRAYSON MILL OPERATING, LLC

FIGURE 1B

DOT PIPELINE SYSTEM OVERVIEW MAP

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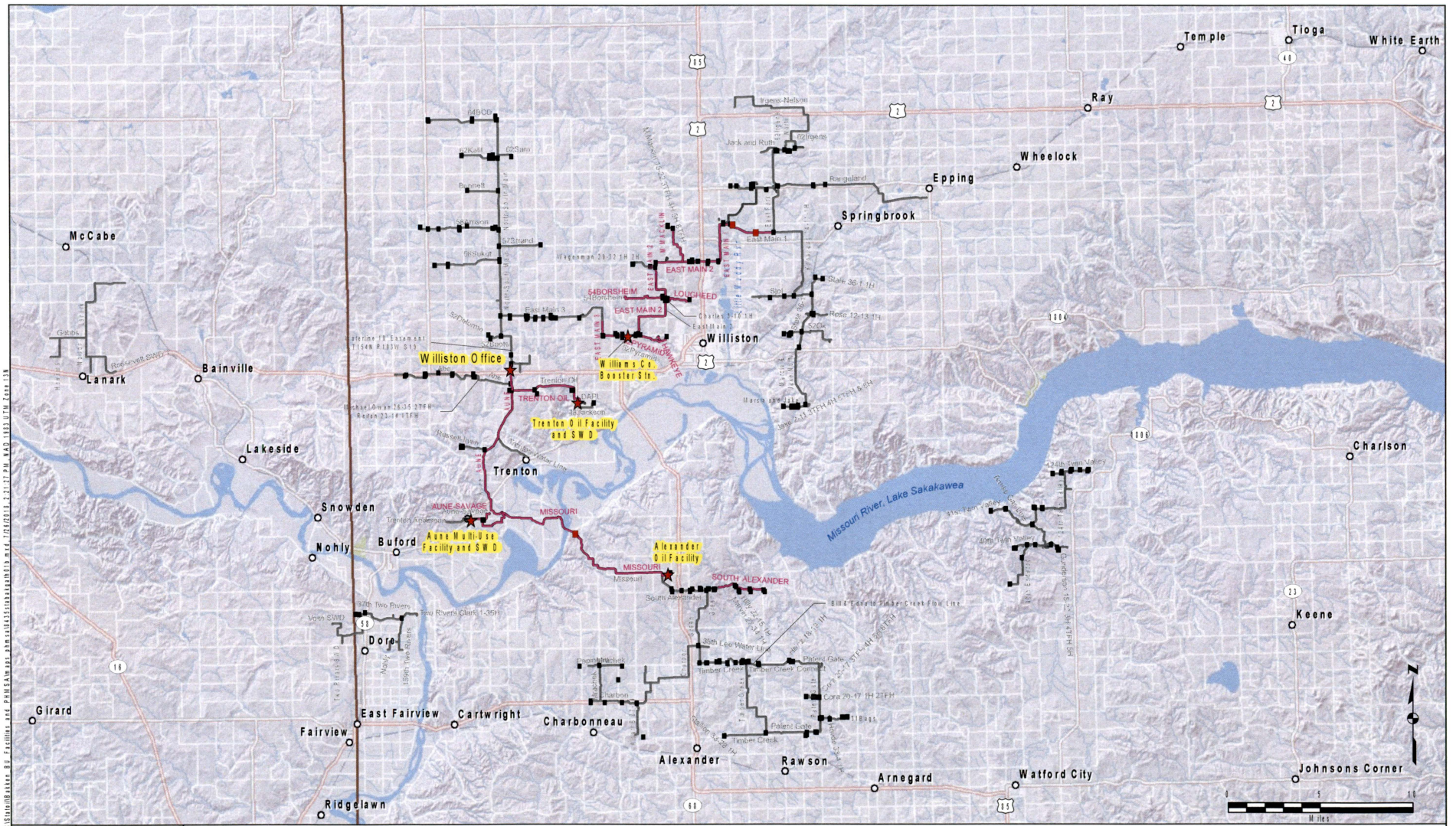



- Pipeline Corridor (DOT Regulated)
- Pipeline Corridor
- Valve
- Emergency Shut Down (ESD) Valve
- Figure Extent
- Oil or Multi-Use Facility Location

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BAKKEN PIPELINE FACILITY RESPONSE PLAN
GATHERING SYSTEM PIPELINES

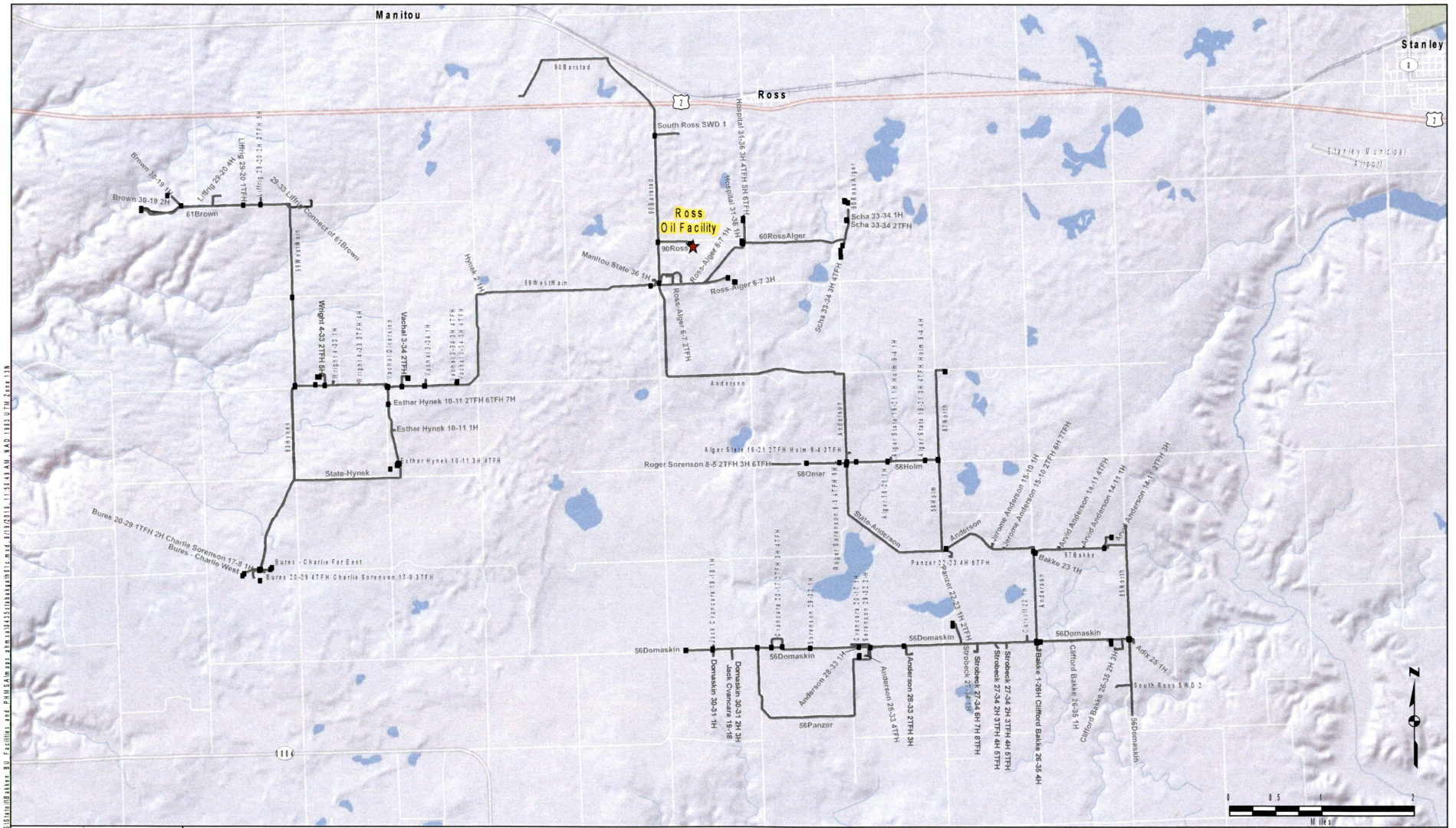
PREPARED FOR

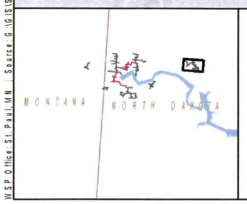
GRAYSON MILL OPERATING, LLC

FIGURE 1C

PIPELINE SYSTEM OVERVIEW MAP

WSP Office: St. Paul, MN | Source: G:\GIS\Stateil\Bakken_BU_Facilities_and_PHMSA\maps_phmsa\4x35xlabsxgath01a.mxd, 7/26/2018, 2:21:27 PM, NAD 1983 UTM Zone 13N





Pipeline Corridor
Valve
Figure Extent
Oil or Multi-Use Facility Location

Note: See Figure 6.8-2 for map legend and source information.

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BAKKEN PIPELINE FACILITY RESPONSE PLAN
GATHERING SYSTEM PIPELINES

PREPARED FOR

GRAYSON MILL OPERATING, LLC

FIGURE 1D

PIPELINE SYSTEM OVERVIEW MAP

NOTICE: THIS DRAWING HAS BEEN PREPARED UNDER THE DIRECTION OF A PROFESSIONAL. DO NOT ALTER THIS DOCUMENT IN ANY WAY WITHOUT THE WRITTEN CONSENT OF WSP USA INC.

WSP Office: St Paul, MN - Source: G:\GIS\Projects\Grayson Mill\Bakken Pipeline\Maps\Figure 1D Pipeline System Overview Map.mxd

1.2 PURPOSE

The purpose of this Regional PHMSA Plan is to provide guidelines to quickly, safely, and effectively respond to a spill. The Pipeline is owned and operated by GMO.

This Plan is intended to satisfy the requirements of the OPA 90 and has been prepared in accordance with the NCP and the EPA Region 8 Regional Contingency Plan. Specifically, this Plan is intended to satisfy:

- PHMSA DOT requirements for an OPA 90 plan (49 CFR 194);
- OSHA requirements for emergency response plans (29 CFR 1910); and
- PHMSA DOT requirements for Transportation of Natural Gas and other Gas by Pipeline (49 CFR 192.615).

1.3 PLAN REVIEW AND UPDATE PROCEDURE

In accordance with 49 CFR 194.121, this Plan will be reviewed every five years (from the last approval date), modified to address new or different operating conditions or information included in the Plan, and resubmitted to PHMSA. In the event that GMO experiences a worst-case discharge, the effectiveness of the Plan will be evaluated and updated as necessary. If a new or different operating condition or information would substantially affect the implementation of the plan, GMO will modify the plan to address such a change and, within 30 days of making such a change, submit the change to PHMSA. Examples of changes in operating conditions that would cause a significant change to the plan include:

- Relocation or replacement of the transportation system in a way that substantially affects the information included in the plan, such as a change to the worst-case discharge volume;
- A change in the type of fluid or gas that is handled, stored or transferred that materially alters the required response resources;
- A change in key personnel;
- A change in the name of the Oil Spill Response Organization (OSRO);
- Any other changes that materially affect the implementation of the plan;
- A change in the NCP or Area Contingency Plan (ACP) that has significant impact on the equipment appropriate for response activities; and
- Extension of the existing pipeline or construction of a new pipeline in the response zone that is not covered by the previously approved plan.

1.4 CERTIFICATION OF ADEQUATE RESOURCES

Grayson Mill Operating, LLC, hereby certify to the Pipeline and Hazardous Materials Safety Administration of the Department of Transportation that they have obtained, through contract or other approved means, the necessary private personnel and equipment to respond, to the maximum extent practicable, to a worst-case discharge or threat of such a discharge.

1.5 APPROVAL LETTERS

The Plan must comply with PHMSA regulations concerning onshore oil pipelines found at 49 CFR 194. The Letter of Approval for the Pipeline is presented below. The approval is valid for five years from the date on the letter.

U.S. Department
of Transportation
**Pipeline and Hazardous
Materials Safety Administration**

1200 New Jersey Avenue, S.E.
Washington, D.C. 20590

October 30, 2017

Keith Lilie
Director of Operations
Statoil Pipelines LLC
6300 Bridge Point Parkway
Building 2, Suite 500
Austin, TX 78730

RE: LETTER OF CORRECTION: Bakken Pipeline Facility Response Plan, Sequence Number: 3097, October 2017

Dear Mr. Lilie:

The Pipeline and Hazardous Materials Safety Administration (PHMSA) has received and reviewed Statoil Pipeline LLC's Bakken Pipeline Facility Response Plan dated October 2017.

We have identified deficiencies in the plan and cannot approve it without corrections being made. These corrections should be addressed as highlighted in the NEEDED ACTION section and submitted to PHMSA within thirty (30) days from the date of this letter. If you are unable to address these issues within that time, you may request an extension via mail or to the email address listed below.

Should you have any questions or concerns, please contact me at (202) 366-4595 or by email at PHMSA.OPA90@dot.gov. Please include the sequence number and your PHMSA Operator Identification Number on any future correspondence.

Sincerely,

David K. Lehman, Director
Oil Spill Preparedness and Emergency Support Division
Office of Pipeline Safety

Attachment: Action Needed on Response Plan Sequence #3097

cc: PHMSA Central Region

Review and Update Procedures

49 CFR § 194.121(c)(x) states, "Each response plan must include...(x): Plan review and update Procedures."

AND

49CFR § 194.121(a)(2) states, "For significant and substantial harm plans, an operator shall resubmit every 5 years from the last approval date."

AND

49 CFR § 194.121 (b) states, "If a new or different operating condition or information would substantially affect the implementation of a response plan, the operator must immediately modify its response plan to address such a change and, within 30 days of making such a change, submit the change to PHMSA."

Finding: Plan review and update procedures are not consistent with PHMSA regulations. Section 1.2 of the plan incorrectly states, "Upon review of the response plan for each five-year period, revisions to the current plan or a letter stating that the plan is still current will be submitted to PHMSA."

NEEDED ACTION: Amend the plan review and update procedures found in Section 1.2 to be consistent with the requirement found in 49 CFR § 194.121. A complete plan must be submitted to PHMSA every 5 years from the last approval or whenever there are new or different operating conditions or information that would substantially affect the implementation of the plan.

Immediate Notification Procedures

49 CFR § 194.107(b)(i) states, "...a facility response plan must: ... (i) demonstrate an operator's clear understanding of the function of the Federal response structure, including procedures to notify the National Response Center (NRC)..."

AND

49 CFR § 194.107(c)(1)(ii) states each plan must include "Immediate notification procedures".

AND

49 CFR §195.52 states, "(a) Notice requirements. At the earliest practicable moment following discovery, of a release of the hazardous liquid or carbon dioxide transported resulting in an event described in § 195.50, but no later than one hour after confirmed discovery, the operator of the system must give notice…"

Finding: Figure 3.1-6 correctly states, "Notification: at earliest practical moment to DOT and NRC", but further states "at least within two hours."

NEEDED ACTION: Amend the plan to discuss notification procedures to the NRC at the earliest practicable moment (within 1 hour) following the discovery of a release of oil.

U.S. Department
of Transportation
**Pipeline and Hazardous
Materials Safety Administration**

1200 New Jersey Avenue, S.E.
Washington, D.C. 20590

January 9, 2018

Keith Lilie
Director of Operations
Statoil Pipelines LLC
6300 Bridge Point Parkway
Building 2, Suite 500
Austin, TX 78730

RE: LETTER OF APPROVAL: Bakken Pipeline Facility Response Plan, Sequence Number: 3097, December 2017

Dear Mr. Lilie:

The Pipeline and Hazardous Materials Safety Administration (PHMSA) has received and reviewed Statoil Pipeline LLC's amended Bakken Pipeline Facility Response Plan dated December 2017. We conclude that the plan complies with PHMSA's regulations concerning onshore oil pipelines found at 49 Code of Federal Regulations (CFR) Part 194. Your response plan is approved.

This approval is valid for five years from the date of this letter. If discrepancies are found during PHMSA inspections, or if new or different operating conditions or information would substantially affect the implementation of this plan, you will be required to resubmit a revised plan. See 49 CFR § 194.121(b).

Should you have any questions or concerns, please contact me at (202) 366-4595 or by email at PHMSA.OPA90@dot.gov. Please include the sequence number and your PHMSA Operator Identification Number on any future correspondence.

Sincerely,

David K. Lehman, Director
Oil Spill Preparedness and Emergency Support Division
Office of Pipeline Safety

cc: PHMSA Central Region

2 INITIAL RESPONSE ACTIONS

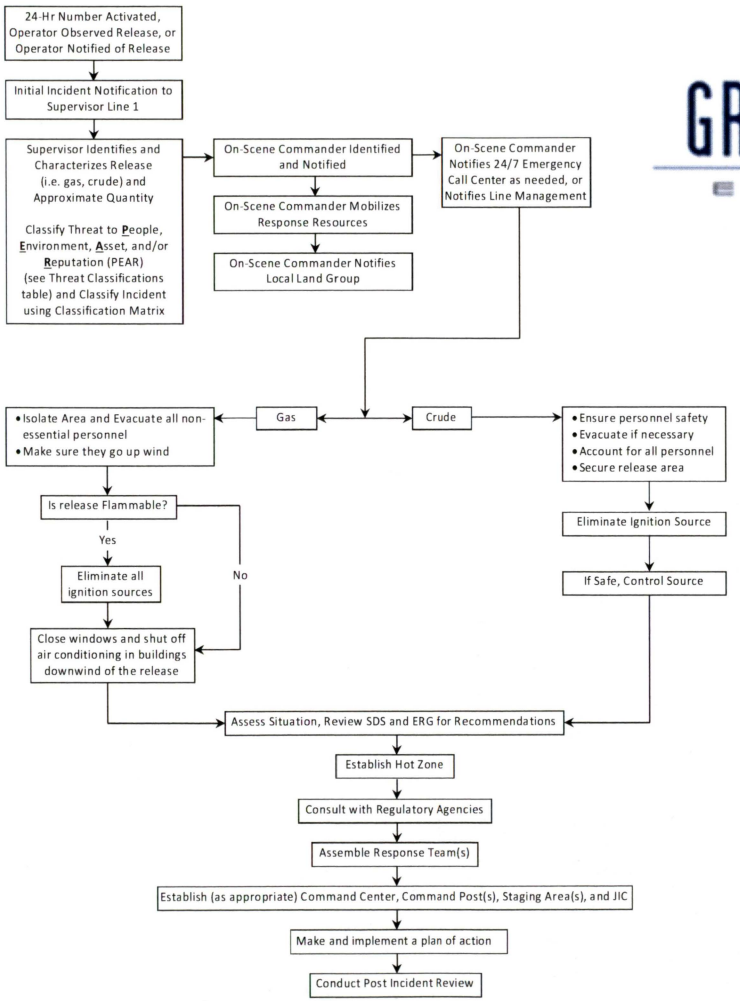
TABLE 2-1.1 INITIAL RESPONSE ACTION CHECKLIST

SPECIFIC RESPONSE ACTIONS	NAME
FACILITY LOCATION:	
SPECIFIC RELEASE/SPILL LOCATION:	
STEP ONE - CRISIS RESPONSE *(React safely to the incident.)*	
Field	
Assess the situation.	
Protect personnel, property, and the environment.	
React to the incident rapidly and decisively.	
Minimize public exposure to injury.	
Minimize the probability of accidental ignition.	
Minimize traffic on road and railroads in vicinity.	
Command Center	
Gather facts.	
Account for personnel.	
Implement National Response Center (NRC) Integrated Contingency Plan (ICP).	
Establish agency contacts.	
Restore normal operations.	
Handle press/public relations.	
Once the spill has been contained, resources are present at the Facility and safety conditions permitting, recover spilled product.	
STEP TWO - DEVELOP PLAN *(Control events; don't react to them.)*	
Field	
Protect personnel, property, and the environment.	
Continue to react decisively to the situation.	
Provide information to the assessment team/Command Center.	
Request resources.	
Command Center	
Support the field.	
Identify activities for the Incident Action Plan (IAP).	
Prepare an IAP.	
Organize field operations.	
Provide resources for anticipated response.	

SPECIFIC RESPONSE ACTIONS	NAME
STEP THREE - IMPLEMENT PLAN *(Continue to control events.)*	
Field	
Protect personnel, property, and the environment.	
Maintain an orchestrated mode of operation.	
Provide the Command Center with regular situation status reports.	
Implement the IAP.	
Request resources.	
Command Center	
Focus on the situation in the field.	
Support operations in the field.	
Define strategic objectives for the next operational period.	
Provide necessary support to implement tactical plans.	
Quickly transmit plans to the field.	

FIGURE 2 – RELEASE RESPONSE SEQUENCE FLOW CHART

RELEASE RESPONSE SEQUENCE FLOW CHART



GRAYSON MILL ENERGY

Threat Classifications

People	
• Any injury and level of injury	See Incident Classification Matrix
• Threat to personnel or public	High to low
• Evaluate gas release or potential	High to low
Environment	
• Impact to surface water or potential	Yes or No
• Potential impact to groundwater	Yes or No
• Impact or potential to sensitive area	Yes or No
Asset	
• Level of damage to asset	See Incident Classification Matrix
• Potential for additional damage	High to low
• Fire	See Incident Classification Matrix
Reputation	
• Known impact to reputation	See Incident Classification Matrix
• Potential impact to reputation	See Incident Classification Matrix

Incident Classification Matrix

Degree of seriousness	Injury		Work related illness (WRI)		Uncontrolled discharge/emissions		Oil-/gas/flammable liquids leakages**		Fire/explosion		Failure in safety/security functions and barriers		Reputation	
	Actual	Potent.	Actual	Potent.	Actual	Potent.	Actual	Potent.	Actual	Potent.	Actual	Potent.	Actual	Potent.
1	Fatality		Work related illness that result in death		Single spill with long term effect on the environment Release to air > yearly expected emission of		> 10 kg/sec. or brief leakages > 100 kg		Whole facility/plant exposed		Threaten whole facility/plant		Great international negative exposure in mass media and among organisations	
2	Serious lost time injury/serious injury		Serious work related illness		Single spill with medium term effect on the environment Release to air > monthly expected emission of		1-10 kg/sec. or brief leakages > 10 kg		Large part of facility/plant exposed		Threaten large part of facility/plant		Medium international negative exposure in mass media and among organisations	
3	Other lost time injury or Injury involving substitute work		Work related illness that results in short-term absence or restricted alternative work		Single spill with short term effect on the environment Release to air > weekly expected emission of		0.1-1 kg/sec. or brief leakages > 1 kg		Parts of facility/plant exposed		Threaten parts of facility/plant		National negative exposure in mass media, from authorities on national level	
4	Medical treatment injury		Work related illness that results in treatment from authorised health care personnel		Single spill with minor effect on the environment Release to air < weekly expected emission of		<0.1 kg/sec.		Local area of facility/plant exposed		Threaten local area		Local/regional negative exposure in mass media, from authorities and customers	
5	First and injury		Other work related illnesses		Single spill or release to air with negligible effect on the environment		<<0.1 kg/sec. (significantly less than 0.1 kg/sec.)		Negligible risk for facility/plant		Negligible risk for facility/plant		Limited to a few persons or a single customer	

2.1 SPILL/RELEASE RESPONSE

TABLE 2-1.2 SPILL/RELEASE RESPONSE ACTION CHECKLIST

RESPONSE ACTION	NAME	DATE/TIME ACTION TAKEN
FACILITY LOCATION:		
SPECIFIC RELEASE/SPILL LOCATION:		
First Person to Discover Spill		
Immediately notify Supervisory Personnel. Take appropriate action to protect life and ensure safety of personnel. Contact the appropriate local emergency responders or request the office to do so.		
Immediately shutdown pipeline operations (if applicable). Valves will be closed by operations as soon as a leak is detected.		
Secure the scene. Isolate the area and assure the safety of people and the environment. Keep people away from the scene and outside the safety perimeter.		
Supervisory Personnel		
Assume role of Incident Commander until relieved.		
Conduct preliminary assessment of health and safety hazards.		
Evacuate non-essential personnel, notify emergency response agencies to provide security, and evacuate surrounding area (if necessary).		
Call out spill response contractors		
If safe to do so, direct facility responders to shut down potential ignition sources in the vicinity of the spill, including motors, electrical pumps, electrical power, etc. Keep drivers away from LACT Units if spill occurs.		
If safe to do so, direct facility responders to shut down and control the source of the spill. Be aware of potential hazards associated with product and ensure that lower explosive limits (LELs) are within safe levels before sending personnel into the spill area.		
If safe to do so, direct facility responders to stabilize and contain the situation. This may include berming or deployment of containment and/or sorbent boom.		
For low flash oil (<100°F); consider applying foam over the oil, using water spray to reduce vapors, grounding all equipment handling the oil, and using non-sparking tools.		
If there is a potential to impact shorelines, consider lining shoreline with sorbent or diversion boom to reduce impact.		
Notify Local Emergency Responders. Obtain the information necessary to complete the Initial Notification Report Form.		
Make appropriate notifications. • National Response Center (800) 424-8802 • External regulatory notifications		

RESPONSE ACTION	NAME	DATE/TIME ACTION TAKEN
• Internal notifications		
On-Scene Coordinator		
Activate all or a portion of Incident Management Team (IMT) (as necessary).		
On-Scene Coordinator		
Ensure the IMT has mobilized spill response contractors (if necessary). It is much better to demobilize equipment and personnel, if not needed than to delay contacting them if they are needed.		
Document all response actions taken, including notifications, agency/media meetings, equipment and personnel mobilization and deployment, and area impacted.		
Water-based Spills: Initiate spill tracking and surveillance operations. Determine extent of pollution via surveillance aircraft or vehicle. Send photographer / videographer, if safe.		
Land-based Spills: Initiate spill tracking and surveillance, if applicable.		

2.1.1 SPILL DETECTION AND MITIGATION PROCEDURES

See Appendix C for spill detection protocols.

Each spill mitigation situation is unique and must be approached according to the circumstance present. In every situation, personnel safety must be assessed as the first priority. The potential for ignition and/or toxic exposure must be promptly evaluated.

TABLE 2-1.3 MITIGATION PROCEDURES

TYPE	MITIGATION PROCEDURE
Failure of Transfer Equipment	1. Personnel safety is the first priority. Evacuate non-essential personnel or personnel at high risk. 2. Terminate transfer operations and close block valves. 3. Drain product into containment areas if possible. 4. Eliminate sources of vapor cloud ignition by shutting down all engines and motors.
Tank Overfill/Failure	1. Personnel safety is the first priority. Evacuate non-essential personnel or personnel at high risk. 2. Shut down or divert source of incoming flow to tank. 3. Transfer fluid to another tank with adequate storage capacity (if possible). 4. Shut down source of vapor cloud ignition by shutting down all engines and motors. 5. Ensure that dike discharge valves are closed. 6. Monitor diked containment area for leaks and potential capacity limitations. 7. Begin transferring spilled product to another tank as soon as possible.
Piping Rupture/Leak (under pressure and no pressure)	1. Personnel safety is the first priority. Evacuate non-essential personnel or personnel at high risk. 2. Shut down pumps. Close the closest block valves on each side of the rupture. 3. Drain the line back into contained areas (if possible). Alert nearby personnel of potential safety hazards. 4. Shut down source of vapor cloud ignition by shutting down all engines and motors. 5. If piping is leaking and under pressure, then relieve pressure by draining into a containment area or back to a tank (if possible). Then repair line according to established procedures.
Fire/Explosion	1. Personnel safety is the first priority. Evacuate non-essential personnel or personnel at risk of injury. 2. Notify local fire and police departments. 3. Attempt to extinguish fire if it is in incipient (early) stage and **if it can be done safely**. 4. Shut down transfer or pumping operation. Attempt to divert or stop flow of product to the hazardous area (if it can be done safely). 5. Eliminate sources of vapor cloud ignition by shutting down all engines and motors. 6. Control fire before taking steps to contain spill.

TYPE	MITIGATION PROCEDURE
Manifold Failure	1. Personnel safety is the first priority. Evacuate non-essential personnel or personnel at high risk. 2. Terminate transfer operations immediately. 3. Isolate the damaged area by closing block valves on both sides of the leak/rupture. 4. Shut down source of vapor cloud ignition by shutting down all engines and motors. 5. Drain fluids back into containment areas (if possible).

2.1.2 SPILL SURVEILLANCE GUIDELINES

- Surveillance of an oil spill should begin as soon as possible following discovery to enable response personnel to assess spill size, movement, and potential impact locations.
- Dispatch observers to crossings downstream or down gradient to determine the spills maximum reach.
- Clouds, shadows, sediment, floating organic matter, submerged sand banks or wind-induced patterns on the water may resemble an oil slick if viewed from a distance.
- Sorbent pads may be used to detect oil or water.
- Use surface vessels to confirm the presence of any suspected oil slicks (if safe to do so); consider directing the vessels and photographing the vessels from the air, the latter to show their position and size relative to the slick.
- It is difficult to adequately observe oil on the water surface from a boat, dock, or shoreline.
- Spill surveillance is best accomplished through the use of helicopters or small planes; helicopters are preferred due to their superior visibility and maneuverability.
- If fixed-wing planes are to be used, high-wing types provide better visibility than low-wing types.
- All observations should be documented in writing and with photographs and/or videotapes.
- Describe the approximate dimensions of the oil slick based on available reference points (i.e. vessel, shoreline features, facilities); use the aircraft or vessel to traverse the length and width of the slick while timing each pass; calculate the approximate size and area of the slick by multiplying speed and time.
- Record aerial observations on detailed maps, such as topographic maps.
- In the event of reduced visibility, such as dense fog or cloud cover, boats may have to be used to patrol the area and document the location and movements of the spill; however, this method may not be safe if the spill involves a highly flammable product.
- Surveillance is also required during spill response operations to gauge the effectiveness of response operations; to assist in locating skimmers; and assess the spill's size, movement, and impact.

TABLE 2-1.4 SPILL SURVEILLANCE CHECKLIST

Record your observations of spilled oil either in a notebook or directly on a chart of the area under observation. This checklist is an aid for organizing your observations.

General Information	
Date:	Tidal or river stage (flood, ebb, slack, low water):
Time:	On-scene weather (wind, sea state, visibility):
Incident name:	Platform (helicopter, fixed-wing aircraft, boat, shore):
Observer's name:	Flight path/trackline:
Observer's affiliation:	Altitude where observation taken:
Observer's phone number:	
Location of source (if known):	Areas not observed (i.e. foggy locations, restricted air spaces, shallow water areas):
Oil Observations	
Slick location(s):	Color and appearance (i.e. rainbow, dull or silver sheen, black or brown in color or mousse):
Slick dimensions:	Percent coverage:
Orientation of slick(s):	Is oil recoverable (Y/N)?:
Distribution of oil (i.e., windrows, streamers, pancakes or patches):	
Considerations	
• During surveillance, travel beyond known impacted areas to check for additional oil spill sites. • Clearly describe the locations where oil is observed and the areas where no oil has been seen.	
Other Observations	

Response Operations
Equipment deployment (general locations where equipment is working and whether they are working in the heaviest concentration of oil):
Boom deployment (general locations of boom, whether the boom contains oil, and whether the oil entrains under the boom):
Environmental Observations
Locations of convergence lines, terrain, and sediment plumes:
Locations of debris and other features that could be mistaken for oil:
Wildlife present in area (locations and approximate numbers):
Spill Sketch

2.1.3 SPILL VOLUME ESTIMATION

Early in a spill response process, estimation of spill volume is required in order to:

- Report to agencies.
- Determine liquid recovery requirements.
- Determine personnel and equipment requirements.
- Estimate disposal and interim storage requirements.

TABLE 2-1.5 SPILL VOLUME ESTIMATION METHODS

Rapid Methods to Estimate Spill Size
Transfer Operations
Multiply the pumping rate by the elapsed time that the leak was in progress, plus the drainage volume of the line between the two closest valves or isolation points (volume loss = pump rate [bbls/min] x elapsed time [min] + line contents [bbl]).
Tank Overfill
Elapsed time multiplied by the pumping rate.

Visual assessment of the surface area and thickness. The method may yield unreliable results due to the following reasons:

- Interpretation of sheen color varies with different observers;
- Appearance of oil slick varies depending upon amount of available sunlight, sea-state and viewing angle; and
- Different products may behave differently, depending upon their properties.

TABLE 2-1.6 SPILL ESTIMATION FACTORS

OIL THICKNESS ESTIMATIONS				
Standard Form	Approx. Film Thickness		Approx. Quantity of Oil in Film	
	inches	mm	gallons/mile^2	liters/km^2
Barely Visible	0.0000015	0.00004	25	44
Silvery	0.000003	0.00008	50	88
Slightly colored	0.000006	0.00015	100	179
Brightly colored	0.000012	0.0003	200	351
Dull	0.00004	0.001	666	1,167
Dark	0.00008	0.002	1,332	2,237
Thickness of light oils: 0.0010 inches to 0.00010 inches				
Thickness of heavy oils: 0.10 inches to 0.010 inches				

2.1.4 ESTIMATING SPILL TRAJECTORIES

Oil spill trajectories should be estimated in order to predict direction and speed of the slick movement. Trajectory calculations provide an estimate of where oil slicks may impact shorelines and other sensitive areas, and also provide an estimate of the most effective location in which to mobilize spill response resources for protection, containment, and recovery.

Oil spill trajectories can be estimated using vector addition or with computer programs. Hand calculations typically utilize the following assumptions:

- Oil moves in approximately the same direction and at the same speed as the water currents unless the winds are strong.
- Wind speed can be multiplied by 0.034 to determine the effect of winds on speed of spill movement.
- The combined effects of winds and currents can be added to estimate spill movement speed and direction.

More sophisticated predictions can be obtained from computer programs. Oil spill trajectory services can be obtained from:

- National Oceanic and Atmospheric Administration (NOAA) through the Federal On-Scene Commander (FOSC)
- Private consulting firms

2.1.5 INITIAL CONTAINMENT ACTIONS

Initial containment actions will focus on utilizing containment on-site in the most effective manner to:

- Prevent the oil from impacting water;
- Concentrate the oil (when safe to do so), making physical recovery more efficient; and
- Limit the environmental impact to the immediate spill area.

Selection of the appropriate location and method will depend upon:

- Length of time spill occurs before being noticed;
- Amount of spill;
- Area of coverage;
- Environmental factors such as wind speed and direction; and
- Oil's characteristics.

2.1.6 SAFETY CONSIDERATIONS

- Containment actions should not be conducted during inclement weather or unsafe conditions such as high winds, fast currents, or unstable terrain;
- Eliminate all ignition sources;
- Avoid contact with the spilled product; and
- Use respiratory protection.

2.2 EVACUATION

Emergencies that involve windblown toxic vapors, heavy smoke clouds, or the threat of a vapor cloud explosion may require partial or full-scale facility evacuation. The final decision to evacuate and to what degree is determined by the senior on-scene person or his designee. The evacuation command will be given via either cellular telephone or verbal command. All personnel in the areas being evacuated who are not specifically involved in emergency duties will do so per the procedures outlined below. In general, evacuated personnel will congregate at the designated assembly point and remain there until an "all clear" command is received. While at the assembly point, the senior on-scene person or his designee will be in charge.

TABLE 2-2 EVACUATION CHECKLIST

Date:	
Location:	
TASK	**NAME**
Request assistance from off-site first responders; convey Command Post's location.	
Assemble personnel at predetermined safe location: upwind/up gradient of release (assembly area).	
Use respiratory protection (if needed).	
Account for GMO and contractor personnel.	
Assess casualties (number/type/location).	
Determine probable location of missing personnel.	
Secure site, close gates to prevent anyone from entering the site.	
Establish re-entry point and check-in/check-out procedures.	
Develop list of known hazards (confined spaces, electrical hazards, physical hazards, vapors, oxygen deficiency, fire/explosion, etc.).	
Monitor situation (weather, vapors, product migration) for significant changes.	
Assist in developing a Rescue Plan, if necessary.	

2.3 TORNADO

Tornadoes can form with little or no warning. The checklist below is intended to provide a logical sequence of response activities to be undertaken if a natural disaster impacts the Pipeline system.

TABLE 2-3 TORNADO CHECKLIST

Date:	
Location:	
TASK	**NAME**
Monitor news media reports. - Tornado watch means conditions are favorable for tornadoes. - Tornado warning means a tornado has been sighted.	
When a tornado warning is issued by news media or local authorities, sound the local alarm.	
Have location personnel report to the designated area.	
Account for all personnel on duty.	
Take shelter: - Go to an interior room on the lowest floor. - Get under a sturdy piece of furniture. - Use your arms to protect head and neck.	
Look for funnel formations on the ground or in the clouds; listen for a roar that sounds like a jet aircraft or rail traffic.	
If the facility is damaged by the tornado, notify Supervisory Personnel.	
Go to the scene of the incident to evaluate the situation. - Account for personnel. - Be aware of broken glass and downed power lines. - Check for injuries. - Use caution entering a damaged building.	
Update Supervisory Personnel/Management.	
Perform Initial Response Actions functions.	
Conduct post-emergency evaluation and report.	

2.4 FLOOD

Floods can be serious catastrophes and they are one of the most common hazards to the Pipeline. Floods can be caused by a variety of factors, including a sudden accumulation of rain, rising rivers, and dam failures. In the event of a flood, refer to the checklist below for guidance on the appropriate response activities.

TABLE 2-4 FLOOD CHECKLIST

Date:	
Location:	
TASK	**NAME**
Perform continuous monitoring of the situation by listening to radio and/or television reports. - Flash flood watch means flooding is possible. - Flash flood warning means flooding is occurring or is imminent.	
Update Supervisory Personnel when flooding is imminent.	
Establish an evacuation plan.	
Take preliminary actions to secure the facility before flooding and mandatory evacuation.	
Consider having sandbags brought to sites that could be affected by the flooding.	
Consider obtaining portable pumps and hoses from local suppliers or from other petroleum service locations in the area.	
Remove product from underground storage tanks (i.e., sumps and separators, if applicable) and replace with water to prevent them from floating out of the ground.	
Keep at least a normal bottom in all above ground tankage, more if possible.	
Plug all rack drains and facility drains connected to the sump.	
Anchor all bulk additive tanks, fuel barrels, empty drums, and propane tanks (if applicable).	
Notify Supervisory Personnel/Management that the facility will be closed.	
Back up computer files.	
Remove assets, such as files, computers, and spare parts.	
Shut off high voltage power and natural gas lines.	
Close all valves on product and additive storage tanks.	
Before evacuation, know where all the employees will be residing and obtain phone numbers so they can be contacted if additional emergencies occur.	
Conduct a post-emergency evacuation and report.	
Maintain hazards awareness: - Structural damage. - Downed power lines. - Leaking natural gas, water, and sewer lines. - Poisonous snakes and other wildlife sheltering in structures, vehicles, and furniture. - Avoid direct contact with flood water, mud, and animal carcasses.	

2.5 MEDICAL

A medical emergency plan has been established by GMO. In case of a medical emergency at the Pipeline, refer to the medical checklist below.

TABLE 2-5.1 MEDICAL CHECKLIST

Date:	
Location:	
TASK	**NAME**
Summon Emergency Medical Services (EMS) to the scene.	
Do not move the patient unless a situation (such as a fire) threatens their life.	
If trained, provide first aid until the EMS arrives at the scene.	
As the situation warrants, try to stop the bleeding, and keep the patient breathing until the EMS arrives at the scene.	
The rescuer's role includes: - Removing the patient from any situation threatening their life or the lives of rescuers. - Correcting life-threatening problems and immobilizing injured parts before transporting the patient. - Transporting the patient in a way that minimizes further damage to injured parts. - Administering essential life support while the patient is being transported. - Observing and protecting the patient until medical staff can take over. - Administering care as indicated or instructed.	

TABLE 2-5.2 PANDEMIC INFLUENZA CHECKLIST

TASK	NAME
Date:	
Location:	
Before Outbreak	
Impact to the Business	
Identify a pandemic coordinator.	
Identify essential employees and critical inputs (such as suppliers and contractors) required during a pandemic to maintain business operations by location and function.	
Train and prepare ancillary workforce (such as contractors, retirees, and employees in other job titles/descriptions.	
Plan for the pandemics' effects (such as restriction on mass gatherings and need for hygiene supplies).	
Determine the pandemic's possible effects on the GMO's financials.	
Determine the pandemic's possible effects on business-related travel.	
Find up-to-date, reliable pandemic information from community public health, emergency management, and other sources. Make sustainable links.	
Establish a pandemic communications plan; revise it periodically. (The plan should identify key contacts, key contacts' back-ups, suppliers, customers, and processes for tracking and communicating business and employee status)	
Implement an exercise/drill to test the plan; revise it periodically.	
Impact to Employees/Customers	
Forecast for employee absences during a pandemic due to personal illness, family member illness, community containment measures/quarantines, school/business closures, and public transportation closures.	
Implement guidelines to modify the frequency and type of face-to-face contact with employees and others.	
Encourage/track annual influenza vaccination for employees.	
Evaluate employee access to and availability of healthcare services during a pandemic; improve services as needed.	
Evaluate employee access to and availability of mental health/social services during a pandemic (such as corporate, community, and faith-based resources). Improve services as needed.	
Identify employees with special needs; incorporate their requirements into the ICP.	
During Outbreak	
Establish Policies to be Implemented During a Pandemic	

TASK	NAME
Establish policies for employee compensation and sick-leave absences unique to a pandemic. Include policies on when a previously ill person is no longer infectious and can return to work after illness.	
Establish policies for flexible worksite (such as telecommuting) and flexible work hours (such as staggered shifts).	
Establish policies for preventing flu spread at the worksite (such as promoting respiratory hygiene/cough etiquette and prompt exclusion of people with flu symptoms).	
Establish policies for employees who have been exposed to pandemic flu, are suspected to be ill, or become ill at the worksite (such as infection control response and immediate mandatory sick leave).	
Establish policies for: [1] Restricting travel to affected geographic areas; [2] Evacuating employees working in or near an affected area when an outbreak begins; and [3] Guidance for employees from affected areas.	
Set up protocols for activating and terminating the pandemic response plan, altering business operations, and transferring business knowledge to key employees.	
Allocate Resources to Protect Employees	
Provide sufficient/accessible infection control supplies (such as hand-hygiene products, tissues, and receptacles for their disposal) in all locations.	
Enhance communications/information technology infrastructures as needed to support employee telecommuting and remote customer access.	
Ensure medical consultation and advice for emergency response is available.	
Communicate to Educate Employees	
Develop/Disseminate programs/materials covering pandemic fundamentals (such as flu signs/symptoms and modes of transmission), personal/family protection/response strategies (such as hand hygiene and coughing/sneezing etiquette).	
Anticipate employee fear/anxiety, rumors, and misinformation. Plan communications accordingly.	
Disseminate flu preparedness/response plan information to employees.	
Provide information for the at-home care of ill employees and family members.	
Develop platforms (such as hotlines and dedicated websites) for communicating pandemic status and actions to employees, vendors, suppliers, and customers inside/outside the worksite in a consistent/timely way; include redundancies in the emergency contact system.	
Identify community sources for timely/accurate pandemic information and resources for obtaining countermeasures (such as vaccine and antiviral).	
Coordinate with Others/Help the Community	

TASK	NAME
Collaborate with insurers, health plans, and major local healthcare facilities to share pandemic plans/understand their capabilities/plans.	
Collaborate with federal, state, and local public health agencies and/or emergency responders to participate in their planning processes, share pandemic plans, and understand their capabilities/plans.	
Communicate with local and/or state public health agencies and/or emergency responders about the assets and/or services the GMO can contribute to the community.	
Share best practices with other businesses in the communities, chambers of commerce, and associations to improve community response efforts.	

2.6 BOMB THREAT

Health and Safety plans should include protocols for responding to a terrorist event at the Pipeline. In case of a terrorist attack at the Pipeline, refer to the bomb threat checklist below.

TABLE 2-6.1 BOMB THREAT CHECKLIST

Date:	
Location:	
TASK	**NAME**
Handle the call.	
Treat the threat as real.	
Maintain a log to record all events. - Begin with the receipt of the threat and continue until the episode is finished with all areas secure. -The log should include the names of agencies and individuals contacted and the time, date and action taken or requested.	
All evidence in conjunction with the threat should be retained and preserved.	
Keep the caller on the line; ask the following questions: - When is the bomb going to explode? - Where is the bomb right now? - What kind of bomb is it? - What will cause it to explode? - Why?	
Listen for any background sounds.	
Listen for any distinguishing characteristics of the caller's voice.	
Evacuate the premises.	
Notify the police (911) and Supervisory Personnel.	
Conduct a post-emergency evaluation and report.	
Do not use radios within 1,000 feet of an area that may contain a bomb. **Do not turn on/off lights or use other electrical switches.**	

TABLE 2-6.2 SPECIAL THREAT CHECKLIST

Name:	
Date:	
Location:	
Remember to	**Caller's Voice**
Listen	Calm Nasal If voice is familiar, who did it sound like?
Ask	Angry Stutter
Record	Excited Lisp
Notify	Slow Raspy
Place this form under your telephone.	Rapid Deep
Questions to Ask	Soft Ragged
1. When is the special threat going to happen?	Loud Clearing Throat
2. Where is it right now?	Laughter Deep Breathing
3. What does it look like?	Crying Cracking Voice
4. What kind of special threat is it?	Normal Disguised
5. What will cause it to explode?	Distinct Accent
6. Did you place the special threat?	Slurred Familiar
7. Why?	Whispered
8. What is your address?	If voice is familiar, who did it sound like?
9. What is your name?	
Exact Wording of the Threat	**Background Sounds**
	Clear Factory Machinery Crockery Animal Noises Voices Street Noises PA System House Noises Music Local Static Long Distance
Threat Language	Motor Booth Office Machinery Other If other, please specify:
Irrational Incoherent Foul Taped Well Spoken Message Ready by (educated) Threat Maker	
Caller ID Number: Number at which call is received:	**Report Call to Immediate Supervisor**
Sex of Caller: Race:	
Length of Call: Age:	
Time: Date:	

2.7 FIRE AND/OR EXPLOSION

Fires are common disasters that can spread quickly, particularly during dry conditions and when exposed to flammable products. In case of emergency due to fire or explosion, refer to the checklist below for both manned and unmanned facilities.

TABLE 2-7 FIRE AND/OR EXPLOSION CHECKLIST

TASK	NAME
Date:	
Location:	
At a manned facility	
Evaluate the situation; approach cautiously from upwind; do not rush in.	
Notify the local police and fire departments. – Call 911	
Notify Supervisory Personnel.	
Notify GMO Hot Line. **833-463-6749**	
Appropriately trained personnel may attempt to extinguish the fire if it is in the incipient (early) stage and **if it can be done safely**.	
If the fire/explosion is a result of a pipe rupture, isolate product release by closing valves.	
Undertake basic site control: - Make an assessment of hazards. - Isolate the area. - Keep people away from the scene and outside the safety perimeter. - Establish safety zones and escape routes.	
Respond to the fire: - Establish a Command Post and lines of communication. - Maintain site control. - Establish Incident Command/Unified Command as necessary.	
Call in additional resources if on scene personnel and equipment are inadequate to handle the emergency.	
Conduct a post-emergency evaluation and report.	
At an unmanned facility	
Handle the call.	
Notify the local police and fire departments. – Call 911	
Notify Supervisory Personnel.	
Notify GMO Hot Line. **833-463-6749**	
Go to the incident scene to evaluate the situation; approach cautiously from upwind; do not rush in.	
Undertake basic site control: - Make an assessment of hazards.	

TASK	NAME
- Isolate the area. - Keep people away from the scene and outside the safety perimeter. - Establish safety zones and escape routes.	
If roads or railroads are in the affected area, assist the sheriff or local emergency officials with halting traffic.	
Update Supervisory Personnel/Management.	
If the fire/explosion is a result of a pipe rupture, isolate the product release by closing valves.	
Respond to the fire: - Establish a Command Post and lines of communication. - Maintain site control. - Establish Incident Command/Unified Command as necessary.	
Call in additional resources if on scene personnel and equipment are inadequate to handle the emergency.	
Conduct a post-emergency evaluation and report.	

2.8 VAPOR CLOUD

All suspected conditions that may pose an inhalation or skin absorption hazard shall be identified at the Pipeline. Examples of such hazards include visible vapor clouds or areas where biological indicators are located. In case of emergency due to vapor clouds, refer to the checklist below.

TABLE 2-8 VAPOR CLOUD CHECKLIST

Date:	
Location:	
	NAME
TASK	
The person who discovers the vapor cloud will sound the alarm and notify the supervisor on duty and vacate the area.	
The vapor cloud limits will be determined by utilizing the appropriate instruments.	
Remember: the only proper action in the presence of a vapor cloud is to get away from it. Do not shut off electrical equipment.	
All personnel will report to the evacuation muster point for roll call and further instructions.	
After all personnel have been accounted for, the Facility Management, the Facility Supervisor, or a Facility Operator will initiate the following actions as deemed necessary: - Shut down pipeline. - Evacuate adjacent property. - Only the fire department will be permitted to enter the Facility.	
Contact the appropriate agencies and potentially affected neighbors.	

3 NOTIFICATIONS/CONTACT INFORMATION

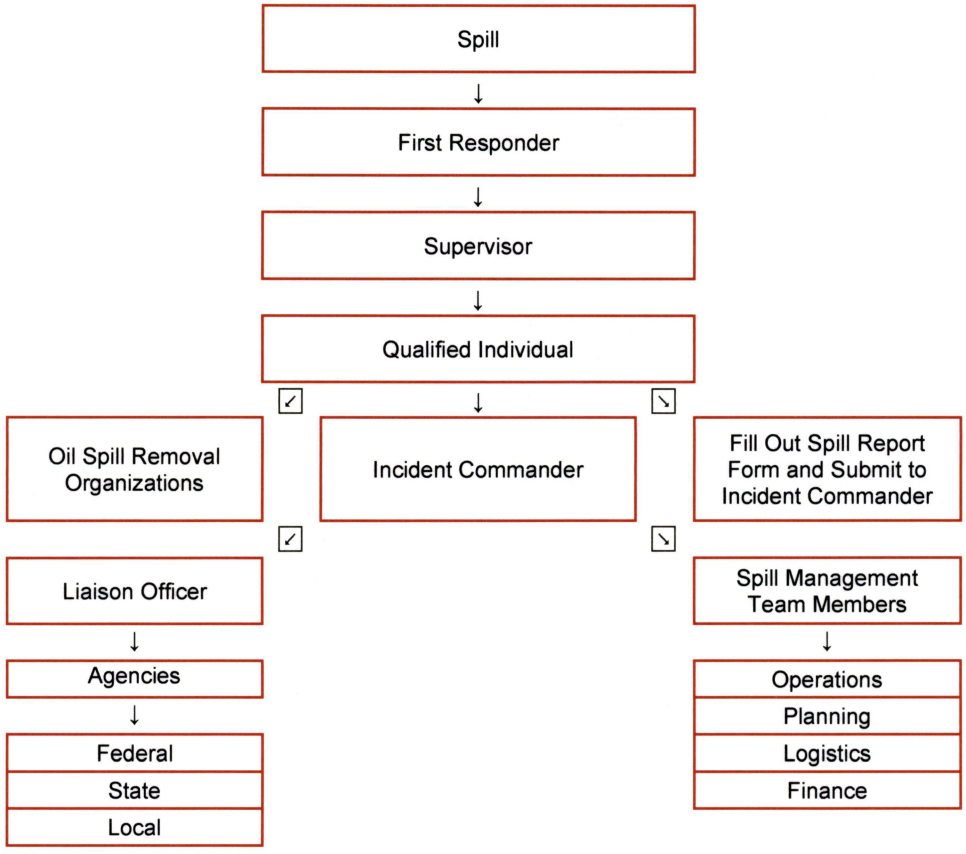
3.1 EMERGENCY INFORMATION AND NOTIFICATION PROCEDURES

The notification sequence for a spill is as follows:

- Pipeline personnel will identify and control the source of a spill, if safe to do so, then will make the following notifications as appropriate. The order of notifications will be dependent on the event.
  - Qualified Individual (QI)
  - 911
- The Qualified Individual will assume or assign the role of Incident Commander, and will conduct notifications of response contractors, incident management team members and other company personnel.

The priority of actions and response procedures will depend upon actual circumstances and will be determined by the Incident Commander.

FIGURE 3 - EMERGENCY NOTIFICATION FLOW CHART



The internal notification and contact information for the GMO Pipeline is presented below in Table 3-1.3. The table includes internal contact, response time, responsibility, and specific training.

TABLE 3-1.1 INITIAL SPILL/RELEASE NOTIFICATION FORM

Time: **Date:**
Person making call (GMO or 3rd Party):
Phone number of person calling:
Location call came in:
Phone number call received at:
Location of Incident (from intersection or address or other landmark):
Description of incident:
Material involved:
Weather conditions:
Injuries:
Outside parties involved:
Instructions or warnings given to caller if any:
Action of caller or outside party if any:
Person receiving call:
Person information relayed to:

TABLE 3-1.2 PIPELINE SPILL PHONE NOTICE

(CHECK ONE): INITIAL NOTICE _____ FOLLOW UP_____					Report No. _____ EPA 40 CFR Part 110.10 DOT 49 CFR Part 195.52
GMO Employee received from:					
Time notified by employee: _____ Date: _____					
NOTE: IT IS NOT NECESSARY TO WAIT FOR ALL INFORMATION BEFORE CALLING					
CONDITIONS (Yes to any requires notification)					
Sheen on water	Yes	No	Fire	Yes	No
Explosions	Yes	No	Hospitalization or death	Yes	No
Property damage including value of lost product and repairs above $50,000 $_____					
INFORMATION TO REPORT					
GMO:					
Reporter:					
Telephone Number:					
Leak Location: (address or distance from town, directions from major intersections, latitude, longitude, mile post or river mile)					
County:					State:
Pipeline System Name:					
Name of body of water, river it flows to:					
Product spilled: Amount: _____ bbls					
Quantity in water:					
Regulated by: DOT Intrastate					
Storage tank Container Type: Aboveground _____ Below ground _____					
Tank/line size: _____ Time leak discovered: _____					
Cause of leak : (Do not give unless sure)					
Actions taken to correct or mitigate incident:					
Status of Cleanup:					

Agencies notified: (EPA, State, USCG, Other):	
IMPACT	
Number of: Injuries _____	Fatalities: _____
Were there evacuations? Yes No	Number of Evacuations _____
Was there any damage? Yes No	Damage in $ _____
WEATHER CONDITIONS	
Temperature:	Humidity:
Wind Direction:	Wind Speed:
Soil Type - for liquids only (check one)	Sand ___ Silt ___ Clay ___
Depth of Soil Contamination:	
INFORMATION TO OBTAIN FROM AGENCY	
Comments or questions:	
Follow-up reports required? Yes No	Frequency?
Name of agency personnel reported to:	
Report No.	
Signed:	Date:

TABLE 3-1.3 INTERNAL NOTIFICATIONS AND CONTACT INFORMATION

NAME / POSITION	WORK ADDRESS	EMERGENCY PHONE NUMBER	RESPONSE TIME	RESPONSIBILITY	RESPONSE TRAINING
Tom Hedegaard, Area Operations Manager	14689 Brigham Drive, Williston, ND 58801	Office: 701-875-3501 Mobile: 701-339-0251	<1 hour	Incident Commander/ Emergency Response Team	SPCC Spill Training/ Annual Response and Tabletop Drills
Terry Arneson, CDP (Central Deliveries Point) and Facility Superintendent	14689 Brigham Drive, Williston, ND 58801	Office: 701-875-3501 Mobile: 701-339-8618	<1 hour	Operations Lead/ Emergency Response Team	SPCC Spill Training/ Annual Response and Tabletop Drills
Dusty Grosulak, EHS Manager	14689 Brigham Drive, Williston, ND 58801	Office: 701-875-3501 Mobile: 701-260-1138	<1 hour	Environmental Health and Safety/ Emergency Response Team	SPCC Spill Training/ Annual Response and Tabletop Drills

The following external contractors and their response times are listed below and can be called to assist in an emergency response. Evidence of contracts with these response contractors is included in Appendix B.

COMPANY	CONTRACTOR CONTACT INFORMATION	ESTIMATED RESPONSE TIME
Afterhours Emergency Response Contractors		
SWAT	12 Sunrise Estates Road Watford City, North Dakota 866-610-7928	1 hour
Vacuum Truck Services		
SWAT	12 Sunrise Estates Road Watford City, North Dakota 866-610-7928	1 hour
Backhoe Services		
SWAT	12 Sunrise Estates Road Watford City, North Dakota 866-610-7928	1 hour

TABLE 3-1.4 EXTERNAL NOTIFICATIONS AND CONTACT INFORMATION

REGULATORY NOTIFICATIONS

North Dakota

National Response Center
(Spill Reporting Line - 24 hour/day-7 days/week) 800-424-8802

U.S. Environmental Protection Agency Region 8
Emergency Hotline 800-227-8917

North Dakota Department of Environmental Quality
Spill Report Hotline 701-328-5210

North Dakota Industrial Commission (NDIC)
Oil and Gas Division 701-328-3722

North Dakota Oil and Gas Division
Oil and Gas Division 701-328-8020

North Dakota Department of Emergency Services
Emergency Services (24 Hours) 701-328-8100
State Radio Hotline (24 Hours) 833-997-7455

Written Notifications to:

NDIC Oil and Gas Division (mailing address)
600 East Boulevard Avenue, Department 405
Bismarck, North Dakota 58505-0840

North Dakota Spill Reporting website (online reporting)
https://www.spill.nd.gov/

North Dakota Department of Environmental Quality, Division of Water Quality

Written reports to be submitted only upon request to:

North Dakota Department of Environmental Quality, Ground Water Quality Division
4201 Normandy Street
Bismarck, North Dakota 58503-1324

Other Agencies

Written reports may be required by other agencies, as requested.

Montana

National Response Center
(Spill Reporting Line - 24 hour/day-7 days/week) 800-424-8802

U.S. Environmental Protection Agency Region 8
Emergency Hotline 800-227-8917

Montana Department of Environmental Quality
Spill Report Hotline 406-444-0379

Montana Department of Natural Resources and Conservation (MDNRC)
Board of Oil and Gas Conservation 406-656-0040

North Dakota Department of Emergency Services
Emergency Services (24 Hours) 406-324-4777

Notifications: Petroleum releases from regulated aboveground storage tanks (AST), underground storage tanks (UST) or petroleum storage tanks (PST) must be reported to DEQ within 24 hours of being detected as required by ARM 17.56, Subchapter 5. DEQ must be notified of releases of greater than 25 gallons of petroleum from an AST, UST or PST. Petroleum releases less than 25 gallons in volume must be contained and cleaned up within 24 hours. If cleanup cannot be completed within 24 hours, owners and operators must report the release to DEQ. DEQ maintains a leak line for reporting releases from an AST, UST or PST at 800-457- 0568. Outside normal business hours, releases must be reported to the DES Duty Officer 24-hour phone number at (406) 324-4777. Releases must be reported to a live person - voice mails are not adequate notification.

PUBLIC SAFETY / EMERGENCY NOTIFICATION – North Dakota

McKenzie County

Emergency Notification - Fire/Ambulance/Police 911

McKenzie County Sheriff 701-444-3654
1201 West 12th Street SE, Watford City, North Dakota 58854

McKenzie County Healthcare Systems 701-842-3000
516 North Main Street, Watford City, North Dakota 58854

North Dakota Department of Emergency Services (SERC)
Director/Chairman State Emergency Response Commission 701-328-8100

North Dakota State Fire Marshal
Ray Lambert 701-328-5555

U.S. Environmental Protection Agency Region 8
Emergency Hotline 800-227-8917
Region 8 Direct Line 303-312-6312
Region 8 Tribal Assistance 303-312-6264
Duty On-Scene Coordinator 303-312-6048

Mountrail County

Emergency Notification - Fire/Ambulance/Police 911

Mountrail County Sheriff 701-628-2975
101 N Main Street, Stanley, North Dakota 58784

Mountrail County Medical Center 701-628-2424
615 6th Street SE, Stanley, North Dakota 58784

North Dakota Department of Emergency Services (SERC)
Director/Chairman State Emergency Response Commission 701-328-8100

North Dakota State Fire Marshal
Ray Lambert 701-328-5555

U.S. Environmental Protection Agency Region 8
Emergency Hotline 800-227-8917
Region 8 Direct Line 303-312-6312
Region 8 Tribal Assistance 303-312-6264
Duty On-Scene Coordinator 303-312-6048

Williams County

Emergency Notification - Fire/Ambulance/Police 911

Williams County Sheriff 701-577-7700
223 E Broadway, Williston, North Dakota 58801

CHI St. Alexius Health Williston Medical Center 701-774-7400
1301 15th Avenue W, Williston, North Dakota 58801

North Dakota Department of Emergency Services (SERC)
Director/Chairman State Emergency Response Commission 701-328-8100

North Dakota State Fire Marshal
Ray Lambert 701-328-5555

U.S. Environmental Protection Agency Region 8
Emergency Hotline 800-227-8917
Region 8 Direct Line 303-312-6312
Region 8 Tribal Assistance 303-312-6264
Duty On-Scene Coordinator 303-312-6048

PUBLIC SAFETY / EMERGENCY NOTIFICATION – Montana

Richland County

Emergency Notification - Fire/Ambulance/Police 911

Richland County Sheriff 406-433-2919
300 12th Avenue NW, Sidney, MT 59270

Sidney Health Center: Emergency Room 406-488-2100
216 14th Avenue SW, Sidney, MT 59270

Montana Department of Emergency Services (SERC)
Montana Disaster and Emergency Services Division 406-324-4777

Montana State Fire Marshal
Dick Swingley 406-444-2050

U.S. Environmental Protection Agency Region 8
Emergency Hotline 800-227-8917
Region 8 Direct Line 303-312-6312
Region 8 Tribal Assistance 303-312-6264
Duty On-Scene Coordinator 303-312-6048

Roosevelt County

Emergency Notification - Fire/Ambulance/Police 911

Roosevelt County Sheriff 406-653-6216
415 S 2nd Avenue, Wolf Point MT 59201

Roosevelt Medical Center 406-787-6400
818 2nd Avenue E, Culbertson, MT 59218

Montana Department of Emergency Services (SERC)
Montana Disaster and Emergency Services Division 406-324-4777

Montana State Fire Marshal
Dick Swingley 406-444-2050

U.S. Environmental Protection Agency Region 8
Emergency Hotline 800-227-8917
Region 8 Direct Line 303-312-6312
Region 8 Tribal Assistance 303-312-6264
Duty On-Scene Coordinator 303-312-6048

STATE AND FEDERAL AGENCY ADDITIONAL CONTACTS

North Dakota

US Fish and Wildlife Service (USFWS), North Dakota Ecological Services 701-250-4481

Bureau of Land Management (BLM) Dickinson 701-227-7700

North Dakota Forest Service, Bismarck 701-328-9944

U.S. Corps of Engineers, Bismarck 701-255-0015

North Dakota Game and Fish Department, Division of Wildlife,
District 6 – Williston 701-774-4320

Montana

US Fish and Wildlife Service (USFWS), Helena 406-449-5225

Bureau of Land Management (BLM) Billings 406-896-5000

District Forest Service Ranger, Sulphur Springs 406-547-3361

U.S. Corps of Engineers, Helena District 406-441-1375

North Dakota Game and Fish Department, Division of Wildlife, Helena 406-444-2535

LOCAL EMERGENCY PLANNING COMMITTEE (LEPC)

McKenzie County

McKenzie County, North Dakota
Karolin Jappe
201 5th Street NW
Watford City, North Dakota 58854 701-444-7483

Mountrail County

Mountrail County, North Dakota
Warren Bogert
Post Office Box 309
Stanley, North Dakota 58784 701-628-2975

Williams County

Williams County, North Dakota
Jeff Thompson
Fraine Barracks Lane – Building 35
PO Box 5511
Bismarck, North Dakota 58804 701-328-8100

Richland County

Richland County, Montana
Dan Sietsema
416-1/2 2nd Avenue South
Sidney, Montana 59270 406-433-2220

Roosevelt County

Roosevelt County, Montana
Lee Allmer
400 2nd Avenue South
Wolf Point, Montana 59201 406-653-6224

UTILITIES

McKenzie County

Electricity/Power – McKenzie Electric 800-584-9239

Natural Gas – Dakota Natural Gas 888-933-9743

Telephone/Internet – Midcontinent Communications 800-888-1300

National Weather Service Recorded Forecast Williston 701-572-2351

Mountrail County

Electricity/Power – Mountrail Williams Electric Cooperative 800-279-2667

Natural Gas – Dakota Natural Gas 888-933-9743

Telephone/Internet – Midcontinent Communications 800-888-1300

National Weather Service Recorded Forecast Williston 701-572-2351

Williams County

Electricity/Power – Lower Yellowstone Electric 844-441-5627

Natural Gas – Dakota Natural Gas 888-933-9743

Telephone/Internet – Midcontinent Communications 800-888-1300

National Weather Service Recorded Forecast Williston 701-572-2351

MEDIA

KFYR-TV / West Dakota Fox
Contact: 701-255-5757

KXMB/KXMA
Contact: 701-223-9197

KXMC/KXMD
Contact: 701-852-2104

KMOT-TV
Contact: 701-852-4101

Prairie Public Radio
Contact: 701-241-6900

AGENCY / ADDRESS	REPORTING REQUIREMENT
DOT Pipeline and Hazardous Materials Safety Administration	Per 49 CFR 195.50, the following requirements would apply to GMO operated pipelines and facilities regulated by DOT. NOTIFICATION: at earliest practical moment to DOT and NRC, within 1 hour. Reporting required for incidents regardless of whether petroleum is spilled, if any of the following occurs: 1. Fire or explosion; 2. Fatality or hospitalization of a person; 3. Spill of >= 5 gallons (5 bbls if part of maintenance work and contained in ROW); 4. Property damage >$50,000; 5. Body of water is polluted. TIME REQUIREMENT: Submit DOT Form 7000-1 to DOT within 30 calendar days.
National Response Center	NOTIFICATION: Discharge of oil that impacts water or results in a sheen on water. [40 CFR 110.3] TIME REQUIREMENT: Immediately [40 CFR 110.6]

4 RESPONSE TEAM ORGANIZATION

4.1 DESCRIPTION

GMO has developed its emergency response organization around the Incident Command System (ICS), which provides the structure for effective management of response resources. The Incident Management Team (IMT) has been created and organized to plan for and manage oil spills and other emergencies.

The IMT is composed of GMO personnel from offices within the area. Additional personnel from outlying offices can be used if needed. The IMT will develop strategies and priorities for a response, then will supervise contractors, handle safety and security matters and will provide logistical support for contractor personnel. The IMT will handle all communications will the media and the public. The IMT will train by participating in exercises.

4.2 ACTIVATION PROCEDURES

Activation of the IMT may be accomplished in stages. Initially, the First Responder assumes the role of Incident Commander (IC). During a spill incident, the initial IC may be able to respond without assistance from the IMT. If the situation requires more resources, additional personnel or management support may be requested from the IMT. This request is made to the Qualified Individual (QI). Depending on the situation, the QI may then assume the role of Incident Commander. The QI would then call out the other IMT members.

4.3 TEAM MEMBER RESPONSE TIMES

The following is a list of personnel employed by the facility who can respond as Incident Commanders (emergency coordinators) in the event of a release.

NAME / POSITION	WORK ADDRESS	EMERGENCY PHONE NUMBER	RESPONSE TIME	RESPONSIBILITY	RESPONSE TRAINING
Tom Hedegaard, Area Operations Manager	14689 Brigham Drive, Williston, ND 58801	Office: 701-875-3501 Mobile: 701-339-0251	<1 hour	Incident Commander/ Emergency Response Team	SPCC Spill Training/ Annual Response and Tabletop Drills
Terry Arneson, CDP (Central Deliveries Point) and Facility Superintendent	14689 Brigham Drive, Williston, ND 58801	Office: 701-875-3501 Mobile: 701-339-8618	<1 hour	Operations Lead/ Emergency Response Team	SPCC Spill Training/ Annual Response and Tabletop Drills
Dusty Grosulak, EHS Manager	14689 Brigham Drive, Williston, ND 58801	Office: 701-875-3501 Mobile: 701-260-1138	<1 hour	Environmental Health and Safety/ Emergency Response Team	SPCC Spill Training/ Annual Response and Tabletop Drills

4.4 INCIDENT COMMAND SYSTEM

The ICS will be used by the GMO IMT for spill response. The organization can be expanded or contracted as necessary. If an OSRO or other contractor is used to staff ICS positions for the Incident Management Team, the commitment will be specified in writing.

The Unified Command System (UCS) is the accepted method of organizing key spill management entities within the Incident Command System. The primary entities include:

- Federal On-Scene Coordinator (FOSC)
- State On-Scene Coordinator (SOSC)
- GMO Incident Commander

These three people share decision-making authority within the ICS and are each responsible for coordinating other federal, state, and GMO personnel to form an effective integrated IMT.

4.5 QUALIFIED INDIVIDUALS

The following Qualified Individuals have full authority to implement the FRP including:

- Activate internal alarm and hazard communication systems to notify all appropriate personnel.
- Notify all response personnel and contractors (as needed).
- Identify the character, exact source, amount, and extent of the release and other necessary items needed for notifications.

- Notify and provide information to appropriate federal, state, and local authorities.
- Assess the interaction of the spilled substance with water and/or other substances stored at the facility and notify on-scene response personnel of assessment.
- Assess possible hazards to human health and the environment.
- Assess and implement prompt removal actions.
- Coordinate rescue and response actions.
- Access funds to initiate cleanup activities.
- Direct cleanup activities until properly relieved of the responsibility or the incident is terminated.

NAME / POSITION	WORK ADDRESS	EMERGENCY PHONE NUMBER	RESPONSE TIME	RESPONSIBILITY	RESPONSE TRAINING
Tom Hedegaard, Area Operations Manager	14689 Brigham Drive, Williston, ND 58801	Office: 701-875-3501 Mobile: 701-339-0251	<1 hour	Incident Commander/ Emergency Response Team	SPCC Spill Training/ Annual Response and Tabletop Drills
Terry Arneson, CDP (Central Deliveries Point) and Facility Superintendent	14689 Brigham Drive, Williston, ND 58801	Office: 701-875-3501 Mobile: 701-339-8618	<1 hour	Operations Lead/ Emergency Response Team	SPCC Spill Training/ Annual Response and Tabletop Drills
Dusty Grosulak, EHS Manager	14689 Brigham Drive, Williston, ND 58801	Office: 701-875-3501 Mobile: 701-260-1138	<1 hour	Environmental Health and Safety/ Emergency Response Team	SPCC Spill Training/ Annual Response and Tabletop Drills

FIGURE 4 - INCIDENT MANAGEMENT TEAM ACTIVATION PROCEDURE

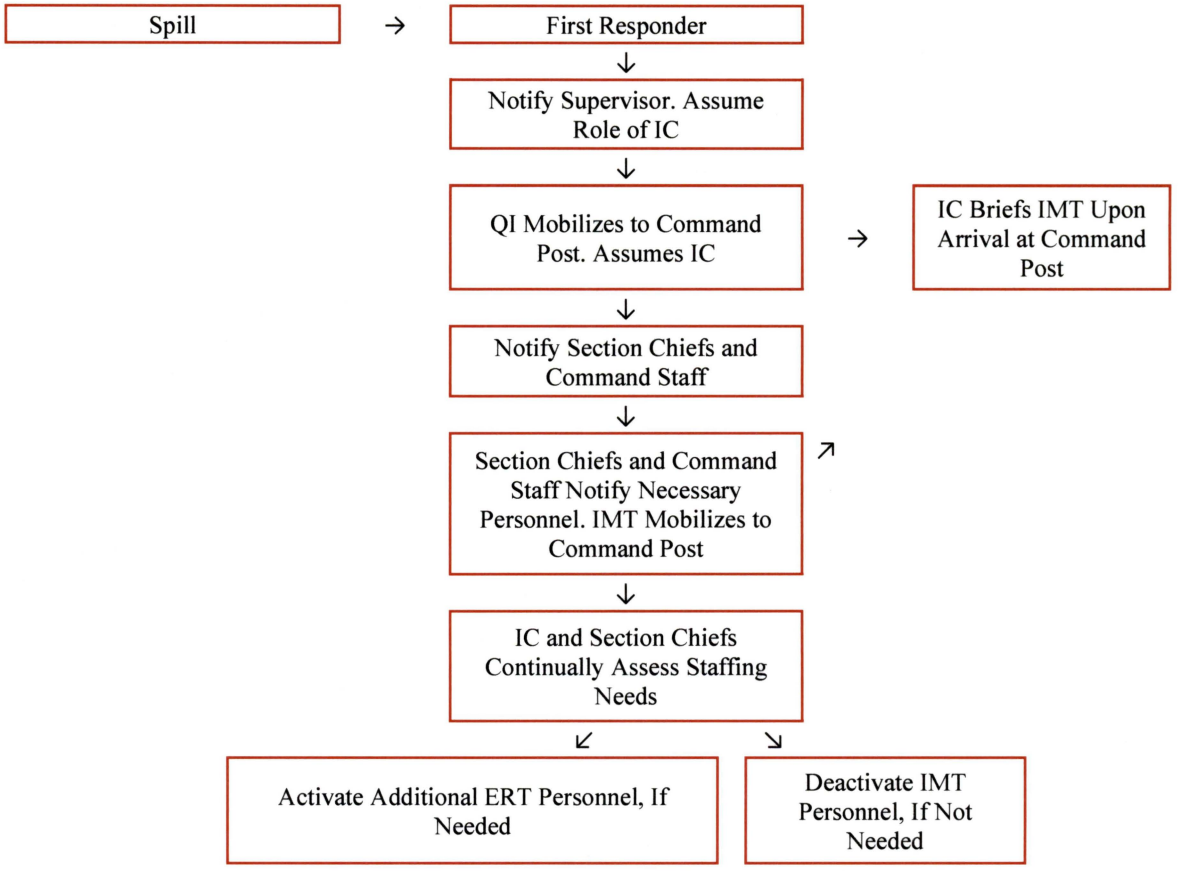
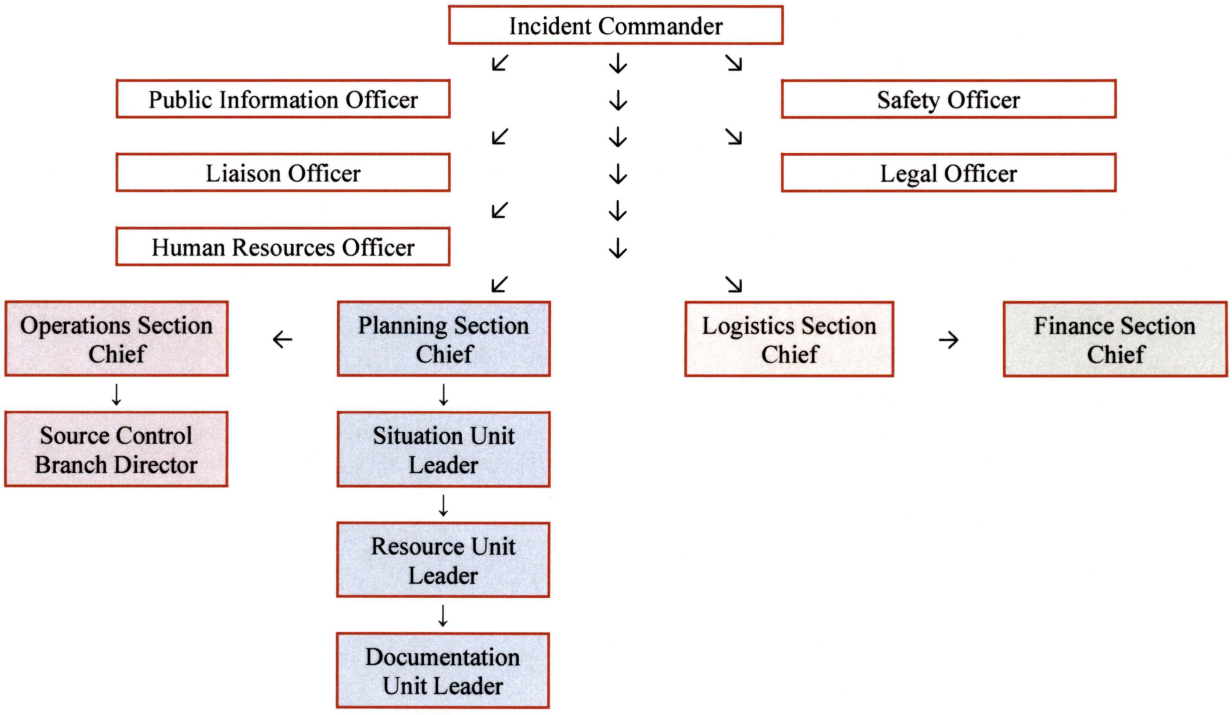


FIGURE 5 - INCIDENT MANAGEMENT TEAM ORGANIZATION CHART



4.6 INCIDENT MANAGEMENT TEAM

4.6.1 QUALIFIED INDIVIDUAL (QI)

The QI receives initial notification of an emergency event. The QI sizes up the event and is responsible for standing up appropriate emergency response teams, activating OSRO, and ensuring internal and external notifications are made. The QI has full authority to obligate any funds required to carry out response efforts.

Responsibilities Checklist:

- Available by phone to receive first notification and information about an emergency event.
- Obtain accurate information concerning the event (if spill, use spill report form).
- Support field with medical emergencies, if necessary (e.g., med-evacs).
- Evaluate the scale / complexity of the event and level of response needed. Determine if the Incident Management Team (IMT) will be led by GMO or another party as delegated by GMO. If the IMT will be led by GMO, the acting QI assumes the role of Incident Commander. If the IMT will be led by another party, they will assign an Incident Commander to represent GMO.
- Ensure all internal/external notifications are made per GMO policy.

ICS Forms (or Other Documents) Relevant to Position:

- Spill Report Form, as necessary (prepare/review)
- ICS 214a-OS: Individual Log (document event / activities)

4.6.2 INCIDENT COMMANDER (IC)

The IC's responsibility is the overall management of the incident. The IC leads the command and general staff positions on the Incident Management Team (IMT). The IC may have a Deputy IC. The Deputy IC must have the same qualifications as the IC as they must be ready to take over command of the incident at any time.

Responsibilities Checklist:

- Notify Main Alarm and Notification Center Norway (011-47-51-99-00-02).
- Notify GMO Senior Vice President of affected US operations.
- Ensure all response activities are carried out following the **P.E.A.R.** priorities (protection of 1. People, 2. Environment, 3. Asset and 4. Reputation).
- Review Common Responsibilities.
- Assess the situation and/or obtain a briefing from the prior IC (201 Briefing).
- Determine Incident Objectives and general direction for managing the incident.
- Establish the immediate priorities.
- Establish an ICP.
- Brief Command Staff and Section Chiefs.
- Review meetings and briefings.
- Establish an appropriate organization.
- Ensure planning meetings are scheduled as required.

- Approve and authorize the implementation of an IAP.
- Ensure that adequate safety measures are in place.
- Coordinate activity for all Command and General Staff.
- Coordinate with key people and officials.
- Approve requests for additional resources or for the release of resources.
- Keep agency administrator informed of incident status.
- Approve the use of trainees, volunteers, and auxiliary personnel.
- Authorize release of information to the news media.
- Ensure incident Status Summary (ICS Form 209) is completed and forwarded to appropriate higher authority.
- Order the demobilization of the incident when appropriate.

ICS Forms (or Other Documents) Relevant to Position:

- ICS 201-CG: Incident Briefing (review)
- ICS 202-CG: Incident Objectives (review)
- ICS 209-CG: Incident Status Summary (review)
- ICS 214a-OS: Individual Log (document event / activities)
- IAP Cover Sheet (sign and approve)

4.6.3 SAFETY OFFICER (SOFR)

The SOFR, a member of the Command Staff, develops and recommend measures for assuring personnel safety and to assess and/or anticipate hazardous and unsafe situations. Only one primary SOFR will be assigned for each incident.

Responsibilities Checklist:

- Review Common Responsibilities.
- Participate in tactics and planning meetings, and other meetings and briefings as required.
- Identify hazardous situations associated with the incident.
- Review the IAP for safety implications.
- Provide safety advice in the IAP for assigned responders.
- Exercise emergency authority to stop and prevent unsafe acts.
- Investigate accidents that have occurred within the incident area.
- Assign assistants as needed.
- Review and approve the medical plan (ICS Form 206).
- Develop the Site Safety Plan and publish Site Safety Plan summary (ICS Form 208) as required.
- Developed Work Safety Analysis Worksheet as required.
- Ensure that all required agency forms, reports, and documents are completed prior to demobilization.
- Brief Command on safety issues and concerns.
- Have debriefing session with the IC prior to demobilization.

ICS Forms (or Other Documents) Relevant to Position:

- ICS 202-CG: Response Objectives (review safety messages)
- ICS 204-CG: Assignment List (review safety considerations)

- ICS 206-CG: Medical Plan (review)
- ICS 208-CG: Site Safety Plan (prepare)
- ICS 209-CG: Incident Status Summary (update safety status)
- ICS 214-CG: Unit Log (document event / activities)
- ICS 214a-OS: Individual Log (document event / activities)
- ICS 215a-CG: Incident Action Plan Safety Analysis (prepare)

4.6.4 PUBLIC INFORMATION OFFICER (PIO)

The PIO, a member of the Command Staff, is responsible for developing and releasing information about the incident to the news media, to incident personnel, and to other appropriate agencies and organizations. Only one primary PIO will be assigned for each incident.

Responsibilities Checklist:

- Notify the corporate communication on-duty officer at + 47 51 99 00 00. Agree on division of tasks related to media.
- Notify other internal communication resources; involve CCOM PPA US (Washington DC office). Advise of facts and both public and media involvement.
- Review Common Responsibilities.
- Determine from the IC if there are any limits on information release.
- Develop material for use in media briefings.
- Obtain IC approval (and legal / Line 3 alignment) of media releases.
- Inform media and conduct media briefings.
- Arrange for tours and other interviews or briefings that may be required.
- Manage a Joint Information Center (JIC) if established.
- Obtain media information that may be useful to incident planning.
- Maintain current information summaries and/or displays on the incident and provide information on the status of the incident to assigned personnel.
- Ensure that all required agency forms, reports, and documents are completed prior to demobilization.
- Brief Command on PIO issues and concerns.
- Have a debriefing session with the IC prior to demobilization.

ICS Forms (or Other Documents) Relevant to Position:

- ICS 214-CG: Unit Log (document activities for Joint Information Center)
- ICS 214a-OS: Individual Log (document event / activities)
- General Plan (prepare External Affairs Plan)
- Media Briefings (prepare)

4.6.5 LIAISON OFFICER (LOFR)

Incidents that are multi-jurisdictional, or have several agencies involved, may require the establishment of the LOFR position on the Command Staff. Only one LOFR will be assigned for each incident, including incidents operating under Unified Command and multi-jurisdiction incidents. The LOFR is assigned to the incident to be the contact for assisting and/or cooperating Agency Representatives.

Responsibilities Checklist:

- Review Common Responsibilities.
- Be a contact point for Agency Representatives.
- Maintain a list of assisting and cooperating agencies and Agency Representatives. Monitor check-in sheets daily to ensure that all Agency Representatives are identified.
- Assist in establishing and coordinating interagency contacts.
- Keep agencies supporting the incident aware of incident status.
- Monitor incident operations to identify current or potential inter-organizational problems.
- Participate in planning meetings, providing current resource status, including limitations and capability of assisting agency resources.
- Coordinate response resource needs for Natural Resource Damage Assessment and
- Restoration (NRDAR) activities with the OSC during oil and HAZMAT responses.
- Coordinate response resource needs for incident investigation activities with the OSC.
- Ensure that all required agency forms, reports, and documents are completed prior to demobilization.
- Brief Command on Agency issues and concerns.
- Coordinate activities of visiting dignitaries.
- Maintain Unit Log (ICS 214-CG).

ICS Forms (or Other Documents) Relevant to Position:

- ICS 214a-OS: Individual Log (document event / activities)
- Agency Contact Information (update)

4.6.6 LEGAL OFFICER

The Legal Officer, a member of the Command Staff, is responsible for providing advice and direction on all matters of a legal nature including claims, legal requirements relating to the emergency response, investigations, Natural Resource Damage Assessment (NRDA), major procurement contracts, insurance coverage, and review of information releases to the media, government agencies and the public.

Responsibilities Checklist:

- Review Common Responsibilities.
- Obtain briefing from the IC.
- Advise the IC and Unified Command (UC), as appropriate, on all legal issues associated with response operations.
- Establish documentation guidelines for and provide advice regarding response activity documentation to the entire response organization (local ERT, IMT, and Line 3 Leader) including any contractors.
- Provide legal input to the Documentation Unit, the Compensation / Claims Unit, and other appropriate Units as requested.
- Review press releases, documentation, contracts, and other matters that may have legal implications for GMO.
- Participate in Incident Command System (ICS) meetings and other meetings, as requested.
- Participate in incident investigations and the assessment of damages (including natural resource damage assessments).

ICS Forms (or Other Documents) Relevant to Position:

- ICS 214a-OS: Individual Log (document event / activities)

4.6.7 HUMAN RESOURCES OFFICER

The Human Resource Officer, a member of the Command Staff, leads the HR function during the emergency response and ensures support is provided for affected employees and Next of Kin (NoK).

Responsibilities Checklist:

- Review Common Responsibilities.
- Obtain an overview of emergency situation and affected personnel.
  - Are all personnel accounted for on the Personnel on Board (POB) List?
  - Are there any fatalities? Are there any injuries (severity levels)?
  - What is the potential for impact on people?
- Determine what current and potential HR support may be needed.
- If incident exceeds GMO capacity to respond, inform Incident Commander (IC) and activate additional personnel or contractors immediately.
- Activate Care Team Supervisor and Care Team as needed. Mobilize more people than you think you will need, as deactivation can occur if required. Depending on the incident, may want to put HR contacts in other locations on standby in the event they will be needed for support.
- Once HR personnel are mobilized, provide HR responder names to ER team Crisis Manager
- Loggers to provide them access to Crisis Manager (if choose to use Crisis Manager for documentation).
- Coordinate with Communications for an approved message for both Family Support phone message and official script for Care Team to provide to NoK. Ensure this is regularly updated and provided to Care Team Supervisor.
- Obtain confirmed identity and information regarding affected personnel.
- Request that all personnel involved in the incident (on rig, bus, plane, airport, etc.) contact their own NoK and family members to let them they are ok (if they are able to do so).
- Ensure NoK of affected personnel are immediately contacted to ensure the GMO care team is the first contact.
- Update and coordinate with the Care Team Supervisor to ensure information released to NoK is approved.
- Align with Public Information Officer on information released to media. Ensure personal information is not released to the public before NoK has been notified and has given permission.
- Ensure that the Contractors head office is notified of its responsibility to make NoK notification. Obtain Contractors NoK or ER helpline telephone number. Determine
- Contractor office capacity to make appropriate notification and provide support to Contractor if needed or able - Use the HR Care Team Supervisor.
- Ensure activation of external resources (Employee Assistance Program, Seaman's Church, etc.) is initiated, if needed. Use Care Team Supervisor and HR Emergency External
- Resource list from the HR Emer Resp Toolkit.
- Propose whether a reception center for employees and/or NoK arrival is needed.
- Propose whether GMO HR or representative should be sent to location, reception, hospital etc.
- Determine and communicate applicable HR support, policies and benefits to incident team/supervisors.
- Determine support needed for co-workers and activate resources as needed.
- Review people and organizational impact to ensure business continuity (in conjunction with Planning Section Chief).
- Ensure appropriate activities are logged into Crisis Manager.

ICS Forms (or Other Documents) Relevant to Position:

- ICS 214a-OS: Individual Log (document event / activities)

4.6.8 OPERATIONS SECTION CHIEF (OSC)

The OSC, a member of the General Staff, is responsible for the management of all tactical operations directly applicable to the primary mission. The OSC will normally be selected based upon the type and location of the incident (e.g., drilling vs. operations; onshore vs. offshore, etc.).

The OSC activates and supervises organization elements in accordance with the IAP and directs its execution. The OSC also directs the preparation of operational plans; requests or releases resources, monitors operational progress and makes expedient changes to the IAP, as necessary; and reports such to the IC.

The OSC may have a Deputy OSC. The Deputy OSC must have the same qualifications as the person for whom they work, as they must be ready to take over that position at any time. In complex incidents, the OSC may assign a Deputy OSC to supervise on-scene operations.

Responsibilities Checklist for OSC:

- Review Common Responsibilities.
- Obtain briefing from IC.
- Evaluate and request sufficient supervisory staffing for both operational and planning activities.
- Convert operational incident objectives into strategic and tactical options. These options may be documented on a Work Analysis Matrix (ICS-234-CG).
- Coordinate and consult with the PSC, SOFR technical specialists, modeling scenarios, trajectories, etc., on selection of appropriate strategies and tactics to accomplish objectives.
- Identify kind and number of resources required to support selected strategies.
- Subdivide work areas into manageable units.
- Develop work assignments and allocate tactical resources based on strategic requirements (i.e. develop the ICS-215-CG) ensuring all tactical objectives are addressed.
- Coordinate planned activities with the SOFR to ensure compliance with safety practices.
- Participate in the planning process and the development of the tactical portions (ICS 204-CG and ICS 220-CG) of the IAP.
- Assist with development of long-range strategic, contingency, and demobilization plans.
- Evaluate and monitor current situation for use in next operational period planning.
- Participate in operational briefings to IMT members as well as briefings to media and visiting dignitaries.
- Develop recommended list of Section resources to be demobilized and initiate recommendation for release when appropriate.
- Receive and implement applicable portions of the incident Demobilization Plan.

Responsibilities Checklist for Deputy OSC (if required under complex incidents):

- Bakken Pipeline Facility Response Plan, Gathering System Pipelines Page 4 - 17
- Supervise Operations Section field personnel.
- Implement the IAP for the Operations Section.

- Evaluate on-scene operations and make adjustments to organization, strategies, tactics, and resources as necessary.
- Ensure the Resources Unit is advised of changes in the status of resources assigned to the section.
- Ensure that Operations Section personnel execute work assignments following approved safety practices.
- Monitor need for and request additional resources to support operations as necessary.
- Assemble/dissemble task force/strike teams as appropriate.
- Identify/utilize staging areas.

ICS Forms (or Other Documents) Relevant to Position:

- ICS 201-CG: Incident Briefing (prepare with On Scene-Commander)
- ICS 204-CG: Assignment List (review with Resource Unit Leader)
- ICS 215-CG: Operational Planning Worksheet (review with Resource Unit Leader)
- ICS 214a-OS: Individual Log (document event / activities)
- ICS 220-CG: Air Operations Summary (prepares with Air Operations Branch Director)
- ICS 234-CG: Work Analysis Matrix (prepare with Planning Section Chief)

4.6.9 SOURCE CONTROL BRANCH DIRECTOR

The Source Control Branch Director, a member of the General Staff, is responsible for planning and directing all operations and activities necessary to stopping, isolating, and/or controlling the hazardous source material.

Note 1: Depending on the type of source control event, the Source Control Branch Director may establish specialty / technical positions to assist him/her with response efforts (e.g., Containment Operations / Well Kill / Relief Well / Flow Control Team Leader(s).

Note 2: In some incident types and/or areas, Source Control may become its own Section, having a Section Chief that is part of the Command Staff reporting directly to the Incident Commander.

Responsibilities Checklist for Source Control Branch Director:

- Review Common Responsibilities.
- Obtain briefing from Operations Section Chief or On-Scene Commander.
- Assist Operations Section Chief (and/or On-Scene Commander) supervising response operations in sizing up the situation, and/or in developing solutions (i.e., a strategy) to address source control related problems.
- Supervise on-scene source control operations.
- Brief personnel assigned to carry out source control related tasks; ensure that assigned personnel have information and equipment they need to carry out tasks safely and effectively.
- Provide the Operations Section Chief (or On-Scene Commander) and GMO Drilling and
- Well Sub Surface Support Team advice on status of source control efforts.
- Ensure appropriate safe actions are taken to stop, isolate, and/or control the hazardous source material.
- Assess damage to affected facilities/equipment and take appropriate actions to minimize additional damage.
- Ensure the work performed in the planning phase has the quality prescribed in the management system, program, agreements and contracts.
- Ensure well design and operational planning is optimized in order to achieve a robust design and safe operation.
- Establish necessary advisory groups.
- Co-operate with relevant stakeholders as applicable.

ICS Forms (or Other Documents) Relevant to Position:

- ICS 214-CG: Unit Log (document event / activities)
- ICS 214a-OS: Individual Log (document event / activities)

4.6.10 BRANCH DIRECTORS (OPBD)

The OPBD's when activated, are under the direction of the OSC and are responsible for the implementation of the portion of the IAP appropriate to the Branches.

Responsibilities Checklist for OPBD:

- Review Common Responsibilities.
- Obtain briefing from person relieving.
- Receive briefing from the OSC.
- Identify Divisions, Groups, and resources assigned to the branch.
- Ensure that Division and/or Group Supervisors (DIVS) have a copy of the IAP.
- Implement IAP for the Branch.
- Develop with subordinates alternatives for Branch control operations.
- Review Division/Group assignments Lists (ICS 204) for Division/Groups within the Branch. Modify lists based on effectiveness of current operations.
- Assign specific work tasks to DIVS.
- Supervise Branch operations.
- Resolve logistic problems reported by subordinates.
- Attend planning meetings as requested by the OSC.
- Ensure thorough chain of command that Resource Unit is advised of changes in the status of resources assigned to the Branch.
- Report to OSC when: the IAP is to be modified; additional resources are needed; surplus resources are available; or hazardous situations or significant events occur.
- Approve accident and medical reports originating within the Branch.
- Consider demobilization well in advance.
- Debrief with OSC and/or as directed at the end of each shift.

ICS Forms (or Other Documents) Relevant to Position:

- ICS 214-CG: Unit Log (document event / activities)
- ICS 214a-OS: Individual Log (document event / activities)

4.6.11 PLANNING SECTION CHIEF (PSC)

The PSC, a member of the General Staff, is responsible for the collection, evaluation, dissemination and use of incident information and maintaining status of assigned resources. Information is needed to:

1. Understand the current situation.
2. Predict the probable course of incident events.
3. Prepare strategies, plans and alternative strategies and plans for the incident; and
4. Submit required incident status reports.

The PSC may have a Deputy PSC. The Deputy PSC must have the same qualifications as the person for whom they work, as they must be ready to take over that position at any time.

Responsibilities Checklist for PSC:

- Review Common Responsibilities.
- Collect, process, and display incident status information.
- Assist OCS in the development of response strategies.
- Supervise preparation of the IAP.
- Develop ICS 230 Meeting Schedule for IC to approve.
- Facilitate planning meetings and briefings and ensure correct positions attend.
- Assign personnel already on-site to ICS organizational positions as appropriate.
- Work with IC and section chiefs to establish an appropriate organization, ensuring compliance with response plans and plan for night operation staffing needs.
- Supervise the tracking of incident personnel and resources through the Resource Unit.
- Establish info. requirements & reporting schedules for Planning Section Units (e.g.,
- Resources, Situation Units).
- Determine the need for any specialized resources in support of the incident.
- Establish special information collection activities as necessary (e.g., weather, environmental, toxics, etc.).
- Assemble information on alternative strategies.
- Provide periodic predictions on incident potential.
- Keep IMT apprised of any significant change in incident status.
- Oversee preparation and implementation of the Incident Demobilization Plan.
- Incorporate plans (e.g., Traffic, Medical, Communications, and Site Safety) into the IAP.
- Develop other incident supporting plans (e.g., salvage, transition, security).

ICS Forms (or Other Documents) Relevant to Position:

- ICS 202-CG: Incident Objectives (prepare)
- ICS 202a-CG: Command Direction (prepare)
- ICS 214a-OS: Individual Log (document event / activities)
- ICS 221-CG: Demobilization Checkout (review with Demobilization Unit Leader)
- ICS 230-CG: Daily Meeting Schedule (review with Situation Unit Leader)
- ICS 234-CG: Work Analysis Matrix (prepare with Operations Section Chief)
- IAP (assimilate all sections)
- IAP Cover Sheet (prepare)
- General Plan (prepare)
- Executive Summary (prepare)

4.6.12 SITUATION UNIT LEADER (SITL)

The Situation Unit Leader, member of the General Staff, is responsible for collecting, processing, and organizing incident information relating to the growth, mitigation, or intelligence activities taking place on the incident. The SITL may prepare future projections of incident growth, maps, and intelligence information.

Responsibilities Checklist for SITL:

- Review Common Responsibilities.
- Review Unit Leader Responsibilities.
- Begin collection and analysis of incident data as soon as possible.
- Prepare, post, or disseminate resource and situation status information as required, including special requests.
- Prepare periodic predictions or as requested by PSC.
- Prepare the Incident Status Summary Form (ICS 209).
- Provide photographic services and maps if required.
- Conduct situation briefings at meetings and briefings as required by the PSC.
- Develop and maintain master chart(s)/map(s) of the incident.
- Maintain chart/map of incident in the common area of the ICP for all responders to view.
- Manage information boards, ensuring they are updated regularly.
- Support the Incident Commander, Planning Chief and Information Officer as requested, collecting & displaying the most current incident data (e.g. status updates, maps, meeting schedule, etc.).

ICS Forms (or Other Documents) Relevant to Position:

- ICS 209-CG: Incident Status Summary (prepare)
- ICS 214-CG: Unit Log (document event / activities)
- ICS 214a-OS: Individual Log (document event / activities)
- ICS 230-CG: Daily Meeting Schedule (prepare & display)
- ICS 232a-CG: ACP Site Index (display)
- Situation Display Map (prepare & display)

4.6.13 RESOURCE UNIT LEADER (RESL)

The RESL, a member of the General Staff, is responsible for maintaining the status of all assigned tactical resources and personnel at an incident. This is achieved by overseeing the check-in of all tactical resources and personnel, maintaining a status-keeping system indicating current location and status of all these resources.

Responsibilities Checklist for RESL:

- Review Common Responsibilities.
- Review Unit Leader Responsibilities.
- Establish the check-in function at incident locations.
- Prepare Organization Assignment List (ICS 203) and Organization Chart (ICS 207).
- Prepare appropriate parts of Division Assignment Lists (ICS 204).
- Maintain and post the current status and location of all tactical resources.
- Maintain master roster of all tactical resources check in at the incident.
- Attend meetings and briefings as required by the PSC.

ICS Forms (or Other Documents) Relevant to Position:

- ICS 203-CG: Organization Assignment List (prepare)
- ICS 204-CG: Assignment List (prepare with Operations Section Chief)
- ICS 204a-CG: Assignment List Attachment (prepare with Operations Section Chief)

- ICS 207-CG: Incident Organization Chart (prepare)
- ICS 210-OS: Status Change (review)
- ICS 211-CG: Check-In List (Equipment) (review)
- ICS 211p-OS: Check-In List (Personnel) (review)
- ICS 214-CG: Unit Log (document event / activities)
- ICS 214a-OS: Individual Log (document event / activities)
- ICS 215-CG: Operational Planning Worksheet (prepare)

4.6.14 DOCUMENTATION UNIT LEADER (DOCL)

The DOCL, a member of the General Staff, is responsible for the maintenance of accurate, up-to-date incident files. Examples of incident documentation include: Incident Action Plan(s), incident reports, communication logs, injury claims, situation status reports, etc. Thorough documentation is critical to post-incident analysis. Some of the documents may originate in other sections. The DOCL shall ensure each section is maintaining and providing appropriate documents. The DOCL will provide duplication and copying services for all other sections. The Documentation Unit will store incident files for legal, analytical, and historical purposes.

Responsibilities Checklist for DOCL:

- Review Common Responsibilities.
- Review Unit Leader Responsibilities.
- Participate in meetings and briefings, capturing key information, decisions made, commitments and status using Crisis Manager (or equivalent).
- Set up work area; begin organization of incident files.
- Establish duplication service; respond to requests.
- File all official forms and reports.
- Review records for accuracy and completeness; inform appropriate units of errors or omissions.
- Provide incident documentation as requested.
- Organize files for submitting final incident documentation package.

ICS Forms (or Other Documents) Relevant to Position:

- ICS 214-CG: Unit Log (document event / activities)
- ICS 214a-OS: Individual Log (document event / activities)
- ICS 233-CG: Incident Open Action Tracker (prepare)

4.6.15 CRISIS MANAGER LOGGERS

The Data Logger, a member of the General Staff, is responsible for entering accurate and real time information about the incident into the GMO database (e.g., Emergency Management or Crisis Manager systems) for viewing by the Line 3 BST.

Responsibilities Checklist for Crisis Manager:

- Review Common Responsibilities.
- Obtain a status briefing from the Incident Commander or Planning Section Chief.
- Establish your workspace and startup Crisis Manager (or equivalent).

- Using Crisis Manager, start tracking events - especially key information, commitments and decisions made by the Incident Commander and Planning Section Chief (i.e., sit down with the IMT and start recording events).
- Ensure information on boards is valid and up to date.
- Coordinate the input of relevant data into Crisis Manager, ensuring that other IMT members are doing their logs properly and capturing logs from the boards into Crisis Manager.
- Provide incident documentation as requested.
- Mobilize support if activity level exceeds what you are able to capture.

ICS Forms (or Other Documents) Relevant to Position:

- ICS 214a-OS: Individual Log (document event / activities)

4.6.16 LOGISTICS SECTION CHIEF (LSC)

The LSC, a member of the General Staff, is responsible for providing facilities, services, and material in support of the incident. The LSC participates in the development and implementation of the IAP and activates and supervises the Branches and Units within the Logistics Section. The LSC may have a Deputy LSC. The deputy LSC must have the same qualifications as the person for whom they work, as they must be ready to take over that position at any time.

Responsibilities for LSC:

- Review Common Responsibilities.
- Plan the organization of the Logistics Section, including field support personnel.
- Assign work locations and preliminary work tasks to Section personnel, including planning for night operations / second shift staffing needs.
- Notify the Resources Unit of the Logistics Section units activated, including names and locations of assigned personnel.
- Assemble and brief Branch Directors and Unit Leaders.
- Determine and supply immediate incident resource and facility need.
- In conjunction with Command, develop and advise all Sections of the IMT resource approval and requesting process.
- Review proposed tactics for upcoming operation period for ability to provide resources and logistical support.
- Identify long-term service and support requirements for planned and expected operations.
- Advise Command and other Section Chiefs on resource availability to support incident needs.
- Provide input to and review the Communications Plan, Medical Plan and Traffic Plan.
- Identify resource needs for incident contingencies.
- Coordinate and process requests for additional resources.
- Track resource effectiveness and make necessary adjustments.
- Advise on current service and support capabilities.
- Request and/or set up expanded ordering processes as appropriate to support incident.
- Develop recommended list of Section resources to be demobed and initiate recommendation for release when appropriate.
- Receive and implement applicable portions of the incident Demobilization Plan.
- Ensure the general welfare and safety of Logistics Section personnel.

ICS Forms (or Other Documents) Relevant to Position:

- ICS 205-CG: Incident Radio Communications Plan (review)
- ICS 214a-OS: Individual Log (document event / activities)
- Security Plan (review)
- Transportation Plan (review)
- Traffic & Vessel Routing Plan (review)

4.6.17 FINANCE/ADMINISTRATION SECTION CHIEF (FSC)

The FSC, a member of the General Staff, is responsible for all financial, administrative and cost analysis aspects of the incident and for supervising members of the Finance & Administration Section. The FSC may have a Deputy FSC. The Deputy FSC must have the same qualifications as the person for whom they work, as they must be ready to take over that position at any time.

Responsibilities for FSC:

- Review Common Responsibilities.
- Participate in incident planning meetings and briefings as required.
- Review operational plans and provide alternatives where financially appropriate.
- Manage all financial aspects of an incident.
- Provide financial and cost analysis information as requested.
- Gather pertinent information from briefings with responsible agencies.
- Develop an operating plan for the Finance/Administration Section; fill supply and support needs including planning for night operations / second shift staffing needs.
- Determine the need to set up and operate an incident commissary.
- Meet with Assisting and Cooperating Agency Representatives, as needed.
- Maintain daily contact with agency(s) administrative headquarters on Finance/Administration matters.
- Ensure that all personnel time records are accurately completed and transmitted, according to policy.
- Provide financial input to demobilization planning.
- Ensure procedures are established to address any claims arising as a result of the incident.
- Ensure that all obligation documents initiated at the incident are properly prepared and completed.
- Brief administrative personnel on all incident-related financial issues needing attention or follow-up prior to leaving incident.
- Develop recommended list of Section resources to be demobed and initial recommendation for release when appropriate.
- Receive and implement applicable portions of the incident Demobilization Plan.

ICS Forms (or Other Documents) Relevant to Position:

- ICS 214a-OS: Individual Log (document event / activities)
- Finance Operating Guidelines (prepare)

5 INCIDENT PLANNING

5.1 DOCUMENTATION PROCEDURES

Documentation of a spill response provides a historical record, keeps management informed, serves as a legal instrument and is a means to account for the cleanup costs. Documentation should begin immediately upon spill notification and continue until termination of all operations. Documentation should include the following:

- Spill origin and characteristics,
- Sampling surveys,
- Photographic surveys,
- Climatological data,
- Labor and equipment accounting, and
- Copies of all logs, contracts, contacts, and plans prepared for the incident.

5.2 INCIDENT ACTION PLANN PROCESS AND MEETINGS

The period of initial response and assessment occurs in all incidents. Short-term responses (small in scope and/or duration, e.g., few resources working one operational period) often can be coordinated using only ICS 201 Briefings.

Long-term, more complex responses, will likely require a dedicated Planning Section Chief (PSC) who must arrange for transition into the operational period planning cycle. Certain meetings, briefings, and information-gathering during the Cycle lead to the Incident Action Plan (IAP) that guides operations of the next operational period. Only the meetings and events directly relevant to assembling the IAP are described. The IC/UC specifies the operational periods (e.g., 12-hour shifts, sunrise to sunset, 24-hour shifts etc.).

The special purpose meetings are most applicable to larger incidents requiring an operational period planning cycle but may have utility during initial response and assessment. The unified command meeting and other special purpose meetings are briefly noted.

5.2.1 INCIDENT NOTIFICATIONS

When an incident occurs, notifications will be made to the appropriate Federal, State, and Local agencies and the initial assessment and response actions will begin.

5.2.2 INITIAL RESPONSE AND ASSESSMENT

During the transfer of command process, an ICS 201 formatted briefing provides the incoming IC/UC with basic information regarding the incident situation and the resources allotted to the incident. Most importantly, it is the de facto Incident Action Plan (IAP) for the initial response and remains in force and continues to develop until the response ends or the Planning Section generates the incident's first IAP. It also is suitable for briefing individuals newly assigned to Command and General Staff, as well as needed assessment briefings for the staff.

When: New IC/UC; staff briefing, as required
Briefer: Current IC/UC
Attendees: Prospective IC/UC; Command, and General Staff, as required
Agenda: Using ICS 201 as an outline, included

1. Situation (note territory, exposures, safety concerns, etc.; use map/charts).
2. Objectives and priorities.
3. Strategies and tactics.
4. Current organization.
5. Resource assignments.
6. Resources enroute and/or ordered.
7. Facilities established.

5.2.3 UNIFIED COMMAND OBJECTIVES MEETING

The IC/UC will review/identify and prioritize objectives for the next operational period for the ICS 202 form. Objectives from the previous operational period are reviewed and any new objectives are identified.

When: Prior to Tactics Meeting
Facilitator: UC Member
Attendees: UC Members; Command and General Staff, as appropriate
Agenda:

1. Review/identify objectives for the next operational period (clearly stated and attainable with the resources available, yet flexible enough to allow Operations Section Chief to choose tactics).
2. Review any open agenda items from initial/previous meetings.

5.2.4 TACTICS MEETING

This 30-45-minute meeting creates the blueprint for tactical deployment during the next operational period. In preparation for the Tactics Meeting, the Planning Section Chief and Operations Section Chief review the current IAP and situation status information, as provided through the Situation Unit, to assess work progress against IAP objectives. The Operations Section Chief/Planning Section Chief will jointly develop primary and alternate strategies to meet objectives for consideration at the next Planning Meeting.

When: Prior to Planning Meeting
Facilitator: Planning Section Chief
Attendees: Planning Section Chief, Operations Section Chief, Logistics Section Chief, Resources Unit Leader, Situation Unit Leader, and Environmental Unit Leader
Agenda:

1. Review the objectives for the next operational period.
2. Develop strategies (primary and alternatives).
3. Prepare a draft of ICS 215 to identify resources that should be ordered through Logistics.

5.2.5 PLANNING MEETING

This meeting defines incident objectives, strategies, and tactics and identifies resource needs for the next operational period. Depending on incident complexity, this meeting should last no longer than 45 minutes. This meeting fine tunes objectives and priorities, identifies and solves problems, and defines work assignments and responsibilities on a completed ICS Form 215 (Operations Planning Worksheet). Meeting preparations include conducting a Tactics Meeting. Displays in the meeting room should include Objectives (ICS 202) for the next operational period, large sketch maps or charts clearly dated and timed, poster-size Operational Planning Worksheet (ICS 215), current resource inventory prepared by Resources Unit, and current situation status displays prepared by Situation Unit. After the meeting, the ICS 215 is used by the Logistics Section Chief to prepare the off-incident tactical and logistical resource orders and used by Planning Section Chief to develop IAP assignment lists.

When: Prior to Planning Meeting
Facilitator: Planning Section Chief
Attendees: Planning Section Chief, Operations Section Chief, Logistics Section Chief, Resources Unit Leader, Situation Unit Leader, and Environmental Unit Leader
Agenda:

1. State incident objectives and policy issues. IC/UC
2. Briefing of situation, critical and sensitive areas, weather forecast, resource status/availability. Planning Section Chief with Situation Unit Leader, Resources Unit Leader
3. State primary and alternative strategies to meet objectives. Operations Section Chief with Planning Section Chief, Logistics Section Chief
4. Designate Branch, Division, Group boundaries and functions, as appropriate; use maps and ICS 215. Operations Section Chief
5. Specify tactics for each Division, note limitations. Operations Section Chief, Situation Unit Leader assist
6. Specify resources needed by Divisions/Groups. Operations Section Chief, with Planning Section Chief, Logistics Section Chief
7. Specify operations facilities and reporting locations (plot on map). Operations Section Chief, Logistics Section Chief assist
8. Develop resources, support, and overhead order(s). Planning Section Chief, Logistics Section Chief
9. Consider support issues and agree on plans: communications, traffic, safety, medical, etc. Logistics Section Chief, Planning Section Chief assist
10. Assisting or cooperating agency and stakeholder group considerations regarding Incident Action Plan. Liaison Officer
11. Safety considerations regarding Incident Action Plan. Safety Officer
12. News media/public considerations regarding Incident Action Plan. Information Officer
13. Finalize, approve Incident Action Plan for next operational period. IC/UC

5.2.6 INCIDENT ACTION PLAN

Immediately following the Planning Meeting, the attendees prepare their assignments for the IAP to meet the Planning Section Chief deadline for assembling the IAP components. The deadline will be early enough to permit timely IC/UC approval, and duplication of sufficient copies for the Operations Briefing and for overheads.

When: Immediately following Planning Meeting, Planning Section Chief assigns deadline
Facilitator: Planning Section Chief

TABLE 5-2.6 INCIDENT ACTION PLAN

Common Components:		Responsible to Prepare
1	Incident Objectives (ICS 202)	Resources Unit Leader
2	Organization List (ICS 203)	Resources Unit Leader
3	Assignment List (ICS 204)	Resources Unit Leader/Planning Section Chief
4	Communications Plan (ICS 205)	Communications Unit Leader
5	Medical Plan (ICS 205)	Medical Unit Leader
6	Incident Map	Situation Unit Leader
Optional Components (use as pertinent):		**Responsible to Prepare**
1	Air Operations Summary (ICS 220)	Air Operations Branch Director
2	Traffic Plan	Ground Support Unit Leader
3	Demobilization Plan	Demobilization Unit Leader

5.2.7 OPERATIONS BRIEFING

This less-than-30-minute meeting conveys the IAP for the oncoming shift to the response organization. After this meeting, off-going field supervisors should be interviewed by their reliefs and by Operations Section Chief in order to further confirm or adjust the course of the new shift's IAP. Shifts in tactics may be made by the operations section supervisors. Similarly, a supervisor may reallocate resources within a division or group to adapt to changing conditions.

When: About an hour prior to each shift
Facilitator: Planning Section Chief
Attendees: IC/UC, Command Staff, General Staff, Branch Directors, Division/Group Supervisors, Task Force/Strike Team Leaders (if possible), Unit Leaders, others as appropriate.

TABLE 5-2.7 OPERATIONS BRIEFING

Agenda:		Responsible to Present
1	Review of IC/UC Objectives, changes to IAP.	Planning Section Chief
2	Current response actions and last shift's accomplishments.	Operations Section Chief
3	Weather conditions forecast.	Situation Unit Leader
4	Division/Group and air operations assignment.	Operations Section Chief
5	Trajectory analysis.	Situation Unit Leader
6	Transport, communications, supply updates.	Logistics Section Chief
7	Safety message.	Safety Officer
8	Financial report.	Finance/Administration Section Chief
9	News Media report.	Information Officer
10	Assisting/cooperating organization/agency reports of concern.	Liaison Officer
11	Incident Action Plan endorsement and motivational remarks.	IC/UC

5.2.8 ASSESS PROGRESS

The Operations and Planning Sections will review the incident response progress and make recommendations to the IC/UC in preparation for reviewing/identifying objectives for the next operational period. This feedback/information is gathered from various sources, including field observers, responder debriefs, stakeholders, etc.

5.2.9 INITIAL UNIFIED COMMAND MEETING

Provides UC officials with an opportunity to discuss and concur on important issues prior to joint incident action planning. The meeting should be brief, and important points documented. Prior to the meeting, parties should review

and prepare to address the agenda items. Planning meeting participants will use the results of this meeting to guide the response efforts.

When: When UC is formed, prior to the first operational period Planning Meeting
Facilitator: UC member
Attendees: Only ICs who will comprise UC
Agenda:

1 Identify jurisdictional priorities and objectives.
2 Present jurisdictional limitations, concerns, restrictions.
3 Develop collective set of incident objectives.
4 Establish and agree on acceptable priorities.
5 Adopt an overall strategy to accomplish objectives.
6 Agree on basic organizational structure and size.
7 Designate the best-qualified and acceptable Operations Section Chief.
8 Agree on General Staff personnel designations and planning, logistical, and finance agreements and procedures.
9 Agree on resource ordering procedures.
10 Agree on cost-sharing procedures.
11 Agree on informational matters.
12 Designate a Unified Command spokesperson.

5.2.10 COMMAND STAFF MEETING

Coordinate Command Staff functions, responsibilities and objectives. It is scheduled as necessary by the IC/UC. Command Staff (IC/UC, Safety Officer, Liaison Officer, Information Officer) attend.

5.2.11 BUSINESS MANAGEMENT MEETING

This under-30-minute meeting is for participants to develop and update the operating plan for finance and logistics support. The agenda could include finance requirements and criteria imposed by contributing organizations, business operating plan for resource procurement and incident funding, cost analysis and financial summary data. Attendees include: Finance/Administration Section Chief, Cost Unit Leader, Logistics Section Chief, Supply Unit Leader, Demobilization Unit Leader. It is generally conducted before the planning meeting.

5.2.12 AGENCY REPRESENTATIVE MEETING

To update agency representatives and ensure that they can support IAP. Conducted by Liaison Officer, attended by Agency Representatives. Most appropriately held after the planning meeting in order to announce plans for next operational period yet allow for changes should the plan's expectations be unattainable by an agency.

5.2.13 NEWS BRIEFING

To brief the news media and public on the most current and accurate incident facts. Set up by the Information Officer, moderated by an appropriate representative, and featuring selected spokespersons. Spokespersons should be prepared by the Information Officer to address anticipated issues. The briefing should be well planned, organized, and scheduled to meet the media's needs.

5.3 ICS FORMS

INCIDENT BRIEFING FORM - ICS 201 (Initial Report Only)

- For use by the Command Staff to gather information on the Incident Management Team's (IMT) efforts to implement applicable response plans. It is prepared by the initial Incident Commander (IC) for providing documentation of the initial response.

INCIDENT ACTION PLAN

- For use by the Planning Section to plan each day's response actions. This plan consists of the portions identified on the IAP cover page and must be approved by the Incident Commander, Federal On-Scene Coordinator (FOSC), and State On-Scene Coordinator (SOSC).
- In addition, these Incident Command System (ICS) forms may be found on the U.S. Coast Guard web page: http://www.uscg.mil/hq/cg3/cg3pcx/missions/resources/ics-resources.asp

INCIDENT ACTION PLAN (IAP) COVER SHEET

- For use in presenting initial information, signature approval, and table of contents of forms contained in the IAP.

INCIDENT OBJECTIVES - ICS 202

- Describes the basic incident strategy, control objectives, and provides weather, current information, and safety considerations for use during the next operational period.

ORGANIZATION ASSIGNMENT LIST - ICS 203

- Provides ICS personnel with information on the units that are currently activated and the names of personnel staffing each position/unit.

ASSIGNMENT LIST - ICS 204

- Submits assignments at the level of Division and Groups.

COMMUNICATIONS PLAN - 205

- Is used to provide, in location, information on all radio frequency assignments down to Division/Group level for each operation period.

MEDICAL PLAN - ICS 206

- Provides information in incident medical aid stations, transportation services, hospitals, and medical emergency procedures.

INCIDENT STATUS SUMMARY - ICS 209

- Used to inform personnel about the status of response efforts. It is not included in the IAP.

UNIT LOG - ICS 214

- Used to log activities for an entire unit.

INDIVIDUAL LOG - ICS 214a

- Used to log activities for an individual.

5.3.1 INCIDENT BRIEFING ICS 201-OS

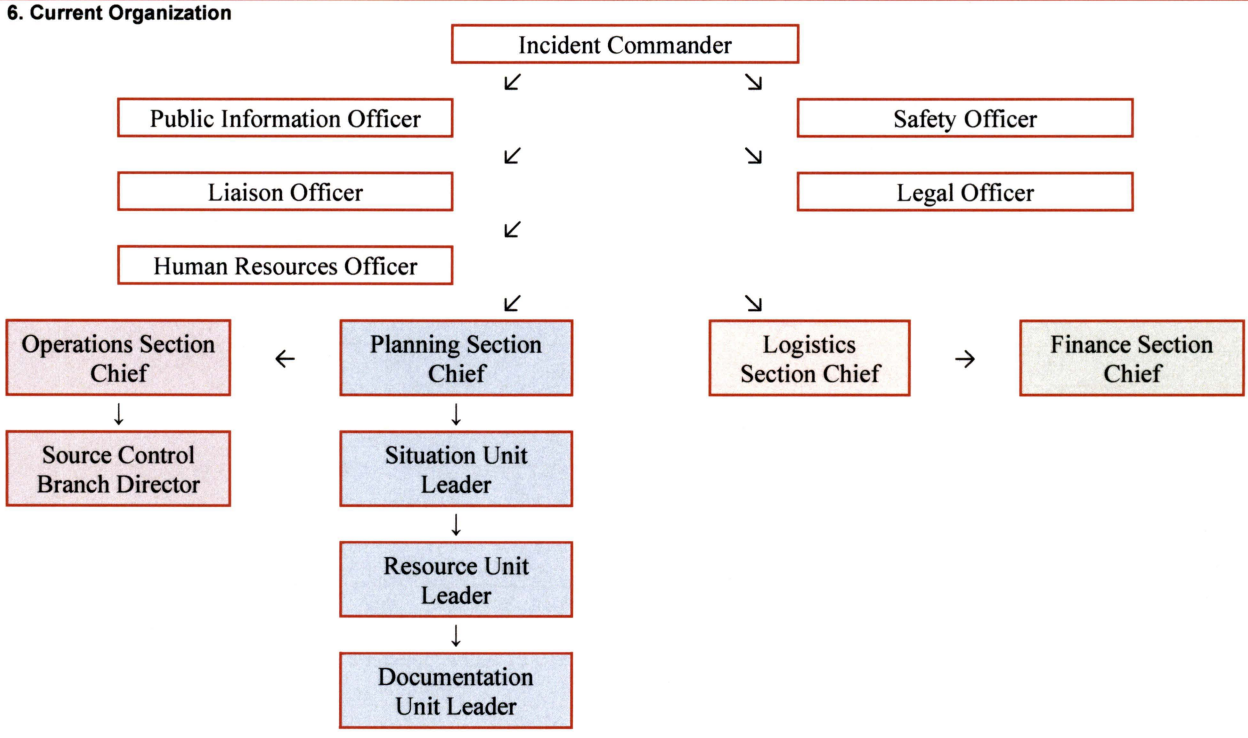
TABLE 5-3.1 INCIDENT BRIEFING

1. Incident Name	**2. Prepared By:** **Date:** **Time:**	**INCIDENT BRIEFING** **ICS 201-OS**
3. Map/Sketch (Include maps drawn here or attached, showing the total area of operations, the incident site/area, overflight results, trajectories, impacted shorelines or other graphics depicting situational and response status)		

1. Incident Name	**2. Prepared By:** **Date:** **Time:**	**INCIDENT BRIEFING** **ICS 201-OS**
4. Initial Incident Objectives		
5. Summary of Current Actions		
Time		

1. Incident Name	2. Prepared By: (name) Date: Time:	INCIDENT BRIEFING ICS 201-OS

6. Current Organization



1. Incident Name	2. Prepared By: Date: Time:	INCIDENT BRIEFING ICS 201-OS

7. Resources Summary

Resources Needed	Time Ordered	Resource Identifier	ETA	On Scene? (X)	Notes: (Location/Assignment/Status)

5.3.2 INCIDENT ACTION PLAN COVER SHEET

TABLE 5-3.2 INCIDENT ACTION PLAN COVER SHEET

1. Incident Name	**2. Operational Period to be covered by IAP (Date/Time)**		**IAP COVER SHEET**
	From:	**To:**	
3. Approved by:			
FOSC			
SOSC			
IC			
INCIDENT ACTION PLAN			
The items checked below are included in this Incident Action Plan:			
ICS 202-OS (Incident Objectives)			
ICS 203-OS (Organization Assignment List)			
ICS 204-OS (Assignment List)			
ICS 205-OS (Communications Plan)			
ICS 206-OS (Medical Plan)			
ICS 209-OS (Incident Status Summary)			
ICS 214-OS (Unit Log)			
ICS 214a-OS (Individual Log)			
4. Prepared By: (Planning Section Chief)			**Date/Time:**

5.3.3 INCIDENT OBJECTIVES ICS 202-OS

TABLE 5-3.3 INCIDENT OBJECTIVES

1. Incident Name	**2. Operational Period (Date/Time)** **From:** **To:**	**INCIDENT OBJECTIVES** **ICS 202-OS**
3. Overall Incident Objective(s)		
4. Objectives for Specified Operational Period		
5. Safety Message for Specified Operational Period **Approved Site Safety Plan Located at:**		
6. Weather: See Attached Weather Sheet		
7. Tides/Currents: See Attached Tide/Current Data		
8. Time of Sunrise:		**Time of Sunset:**
9. Attachments (check if attached) Organization List (ICS 203-OS) Assignment List (ICS 204-OS) Medical Plan (ICS 206-OS)		
Weather		
Medical Plan (ICS 206-OS) Communications Plan (ICS 205-OS)		
10. Prepared By: (Planning Section Chief)		**Date/Time:**

5.3.4 ORGANIZATION ASSIGNMENT LIST ICS 203-OS

TABLE 5-3.4 ORGANIZATION ASSIGNMENT LIST

1. Incident Name	**2. Operational Period (Date/Time)** **From:** **To:**	**ORGANIZATION ASSIGNMENT LIST** **ICS 203-OS**
3. Incident Commander and Staff Primary Federal: State: IC: Safety Officer : Information Officer: Liaison Officer:		**6. Logistics Section** Chief Deputy Time Unit Procurement Unit Compensation Unit Cost Unit a. Support Branch Director Supply Unit Facilities Unit Transportation Unit Vessel Support Unit Ground Support Unit b. Service Branch Director Communications Unit Medical Unit Food Unit
4. Agency Representatives		**7. Operations Section** Chief Deputy a. Branch I - Division/Groups Branch Director Deputy Division / Group Division / Group Division / Group Division / Group Division / Group b. Branch II - Division/Groups Branch Director Deputy Division / Group Division / Group Division / Group Division / Group Division / Group c. Branch III - Division/Groups Branch Director Deputy Division / Group Division / Group Division / Group Division / Group Division / Group d. Air Operations Branch Air Operations Br. Dir. Air Tactical Supervisor Air Support Supervisor Helicopter Coordinator Fixed-wing Coordinator
5. Planning Section Chief Deputy Resources Unit Situation Unit Environmental Unit Documentation Unit Demobilization Unit Technical Specialists		**8. Finance Section** Chief Deputy Time Unit Procurement Unit Compensation Unit Cost Unit
9. Prepared by: (Resources Unit)	**Date/Time**	

5.3.5 ASSIGNMENT LIST ICS 204-OS

TABLE 5-3.5 ASSIGNMENT LIST

1. Incident Name	2. Operational Period (Date/Time) From: To:		**ASSIGNMENT LIST** **ICS 204-OS**	
3. Branch		**4. Division/Group**		
5. Operations Personnel	**Name**	**Affiliation**	**Contact #**	
Operations Section Chief:				
Branch Director:				
Division/Croup Supervisor:				
6. Resources Assigned This Period	"X" indicates 204a attachment with special instructions			
Strike Team/Task Force/ Resource Identifier	**Leader**	**Contact Info. #**	**# of Persons**	**Notes**
7. Assignments				
8. Special Instruction for Division/Group				
9. Communications (radio and/or phone contact numbers needed for this assignment)				
Name/Function	**Radio: Freq./System/ Channel**		**Phone**	**Pager**
Emergency Communications				
Medical	Evacuation			
10. Prepared By (Resources Unit Leader)	Date/Time	**11. Approved By** (Planning Section Chief)		

5.3.6 COMMUNICATIONS PLAN ICS 205-OS

TABLE 5-3.6 COMMUNICATIONS PLAN

1. Incident Name	**2. Operational Period (Date/Time)** **From:** **To:**	**COMMUNICATIONS PLAN** **ICS 205-OS**

3. Basic Radio Channel Use

SYSTEM/CACHE		FUNCTION	FREQUENCY	ASSIGNMENT	REMARKS

4. Prepared By (Communications Unit)	**Date/Time**

5.3.7 MEDICAL PLAN ICS 206-OS

TABLE 5-3.7 MEDICAL PLAN

1. Incident Name	**2. Operational Period (Date/Time)** **From:** **To:**	**MEDICAL PLAN ICS 206-OS**

3. Medical Aid Stations

Name	Location	Contact #	Paramedics On Site (Y/N)

4. Transportation

Ambulance Service	Address	Contact #	Paramedics On Board (Y/N)

5. Hospitals

Hospital Name	Address	Contact #	Travel Time		Burn Ctr?	Notes
			Air	Ground		

6. Special Medical Emergency Procedures

7. Prepared By (Medical Unit Leader)	Date/Time	8. Reviewed By (Safety Officer)	Date/Time

5.3.8 INCIDENT STATUS SUMMARY ICS 209-OS

TABLE 5-3.8 INCIDENT STATUS SUMMARY

1. Incident Name	**2. Period Covered By Report**	**Time of Report**	**INCIDENT STATUS SUMMARY**
	From: To:		**ICS 209-OS**
3. Spill Status (Estimated, in Barrels) [OPS/EUL/SSC]			
Source Status:		Remaining Potential (bbl):	
		Rate of Spillage (bbl/hr):	
Secured		Unsecured	
	Since Last Report	Total	
Volume Spilled			
Mass Balance/Oil Budget			
Recovered Oil			
Evaporation			
Natural Dispersion			
Chemical Dispersion			
Burned			
Floating, Contained			
Floating, Uncontained			
Onshore			
Total Spilled Oil Accounted For:			
4. Waste Management (Estimated)			
	Recovered	Stored	Disposed
Oil (bbl)			
Oily Liquids (bbl)			
Liquids (bbl)			
Oily Solids (tons)			
Solids (tons)			
5. Shoreline Impacts (Estimated, in miles)			
Degree of Oiling	Affected	Cleaned	To Be Cleaned
Light			
Medium			
Heavy			
Total			

6. Wildlife Impacts						
Numbers in ( ) indicate subtotal that are threatened/endangered species.			Died in Facility			
	Captured	Cleaned	Released	DOA	Euth	Other
Birds						
Mammals						
Reptiles						
Fish						
Total						

7. Safety Status	Safety Officer
Since Last Report	Total
Responder Injury	
Public Injury	

8. Equipment Resources				
Description	Ordered	Available / Staged	Assigned	Out of Service
Spill Resp Vsls				
Fishing Vessels				
Tugs				
Barges				
Other Vessels				
Skimmers				
Boom (ft)				
Sbnt/Snr Bm (ft)				
Vacuum Trucks				
Helicopters				
Fixed Wing				

9. Personnel Resources			
Description	People in Command Post	People in the Field	Total People on Scene
Federal			
State			
Local			
RP			
Contact Personnel			
Volunteers			

10. Special Notes

11. Prepared By	Date/Time

5.3.9 UNIT LOG ICS 2014-OS

TABLE 5-3.9 UNIT LOG

1. Incident Name	2. Operational Period (Date / Time)	UNIT LOG
	From: To:	ICS 214-OS
3. Unit Name	4. Unit Leader (Name and ICS Position)	
5. Personnel Assigned		

Name	ICS Position	Home Base

6. Activity Log	
Time	Major Events
7. Prepared by:	Date / Time

5.3.10 INDIVIDUAL LOG ICS 214A-OS

TABLE 5-3.10 INDIVIDUAL LOG

1. Incident Name	**2. Operational Period (Date / Time)** **From:** **To:**		**INDIVIDUAL LOG ICS 214a-OS**
3. Individual Name			**5. Assignment / Location**
6. Activity Log			
TIME		**MAJOR EVENTS**	
7. Prepared by:		**Date / Time**	

5.4 SITE SAFETY AND HEALTH PLAN

TABLE 5-4.1 GENERAL SITE SAFETY AND HEALTH PROCEDURES

Work near water: All personnel working in boats, on docks, or generally within 10 feet of water deeper than 3 feet, shall wear Coast Guard approved flotation devices (PFDs).	
Heat Stress. The site safety and health officer shall generally be guided by the ACGIH guidelines in determining work/rest periods. Cold water or other appropriate drinks shall be available at all times and drinking them encouraged during rest periods.	
Cold Stress: The site safety and health officer shall generally be guided by the ACGIH guidelines in determining work/rest periods. Workers shall be provided adequate warm clothing, rest opportunities, exposure protection, warm fluid shall also be available during rest periods. For prolonged water temperatures below 59 degrees F. or a combined water and air temperature less than 120 degrees F. exposure suits shall be worn by personnel working/traveling in small boats or aircraft over water, and immersion suits shall be available for vessel operations other than small boats.	
High Noise Levels: Hearing protection shall be used in high noise areas designated the site safety officer (exceeding 84dBA --- generally where noise levels require personnel to raise their voices to be heard).	
Confined Spaces: Follow OSHA confined space regulations 29 CFR 1910.146.	
Poisonous/infectious insects: Personnel shall be provided with long-sleeved clothing and insect repellant in designated areas. Personnel should inspect each other for ticks during breaks.	
Poisonous snakes: All personnel working in designated areas shall wear snake proof leggings or hip high rubber boots. Snake bite kits shall be kept with first aid kits in these areas.	
Poisonous plants: Long sleeved clothing shall be worn in areas designated to contain these plants. If these plants are accidentally touched, the plant sap should be washed off of the affected area with soapy water. **"DO NOT SCRATCH"**	
Electrical Hazards: Electrical hazards are designated on the site map, and shall be marked with suitable placards, barricades, or warning tape as necessary.	
Trap Hazards: Open manholes, pits, trenches, or similar hazards are noted on the site map. The site safety officer shall ensure that these locations are periodically checked during the day.	
Carbon Monoxide: Equipment operators shall ensure that personnel do not linger or work near exhaust pipes.	
Falling Objects: Hard hat areas determined by the site survey shall be noted on project maps.	
UV Light Exposure: Sunscreens of protection factor 15 or greater and UV tinted safety glasses shall be made available for response personnel as needed.	
Helicopter Operations: Pilots shall provide safety briefing for all passengers.	
Air Monitoring: Site work should cease if O2 levels fall below 19.5% and/or LEL is greater than 10%.	

All-Terrain Vehicles (ATVs): Drivers shall maintain a safe speed at all times and shall not be allowed to operate vehicles in a reckless manner. ATV drivers shall not operate ATVs outside of areas and lanes specified by the site safety officer.	
Traffic Safety: All personnel should be aware of the general equipment movement and surrounding traffic that may exist during a response. If necessary, traffic signage or cones should be placed around the work area.	
Lockout Tagout: Proper lockout-tagout procedures shall be followed to minimize the potential for encountering charged environments.	
Smoking: Smoking of any kind shall not be done on the facility. Smoking may be conducted offsite or in designated areas.	
Personal Protective Equipment: All personnel shall be provided proper PPE for assigned work. Level D PPE is the minimum required level of protection.	
Slip, Trip, Fall: All personnel shall be cognizant of working conditions with regard to slip, trip, and fall hazards; especially during inclement weather.	
Excavations: All personnel shall be aware of unsafe conditions when working at or around an excavation. Equipment operators shall be observant of others in the vicinity of an excavation or when moving equipment.	
Drilling: When drilling environmental boreholes, personnel should be aware of hazards including rotating or moving equipment, overhead hazards, loud conditions, and general heavy equipment operations.	

TABLE 5-4.2 SITE SAFETY AND HEALTH PLAN

Location:				
Date:				
Name:				
Action	**Completed**		**N/A**	**Time Completed**
	Yes	**No**		
Site Safety and Health Plan				
On-Site Safety Meeting				
Atmospheric Monitoring of Location				
Atmospheric Monitoring of Residential Areas				
Personal H2S Monitors in use				
Make sure PPE requirements understood				
Make sure PPE available				
Verify Workers Hazwoper Training				
Ambulances on Standby				
Portable Toilets where needed				
Personal Flotation Devices in use				
Back Up Safety Officer on standby				
Security Guards contacted and on call				
Inform workers that no unauthorized personnel should handle oil-soaked animals				
Orange vest used in woods during hunting season				
Decon Stations in place				
Safety Officer:	Date:			

5.4.1 HEALTH AND SAFETY OBJECTIVES

Detailed objectives shall be developed daily and shall be described during the pre-entry safety briefing.

1 **Reporting:** Anyone entering or departing a work area, or associated control zones, shall report to the site supervisor.

2 **Site Safety Plan:** No person shall enter a site without subscribing to this or another approved Site Safety and Health Plan.

3 **Training:** No person shall enter a site without adequate training in hazardous waste operations, safety, and health; based on work assignment and applicable hazardous conditions.

4 **Site Boundaries:** The following control boundaries have been established, and should be marked as follows:
a. Exclusion (Hot) Zone(s): Orange, red or black and yellow
b. Contamination Reduction (Warm Zone(s): Yellow
c. Support (Cold) Zone(s): Green

The above zones shall be marked as needed to control traffic and enforce decontamination procedures. Appropriate placards, barricades, traffic cones, and/or boundary tape shall be used for this purpose.

5 **Site Map:** The site safety map is attached and shall be modified as necessary for each sector by the site safety supervisor when any of the following are modified:

a. Exclusion Zone boundaries.

b. Contamination Reduction Zone: Boundaries, decontamination layout, equipment storage, temporary waste storage areas, washing, toilets and hygiene facilities.

c. Support Zone: Boundaries, first aid stations, emergency firefighting equipment, command post/office spaces, new equipment staging/storage, eating/rest areas, bird/mammal cleaning and rehabilitation.

d. Location of unidentified hazards: Underground cables, overhead cables, pits, trenches, open holes/hatches, hearing protection areas, hard hat areas, suspected locations of poisonous plants, insects, or animals, high pressure wash areas, bioremediation application areas, and dispersant application areas.

5.4.2 HAZARD EVALUATION

***CHEMICAL HAZARDS* (Check appropriate category of oil, or attach appropriate SDS if available)**

A. Oils Containing Hydrogen Sulfide

Composition: Composed of an indefinite petroleum mixture. May contain Hydrogen Sulfide, benzene, toluene, xylene, naphthalenes, and PolyAromatic Hydrocarbons in concentrations that may vary widely depending on the source of the oil weathering and aging.

Hazardous Description: H2S is a highly toxic colorless gas which has the smell of rotten eggs in low concentrations and a sweet acidic smell in higher concentrations. It has the potential to deaden the sense of smell due to olfactory nerve anesthesia at levels as low as 10 ppm.

It is a highly flammable gas with an LEL of 4.3% and an UEL of 45% , burns with a blue flame and produces Sulfur Dioxide. It is heavier than air and tends to settle in low - lying areas and is water-soluble.

PEL	10ppm It is the policy to don positive pressure respirators at this concentration.
STEL	15 ppm
Ceiling	20 ppm
Max Peak	50 ppm
IDLH	100 ppm

Basic Precautions: Keep all sources of ignition and hot metal surfaces away from spill/release. The use of explosion-proof equipment is required. Stay upwind and away from spill/release. Atmospheric Monitoring is required until the Site Safety Officer determines it is no longer needed. Positive Pressure Breathing Apparatus must be available for all personnel exposed to H2S.

B. Oils Containing Benzene

Hazardous Description: Benzene is a colorless to light yellow liquid with an aromatic odor. It is a common volatile organic compound in petroleum crude oil and refined products and is a known carcinogen. It has an LEL of 1.2% and an UEL of 7.8%. It is lighter than air and is easily volatilized.

PEL	10ppm It is the policy to don positive pressure respirators at this concentration.
STEL	15 ppm
Ceiling	20 ppm
Max Peak	50 ppm
IDLH	100 ppm
PEL	1 ppm
STEL	5 ppm
IDLH	500 ppm

5.5 DECONTAMINATION PLAN

TABLE 5-5.1 DECONTAMINATION PLAN

Incident Name:	**Location:**
Effective Date of Plan:	**Effective Time Period of Plan:**
Spill Location:	**Plan Prepared By:**

Work Zone:

- Support (cold) zone.
- Contamination reduction (warm) zone; and
- Exclusion (hot) zone.

These zones are identified by signs, barrier tape or other means. Decontamination is performed in the contamination reduction zone. When responders exit the exclusion zone they must be decontaminated.

Crews are available to assist in decontamination procedures as needed. The crews must wear appropriate personal protective equipment (PPE), and are responsible for packaging and labeling contaminated PPE.

Decontamination Stations:

Decontamination is performed within the contamination reduction zone, which is appropriately lined to prevent the spread of contaminants. Dikes are installed under the lining to contain runoff.

TABLE 5-5.2 MAXIMUM MEASURES FOR DECONTAMINATION

STATION 1	Segregated equipment drop	Deposit equipment used on site (tools, sampling devices and containers, monitoring instruments, radios, clipboards, etc.) on plastic drop cloths or in different containers with plastic liners. Segregation at the drop reduces the probability of cross contamination. During hot weather operations, a cool down station may be set up within this area.
STATION 2	Boot cover and glove wash	Scrub outer boot cover and gloves with decontamination solution or detergent and water.
STATION 3	Boot cover and glove rinse	Rinse off decontamination solution from Station 2 using copious amounts of water.
STATION 4	Tape removal	Remove tape around boots and gloves and deposit in container with plastic liner.
STATION 5	Boot cover removal	Remove boot covers and deposit in containers with plastic liner.
STATION 6	Outer glove removal	Remove outer gloves and deposit in container with plastic liner.
STATION 7	Suit and boot wash	Wash splash suit, gloves, and safety boots. Scrub with long-handled scrub brush and decontamination solution.
STATION 8	Suit, boot, and glove rinse	Rinse off decontamination solution using water. Repeat as many times as necessary.
STATION 9	Canister or mask change	If worker leaves exclusion zone to change canister or this is the last step in the decontamination procedure; worker's canister is exchanged, new outer gloves and boot covers are donned, joints are taped, and the worker returns to duty.
STATION 10	Safety boot removal	Remove safety boots and deposit in container with plastic liner.
STATION 11	Splash suit removal	With assistance of helper, remove splash suit. Deposit in container with plastic liner.
STATION 12	Inner glove wash	Wash inner gloves with decontamination solution.
STATION 13	Inner glove rinse	Rinse inner gloves with water.
STATION 14	Face piece removal	Remove face piece. Deposit in container with plastic liner. Avoid touching face with fingers.
STATION 15	Inner glove removal	Remove inner gloves and deposit in lined container.
STATION 16	Inner clothing removal	Remove clothing soaked with perspiration and place in lined container. Do not wear inner clothing off-site since there is a possibility that small amounts of contamination might have been transferred in removing the protective suit.
STATION 17	Field wash	Shower if highly toxic, skin-corrosive or skin-absorbable materials are known or suspected to be present. Wash hands and face if shower is not available.
STATION 18	Re-dress	Put on clean clothes.

TABLE 5-5.3 MINIMUM MEASURES FOR DECONTAMINATION

STATION 1	Equipment drop	Deposit equipment used on site (tools, sampling devices and containers, monitoring instruments, radios, clipboards, etc.) on plastic drop cloths. Segregation at the drop reduces the probability of cross contamination. During hot weather operations, a cool down station may be set up within this area.
STATION 2	Outer garment, boots and gloves wash and rinse	Scrub outer boots, outer gloves, and splash suit with decontamination solution or detergent and water. Rinse off using copious amounts of water.
STATION 3	Outer boot and glove removal	Remove outer boots and gloves. Deposit in container with plastic liner.
STATION 4	Canister or mask change	If worker leaves exclusion zone to change canister (or mask) or this is the last step in the decontamination procedures; worker's canister is exchanged, new outer gloves and boot covers are donned, joints are taped, the worker returns to duty.
STATION 5	Boot, gloves, and outer garment removal	Boots, chemical-resistant splash suit, inner gloves removed and deposited in separate containers lined with plastic.
STATION 6	Face piece removal	Face piece is removed. Avoid touching face with fingers. Face piece deposited on plastic sheet.
STATION 7	Field wash	Hands and face are thoroughly washed. Shower as soon as possible.

5.6 DISPOSAL PLAN

TABLE 5-6 DISPOSAL PLAN

Disposal priorities:
Disposal options:
Resources required for disposal options:
General information:
Date:
Location:
Source of release:
Amount of release:
Incident name:
State On-Scene Coordinator:
Federal On-Scene Coordinator:
Time required for temporary storage:
Proposed storage method:
Sample date:
Sample ID:
Analysis required (type):
Laboratory performing analysis:

	Available	Likely	Possible	Unlikely
Landfill:				
In-situ/ bioremediation:				
In-situ burn:				
Pit burning:				
Hydrocyclone:				
Off-site incineration:				
Reclaim:				
Recycle:				

Generator name:	U.S. EPA ID#:
Waste properties:	Waste name:
U.S. EPA waste code:	State waste code:
EPA hazardous waste:	
Waste storage and transportation:	
Proposed storage method:	
Proposed transportation method:	

Resources required for disposal options:
Permits required for storage:
Permits required for transportation:
Estimated storage capacity:
Number and type of storage required:
Local storage available for temporary storage of recovered oil:
PPE required for waste handling:
Waste coordinator:

Incident name:	
Sample number:	Date sent:
Source of sample:	
Date sample data received:	
Waste hazardous:	Non-hazardous:
Permits/variances requested:	
Approval received on waste profile:	
Date disposal can begin:	
Disposal facilities:	
Profile number:	
Storage contractors:	
Waste transporters:	
PPE designated and agrees with Site Safety and Health Plan:	
Additional information:	
Waste coordinator:	

5.7 INCIDENT SECURITY PLAN

TABLE 5-7 INCIDENT SECURITY PLAN

Incident name:		Date:	
Incident location:			
Prepared by:		Date:	
Indicate type of incident facility or area:			
Command post		Offshore zone	
Joint information center		Onshore work site	
Media briefing room		Other:	
Staging area			
Incident facility location:			
Hours security required at this location:		Daylight	Night
Security forces at this location:			
Private	Local agency	State agency	Federal agency
Description:			
Off-site traffic control required:		Yes	No
If yes, describe:			
Site access controlled by:			
Personnel	Barricades	Gates	Other
Describe:			
Security forces at this location:			
Check-in list	Badges	I.D. Card	Other
Describe:			

Security forces at this location:			
Personnel	Locked storage	24hr manned site	Other
Describe:			
Describe EPA, USCG, FAA, or other agency implemented safety or security zones:			
Additional comments:			
List emergency personnel on-site:			
Site security manager:		Phone number:	
Local law enforcement:		Phone number:	
State law enforcement:		Phone number:	
Federal law enforcement:		Phone number:	
Incident security officer:		Phone number:	

5.8 DEMOBILIZATION PLAN

TABLE 5-8 DEMOBILIZATION PLAN

Incident name:	**Location:**
Effective date of plan:	**Effective time period of plan:**
Spill location:	**Plan prepared by:**
Demobilization procedures:	
Operations Section will determine which resources are ready for release from a specific collection site.	
The Planning Section will provide guidance on release priorities and demobilization recommendations.	
Information maintained by the Planning Section will be utilized to assist in the prioritization.	
Each incident will require a Decontamination Area.	
Decontaminated equipment will be returned to appropriate staging area for release or re- deployment.	
Transports for equipment will be required if remote from staging area.	
The Planning Section will document all demobilization and decontamination activities.	
Equipment designated for re-assignment will be mobilized to the appropriate staging area.	
The Supervisor will ensure a log is maintained documenting that proper decontamination procedures are performed for each piece of equipment.	
The Operations Section will ensure that redeployed personnel receive proper rest prior to returning to duty.	
The Planning Section Chief will monitor personnel redeployment activities to ensure number of hours worked is within acceptable guidelines.	
The Operations Section Chief must approve the Demobilization Plan before decontamination, release, or redeployment of any resources.	

6 SENSITIVE AREAS/RESPONSE TACTICS

6.1 AREA DESCRIPTION

Description of shoreline types and specific shoreline protection and clean-up techniques are presented in attached figures. The strategies and response examples are guidelines and must be evaluated during the response to ensure that the selected response methods are appropriate for the situation.

6.2 SPILL CONTAINMENT/RECOVERY

Containment and recovery refer to techniques that can be employed to contain and recover terrestrial and aquatic petroleum spills.

Terrestrial spills typically result from pipeline or tank leaks. The GMO is equipped with secondary containment systems for areas with non-pressurized breakout tanks. Spills occurring within the secondary containment area or along the pipeline areas should be contained at or near their source to minimize the size of the cleanup area and quantity of soil affected.

Containment is most effective when conducted near the source of the spill, where the oil has not spread over a large area and the contained oil is of sufficient thickness to allow effective recovery and/or cleanup. The feasibility of effectively implementing containment and recovery techniques is generally dependent upon the size of the spill, available logistical resources, implementation time, and environmental conditions or nature of the terrain in the spill area.

For terrestrial spills, trenches and earthen berms or other dams are most often used to contain oil migration on the ground surface. Recovery of free oil is best achieved by using pumps, vacuum sources, and/or sorbents.

Spills that reach water spread faster than those on land. They also have greater potential to contaminate water supplies, to affect wildlife and populated areas, and to impact manmade structures and human activities. Responses on water should therefore emphasize stopping the spill, containing the oil near its source, and protecting sensitive areas before they are impacted.

Sorbents are used to remove minor on-water spills. For larger spills, booming is used to protect sensitive areas and to position oil so it can be removed with skimmers or vacuum trucks.

Due to entrainment, booming is not effective when the water moves faster than one knot or waves exceed 1.5 feet in height. Angling a boom will minimize entrainment. Using multiple, parallel booms will also improve recovery in adverse conditions. A summary of booming techniques is provided below.

Containment/Diversion Berming

- Berms are constructed ahead of advancing surface spills to contain spill or divert spill to a containment area.
- May cause disturbance of soils and some increased soil penetration.

Blocking/Flow-Through Dams

- Construct dam in drainage course/stream bed to block and contain flow of spill. Cover with plastic sheeting. If water is flowing install inclined pipes during dam construction to pass water underneath dam.
- May increase soil penetration.

Culvert Blocking

- Block culvert with plywood, sandbags, sediments, etc. to prevent oil from entering culvert.

Interception Trench

- Excavate ahead of advancing surface spill to contain spill and prevent further advancement, cover bottom and gradients with plastic.
- May cause disturbance of soils and increased soil penetration.

Containment Booming

- Boom is deployed around free oil.
- Boom may be anchored or left to move with the oil.

Diversion Booming

- Boom is deployed at an angle to the approaching oil.
- Oil is diverted to a less sensitive area.
- Diverted oil may cause heavy oil contamination to the shoreline downwind and down current.
- Anchor points may cause minor disturbance to the environment.

Exclusion Booming

- Boom is placed around a sensitive area or across an inlet, a river mouth, a creek mouth, or a small bay.
- Approaching oil is contained or deflected (diverted) by the boom.
- Anchor points may cause minor disturbance to the environment.

Sorbent Booming

- Used only on quiet water with minor oil contamination.
- Boom is anchored along a shoreline or used in a manner described above.
- May use boom made of sorbent material or may pack sorbent material between multiple booms placed parallel to each other.

Other cleanup methods include natural recovery, manual removal/scraping, low-pressure flushing, warm water washing, and burning. Berms and dams are also used in shallow waterways to protect areas. Cleanup methods are provided in the appropriate ACP, NOAA's "Shoreline Assessment Manual," and NOAA's "Options for Minimizing Environmental Impacts of Freshwater Spill Response." (See http://response.restoration.noaa.gov for the latter two.)

TABLE 6-2 RESPONSE TACTICS FOR VARIOUS SHORELINES

TYPES	DESCRIPTION	PREDICTED OIL IMPACT	RECOMMENDED CLEANUP ACTIVITY
Developed/ Unforested land	This class includes towns, cities, farms, pastures, fields, reclaimed wetlands, and other altered areas	Oil would percolate easily between the gravel and boulders of riprap structures	May require high pressure spraying:
		Oil would coat the intertidal areas of solid structures	To remove oil
	Organisms and algae may be common in riprap structures and on pilings	Biota would be damaged or killed under heavy accumulations	To prepare substrate for recolonization of biological communities
			For aesthetic reasons
Freshwater Flat	Mud or organic deposits located along the shore or in shallow portions of nontidal freshwater lakes and ponds	Oil is expected to be deposited along the shoreline	These areas require high priority for protection against oil contamination
	They are exposed to low wave and current energy	Penetration of spilled oil into the water-saturated sediments of the flat will not occur	Cleanup of freshwater flats is nearly impossible because of soft substrate
	They are often areas of heavy bird use	When sediments are contaminated, oil may persist for years	Cleanup is usually not even considered because of the likelihood of mixing oil deeper into the sediments during the cleanup effort
			Passive efforts, such as sorbent boom can be used to retain oil as it is naturally removed
Fresh Marsh	Found along freshwater ponds and lakes	Small amounts of oil will contaminate the outer marsh fringe only; natural removal by wave action can occur within months	Marshes require the highest priority for shoreline protection
			Natural recovery is recommended when:
	These marshes have various types of vegetative cover, including floating aquatic mats, vascular submerged vegetation, needle and broad-leaved deciduous scrubs and shrubs, and broad-leaved evergreen scrubs and shrubs	Large spills will cover more area and may persist for decades	A small extent of marsh is affected
			A small amount of oil impacts the marsh fringe
	Birds and mammals extensively use fresh marshes for feeding and breeding purposes	Oil, particularly the heavy fuel oils, tends to adhere readily to marsh grasses	The preferred cleanup method is a combination of low- pressure flushing, sorption, and vacuum pumping performed from boats
			Any cleanup activities should be supervised closely to avoid excessive disturbances of the marsh surface or roots
			Oil wrack and other debris may be removed by hand

TYPES	DESCRIPTION	PREDICTED OIL IMPACT	RECOMMENDED CLEANUP ACTIVITY
Swamp	Swamps are freshwater wetlands having varying water depths with vegetation types ranging from shrubs and scrubs to poorly drained forested wetlands. Major vegetative types include: scrubs, shrubs, evergreen trees, and hardwood forested woodlands	Even small amounts of spilled oil can spread through the swamp	No cleanup recommended under light conditions
		Large spills will cover more area and may persist for decades since water- flushing rates are low	Under moderate to heavy accumulations, to prevent chronic oil pollution of surrounding areas placement of sorbent along fringe swamp forest (to absorb oil as it is slowly released) may be effective under close scientific supervision
	Birds and mammals use swamps during feeding and breeding activities	Oil, particularly the heavy fuel oils, will adhere to swamp vegetation	Proper strategic boom placement may be highly effective in trapping large quantities of oil, thus reducing oil impact to interior swamp forests
		Unlike mangroves, the roots of swamp forest trees are not exposed; thus, little damage to trees is expected. Any underbrush vegetation, however, would be severely impacted	Oil trapped by boom can be reclaimed through the use of skimmers and vacuums
Open water	Have ocean like waves and currents	Most organisms are mobile enough to move out of the spill area	Booming, skimming, vacuuming, and natural recovery are the preferred cleanup methods
	Weather changes effect on-water conditions	Aquatic birds are vulnerable to oiling	Should not use sorbents, containment booming, skimming, and vacuuming on gasoline spills
	River mouths present problems	Human usage (such as transportation, water intakes, and recreational activities) may be restricted	Cleanup options include physical herding, sorbents, and debris/vegetation removal
	Thermal stratification occurs		
Large rivers	May have meandering channels, and high flow rates	Fish and migratory birds are of great concern	Booming, skimming, and vacuuming are the preferred cleanup methods
	May include manmade structures (such as dams and locks)	Under flood conditions, may impact highly sensitive areas in floodplains	Should not use sorbents, containment booming, skimming, and vacuuming on gasoline spills
	Water levels vary seasonally	Human usage may be high	
		When sediments are contaminated, oil may persist for years	Cleanup options include natural recovery, physical herding, sorbents, and debris/vegetation removal
	Floods generate high suspended sediment and debris loads	Water intakes for drinking water, irrigation, and industrial use likely to be impacted	

TYPES	DESCRIPTION	PREDICTED OIL IMPACT	RECOMMENDED CLEANUP ACTIVITY
Small lakes and ponds	Water surface can be choppy	Wildlife and socioeconomic areas likely to be impacted	Booming, skimming, vacuuming, and sorbents are the preferred cleanup methods
	Water levels can fluctuate widely		
	May completely freeze in winter	Wind will control the oil's distribution	Should not use containment booming, vacuuming, sorbents, and skimming on gasoline spills
	Bottom sediments near the shore can be soft and muddy		
	Surrounding area may include wet meadows and marshes		Cleanup options include physical herding, sorbents, and debris/vegetation removal
Small rivers and streams	Wide range of water bodies - fast flowing streams to slow moving bayous with low muddy banks and fringed with vegetation	Usually contaminate both banks and the water column, exposing a large number of biota to being oiled	Booming, skimming, vacuuming, sorbents, barriers, and berms are the preferred cleanup methods
	May include waterfalls, rapids, log jams, mid- channel bars, and islands	Water intakes for drinking water, irrigation, and industrial use likely to be impacted	Should not use containment booming, sorbents, vacuuming, and skimming on gasoline spills
	Weathering rates may be slower because spreading and evaporation are restricted		Cleanup options include physical herding, natural recovery, debris removal, vegetation removal, and in- situ burn

6.3 SENSITIVE AREA PROTECTION

Protection refers to the implementation of techniques or methods to prevent oil from making contact with a shoreline or aquatic area that is determined to be sensitive for environmental, economic, cultural, or human use reasons. Implementation of sensitive area protection techniques must consider a number of factors such as sensitive features, priorities for areas to be protected, and potential degree of impact. In the event a product spill reaches a major area waterway, it may be necessary to protect downstream sensitive areas if it appears that local containment and recovery efforts will not be sufficient to control the entire spill.

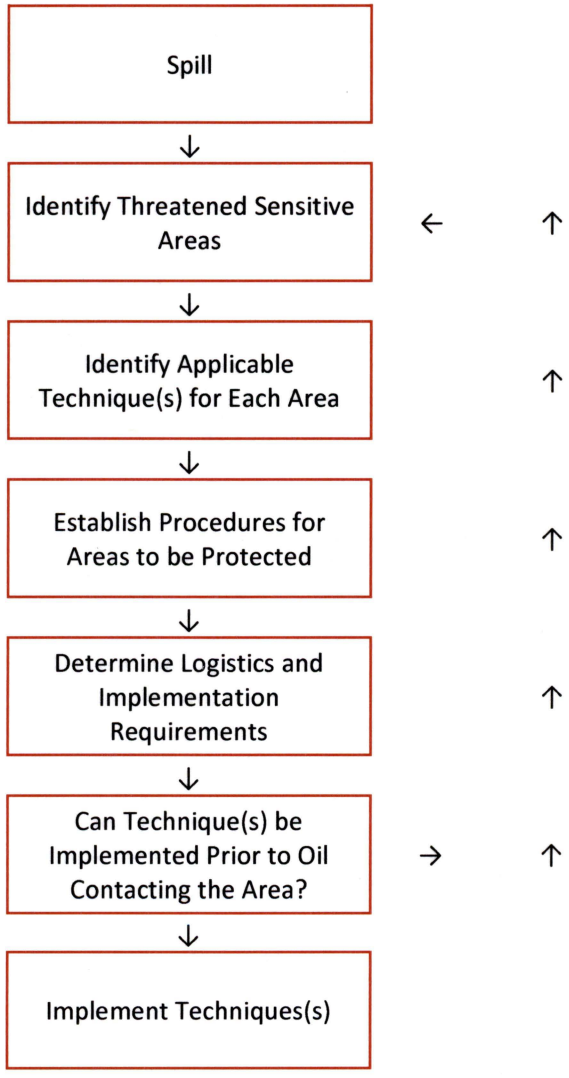


TABLE 6-3 SUMMARY OF SHORELINE AND TERRESTRIAL CLEANUP TECHNIQUES

TECHNIQUE	DESCRIPTION	RECOMMENDED EQUIPMENT	APPLICABILITY	POTENTIAL ENVIRONMENTAL EFFECTS
Removal				
1. Manual Removal	Hand tool (scrapers, wire brushes, shovels, cutting tools, wheel barrows, etc.) are used to scrape oil off surfaces or recover oiled sediments, vegetation, or debris where oil conditions are light or sporadic and/or access is limited.	Equipment misc. hand tools	Can be used on all habitat types	Sediment disturbance and erosion potential
		Personnel 10-20 workers	Light to moderate oiling conditions for stranded oil or heavy oils that have formed semi-solid to solid masses	
			In areas where roosting or birthing animals cannot or should not be disturbed	
2. Mechanical Removal	Mechanical earthmoving equipment is used to remove oiled sediments and debris from heavily impacted areas with suitable access.	Equipment motor grader, backhoe, dump truck elevating scrapers	On land, wherever surface sediments are accessible to heavy equipment	Removes upper 2 to 12 inches of sediments
		Personnel 2-4 workers plus equipment operators	Large amounts of oiled materials	
3. Sorbent Use	Sorbents are applied manually to oil accumulations, coatings, sheens, etc. to remove and recover the oil.	Equipment misc. hand tools misc. sorbents	Can be used on all habitat types	Sediment disturbance and erosion potential
		Personnel 2-10 workers	Free-floating oil close to shore or stranded on shore, secondary treatment method after gross oil removal	Trampling of vegetation and organisms
			Sensitive areas where access is restricted	Foot traffic can work oil deeper into soft sediments
4. Vacuum / Pumps / Skimmers	Pumps, vacuum trucks, skimmers are used to remove oil accumulations from land or relatively thick floating layers from the water.	Equipment 1-2 50- to 100-bbl vacuum trucks w/ hoses 1-2 nozzle screens or skimmer heads	Can be used on all habitat types	Typically, does not remove all oil
		Personnel 2-6 workers plus truck operators	Stranded oil on the substrate	
			Shoreline access points	Can remove some surface organisms, sediments, and vegetation

TECHNIQUE	DESCRIPTION	RECOMMENDED EQUIPMENT	APPLICABILITY	POTENTIAL ENVIRONMENTAL EFFECTS
Washing				
5. Flooding	High volumes of water at low pressure are used to flood the oiled area to float oil off and out of sediments and back into the water or to a containment area where it can be recovered. Frequently used with flushing.	Equipment 1-5 100- to 200-gpm pumping systems 1 100-ft perforated header hose per system 1-2 200-ft containment booms per system 1 oil recovery device per system	All shoreline types except steep intertidal areas	Can impact clean downgradient areas
			Heavily oiled areas where the oil is still fluid and adheres loosely to the substrate	Can displace some surface organisms if present
		Personnel 6-8 workers per system	Where oil has penetrated into gravel sediments	Sediments transported into water can affect water quality
			Used with other washing techniques	
6. Flushing	Water streams at low to moderate pressure, and possibly elevated temperatures, are used to remove oil from surface or near-surface sediments through agitation and direct contact. Oil is flushed back into the water or a collection point for subsequent recovery. May also be used to flush out oil trapped by shoreline or aquatic vegetation.	Equipment 1-5 50- to 100-gpm/100-psi pumping systems with manifold 1-4 100-ft hoses and nozzles per system 1-2 200-ft containment booms per system 1 oil recovery device per system	Substrates, riprap, and solid man- made structures	Can impact clean downgradient areas
			Oil stranded onshore	Will displace many surface organisms if present
		Personnel 8-10 workers per system	Floating oil on shallow intertidal areas	Sediments transported into water can affect water quality
				Hot water can be lethal to many organisms
7. Spot	High pressure water streams are used to remove oil coatings from hard surfaces in small areas where flushing is ineffective. Oil is directed back into water or collection point for subsequent recovery.	Equipment 1-5 1,200- to 4,000-psi units with hose and spray wand 1-2 100-ft containment booms per unit 1 oil recovery device per unit	Bedrock, man-made structures, and gravel substrates	Will remove most organisms if present
			When low- pressure flushing is not effective	Can damage surface being cleaned
		Personnel 2-4 workers per unit	Directed water jet can remove oil from hard-to-reach sites	Can affect clean downgradient or nearby areas

TECHNIQUE	DESCRIPTION	RECOMMENDED EQUIPMENT	APPLICABILITY	POTENTIAL ENVIRONMENTAL EFFECTS
In Situ				
8. Passive Collection	Sorbent/snare booms or other sorbent materials are anchored at the waterline adjacent to heavily oiled areas to contain and recover oil as it leaches from the sediments.	Equipment 1,000-2,000 ft sorbent/snare boom 200-400 stakes or anchor systems	All shoreline types	Significant amounts of oil can remain on the shoreline for extended periods of time
			Calm wave action	
		Personnel 4-10 workers	Slow removal process	
9. Sediment Tilling	Mechanical equipment or hand tools are used to till lightly to moderately oiled surface sediments to maximize natural degradation processes.	Equipment 1 tractor fitted with tines, dicer, ripper blades, etc. or 1-4 rototillers or 1 set of hand tools	Any sedimentary substrate that can support heavy equipment	Significant amounts of oil can remain on the shoreline for extended periods of time
			Sand and gravel beaches with subsurface oil	
		Personnel 2-10 workers	Where sediment is stained or lightly oiled	Disturbs surface sediments and organisms
			Were oil is stranded above normal high waterline	
10. In Situ Bioremediation	Fertilizer is applied to lightly to moderately oiled areas to enhance microbial growth and subsequent biodegradation of oil.	Equipment 1-2 fertilizer applicators 1 tilling device if required	Any shoreline habitat type where nutrients are deficient	Significant amounts of oil can remain on the shoreline for extended periods of time
			Moderate to heavily oiled substrates	
		Personnel 2-4 workers	After other techniques have been used to remove free product on lightly oiled shorelines	Can disturb surface sediments and organisms
			Where other techniques are destructive or ineffective	
11. Log/Debris Burning	Oiled logs, driftwood, vegetation, and debris are burned to minimize material handling and disposal requirements. Material should be stacked in tall piles and fans used to ensure a hot, clean burn.	Equipment 1 set of fire control equipment 2-4 fans 1 supply of combustion promoter	On most habitats except dry muddy substrates where heat may impact the biological productivity of the habitat	Heat may impact local near-surface organisms
			Where heavily oiled items are difficult or impossible to move	Substantial smoke may be generated
			Many potential applications on ice	Heat may impact adjacent vegetation
12. Natural Recovery	No action is taken, and oil is allowed to degrade naturally.	None required	All habitat types	Oil may persist for significant periods of time

TECHNIQUE	DESCRIPTION	RECOMMENDED EQUIPMENT	APPLICABILITY	POTENTIAL ENVIRONMENTAL EFFECTS
			When natural removal rates are fast	Remobilized oil or sheens may impact other areas
			Degree of oiling is light	Higher probability of impacting wildlife
			Access is severely restricted or dangerous to cleanup crews	
13. Dispersants	Dispersants are used to reduce the oil/water interfacial tension thereby decreasing the energy needed for the slick to break into small particles and mix into the water column. Specially formulated products containing surface-active agents are sprayed from aircraft or boats onto the slick.	Dispersants Boat or aircraft	Water bodies with sufficient depth and volume for mixing and dilution	Use in shallow water could affect benthic resources
			When the impact of the floating oil has been determined to be greater than the impact of dispersed oil on the water- column community	May adversely impact organisms in the upper 30 feet of the water column
				Some water- surface and shoreline impacts could occur
Examples listed above are per 1000 feet of shoreline or oiled area.				

6.4 WILDLIFE PROTECTION AND REHABILITATION

- The GMO will support wildlife protection and rehabilitation efforts during the response but will not typically directly manage these efforts.
- GMO personnel will not attempt to rescue or clean affected wildlife, because such actions may cause harm to the individuals or may place the animals at further risk.
- Federal and state agencies responsible for wildlife capture and rehabilitation will typically coordinate capturing and rehabilitating oiled wildlife.
- Wildlife rehabilitation specialists may be utilized to assist in capturing and rehabilitating oiled animals as well as deterring unaffected animals away from the spill site.
- U.S Fish & Wildlife is to be notified and consulted in establishing incident-specific priorities for the protection of the resources provided.

6.5 ENDANGERED AND THREATENED SPECIES BY STATE

In the event of a release, the Pipeline will coordinate with the United States Fish and Wildlife Service (USFWS) and state and local wildlife management groups to ensure the protection of all threatened and endangered species within the release area. A summary of endangered and threatened species listed by county, is provided in the table below.

TABLE 6.5 ENDANGERED AND THREATENED SPECIES

County: McKenzie County, North Dakota			
Group	**Common Name**	**Scientific Name**	**Status**
Insects	monarch butterfly	Danaus plexippus	Candidate
Insects	Dakota Skipper	Hesperia dacotae	Threatened
Birds	Sprague's pipit	Anthus spragueii	Resolved Taxon
Mammals	Northern Long-Eared Bat	Myotis septentrionalis	Threatened
Birds	Piping Plover	Charadrius melodus	Threatened
Fishes	Pallid sturgeon	Scaphirhynchus albus	Endangered
Birds	Red knot	Calidris canutus rufa	Threatened
Birds	Least tern	Sterna antillarum	Recovery
Birds	Whooping crane	Grus americana	Endangered

County: Mountrail County, North Dakota			
Group	**Common Name**	**Scientific Name**	**Status**
Insects	Regal fritillary	Speyeria idalia	Under Review
Insects	monarch butterfly	Danaus plexippus	Candidate
Insects	Dakota Skipper	Hesperia dacotae	Threatened
Birds	Least tern	Sterna antillarum	Recovery
Birds	Whooping crane	Grus americana	Endangered
Birds	Red knot	Calidris canutus rufa	Threatened
Fishes	Pallid sturgeon	Scaphirhynchus albus	Endangered
Birds	Piping Plover	Charadrius melodus	Threatened
Birds	Sprague's pipit	Anthus spragueii	Resolved Taxon
Mammals	Northern Long-Eared Bat	Myotis septentrionalis	Threatened

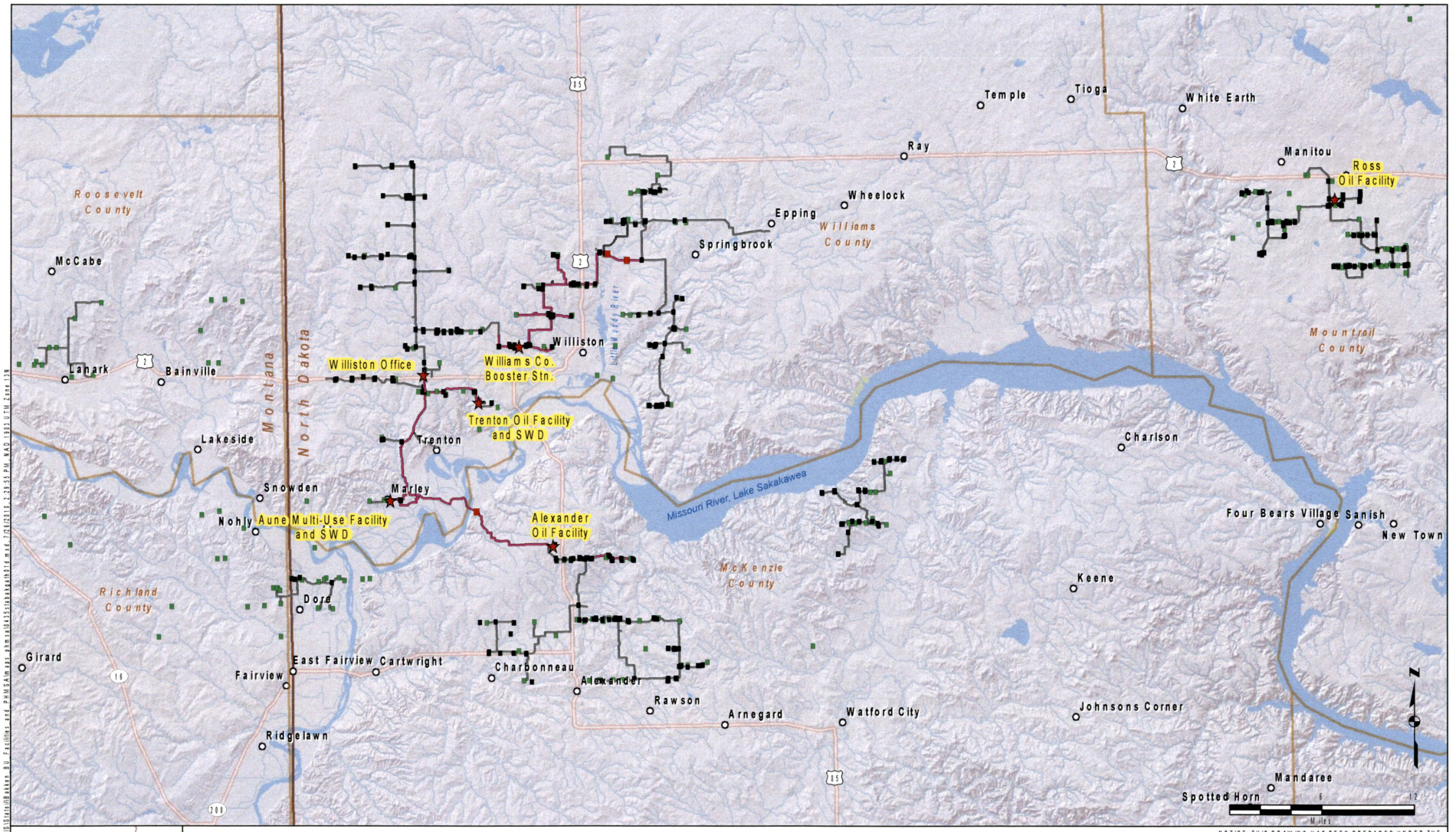
County: Williams County, North Dakota			
Group	**Common Name**	**Scientific Name**	**Status**
Insects	Dakota Skipper	Hesperia dacotae	Threatened
Insects	monarch butterfly	Danaus plexippus	Candidate
Birds	Whooping crane	Grus americana	Endangered
Mammals	Northern Long-Eared Bat	Myotis septentrionalis	Threatened
Birds	Red knot	Calidris canutus rufa	Threatened
Birds	Sprague's pipit	Anthus spragueii	Resolved Taxon
Birds	Piping Plover	Charadrius melodus	Threatened
Fishes	Pallid sturgeon	Scaphirhynchus albus	Endangered
Birds	Least tern	Sterna antillarum	Recovery

County: Richland County, Montana			
Group	**Common Name**	**Scientific Name**	**Status**
Insects	Regal fritillary	Speyeria idalia	Under Review
Insects	monarch butterfly	Danaus plexippus	Candidate
Mammals	Northern Long-Eared Bat	Myotis septentrionalis	Threatened
Birds	Piping Plover	Charadrius melodus	Threatened
Birds	Greater sage-grouse	Centrocercus urophasianus	Resolved Taxon
Birds	Whooping crane	Grus americana	Endangered
Birds	Bald eagle	Haliaeetus leucocephalus	Recovery
Fishes	Pallid sturgeon	Scaphirhynchus albus	Endangered
Birds	Least tern	Sterna antillarum	Recovery
Birds	Golden eagle	Aquila chrysaetos	Species of Concern
Mammals	Gray wolf	Canis lupus	Under Review
Birds	Mountain plover	Charadrius montanus	Resolved Taxon
Birds	Sprague's pipit	Anthus spragueii	Resolved Taxon

County: Roosevelt County, Montana			
Group	**Common Name**	**Scientific Name**	**Status**
Insects	Regal fritillary	Speyeria idalia	Under Review
Insects	monarch butterfly	Danaus plexippus	Candidate
Mammals	Northern Long-Eared Bat	Myotis septentrionalis	Threatened
Birds	Whooping crane	Grus americana	Endangered
Fishes	Pallid sturgeon	Scaphirhynchus albus	Endangered
Birds	Golden eagle	Aquila chrysaetos	Species of Concern
Birds	Red knot	Calidris canutus rufa	Threatened
Birds	Sprague's pipit	Anthus spragueii	Resolved Taxon
Birds	Piping Plover	Charadrius melodus	Threatened
Birds	Mountain plover	Charadrius montanus	Resolved Taxon
Mammals	Gray wolf	Canis lupus	Under Review
Birds	Bald eagle	Haliaeetus leucocephalus	Recovery
Birds	Least tern	Sterna antillarum	Recovery

6.6 VALVE LOCATIONS

GMO is evaluating the need for valve information in this plan. See Figure 6-6.1 for valve locations.



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BAKKEN PIPELINE FACILITY RESPONSE PLAN
GATHERING SYSTEM PIPELINES

PREPARED FOR

GRAYSON MILL OPERATING, LLC

FIGURE 6.6-1

VALVE LOCATIONS MAP

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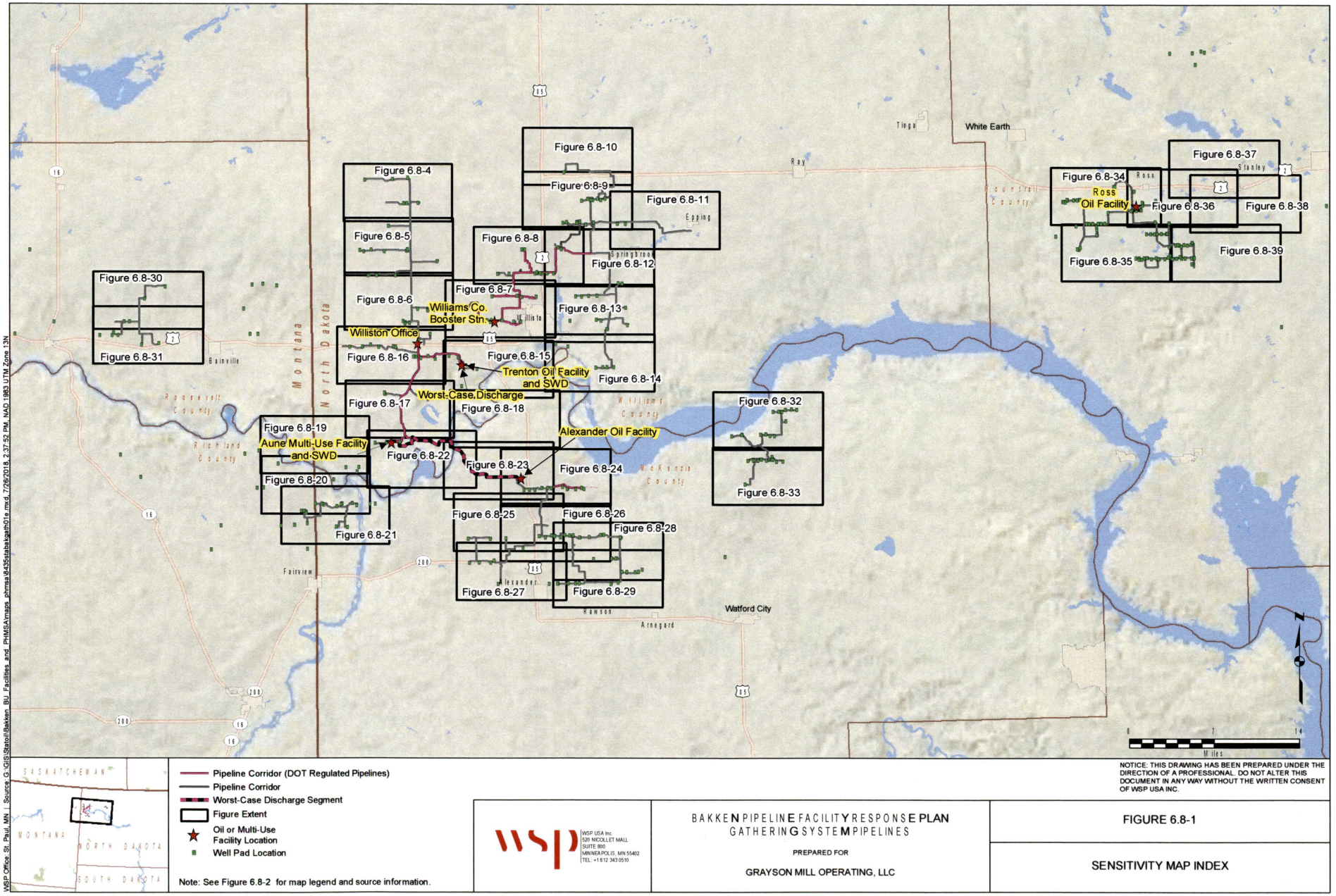
6.7 LANDOWNERS

GMO is evaluating the need for landowner information in this plan.

6.8 PIPELINE SENSITIVITY MAPS

In order to determine an appropriate area of concern between sensitive areas, the Pipeline has determined planning distance at each facility. These sensitive areas include water intakes, schools, medical facilities, residential and business areas, wetlands or other sensitive environments, fish and wildlife, likes and streams, endangered flora and fauna, recreational areas, transportation routes and utilities. The following figures include identified potential hazards and sensitive areas surrounding the Pipeline.

FIGURES 6-8.1 THROUGH 6-8.39 SENSITIVITY MAPS



Pipeline Corridor (DOT Regulated Pipelines)
Pipeline Corridor
Worst-Case Discharge Segment
Figure Extent
Oil or Multi-Use Facility Location
Well Pad Location

Note: See Figure 6.8-2 for map legend and source information.

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FIGURE 6.8-1

SENSITIVITY MAP INDEX

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A

Geographic Names Information System (GNIS) Point Data (North Dakota / Montana) and MSDI)

- Airport
- Bend
- Bridge
- Building
- Canal
- Cemetery
- Census
- Church
- Civil
- Dam
- Lake
- Locale
- Mine
- Park
- Post Office
- Populated Place
- Reservoir
- School
- Stream
- Summit
- Tower
- Valley

North Dakota Geographic Information System - DOT Landmark and Water Data Sites Point Data

- Bathing Beach/Swimming Pool
- Dock, Pier, or Landing
- Dwelling other than Farm
- Farm Unit
- Intermittent Stream
- Observation Well
- Perennial Stream
- Playground, Ball Field
- Power Substation
- Railroad
- Railroad Station
- Schoolhouse
- Surface Water Monitoring
- Trauma Center
- Vacant Farm Unit
- Water Supply Stand Pipe/Tank
- Well
- Wetland
- Surficial Aquifer

North Dakota State Water Commission / MSDI

- Surface Water Intake (Non-Potable)
- Surface Water Intake (Potable)
- Well
- Test Well

USGS Stream Guage Locations

- USGS Stream Gage

North Dakota Department of Health

- Wellhead Protection Area (Community/Noncommunity)

ECS Pipeline Data

- Pipeline Corridor (DOT Regulated Pipelines)
- Pipeline Corridor
- Pipeline Corridor
- Valve
- Emergency Shut Down (ESD) Valve

Equinor Data

- Well Pad Location
- DAPL Pipeline

Facility/Office & Tactical Locations

- Facility or Office
- Site A — Tactical Location

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FIGURE 6.8-2

SENSITIVITY MAP SYMBOL INDEX

A

L1UBG: Lake
L1UBHh: Lake
L2ABF: Lake
L2ABFh: Lake
L2ABG: Lake
L2ABGh: Lake
L2UBGh: Lake
L2USAh: Lake
L2USCh: Lake
PABF: Freshwater Pond
PABFh: Freshwater Pond
PABFx: Freshwater Pond
PABGx: Freshwater Pond
PEM/ABF: Freshwater Emergent Wetland
PEM/ABFh: Freshwater Emergent Wetland
PEM/ABFx: Freshwater Emergent Wetland
PEM/SSA: Freshwater Emergent Wetland
PEM/SSC: Freshwater Emergent Wetland
PEM/USA: Freshwater Emergent Wetland
PEMA: Freshwater Emergent Wetland
PEMAd: Freshwater Emergent Wetland
PEMAh: Freshwater Emergent Wetland
PEMAx: Freshwater Emergent Wetland
PEMB: Freshwater Emergent Wetland
PEMC: Freshwater Emergent Wetland
PEMCd: Freshwater Emergent Wetland
PEMCh: Freshwater Emergent Wetland
PEMCx: Freshwater Emergent Wetland
PEMF: Freshwater Emergent Wetland
PEMFh: Freshwater Emergent Wetland
PEMFx: Freshwater Emergent Wetland
PFO/UBG: Freshwater Forested/Shrub Wetland
PFOA: Freshwater Forested/Shrub Wetland
PFOAh: Freshwater Forested/Shrub Wetland
PFOC: Freshwater Forested/Shrub Wetland
PSS/EMA: Freshwater Forested/Shrub Wetland
PSS/EMC: Freshwater Forested/Shrub Wetland
PSSA: Freshwater Forested/Shrub Wetland
PSSAh: Freshwater Forested/Shrub Wetland
PSSC: Freshwater Forested/Shrub Wetland
PUBFx: Freshwater Pond
PUBG: Freshwater Pond
PUBGx: Freshwater Pond
PUBHx: Freshwater Pond
PUSA: Other
PUSAh: Other
PUSC: Other
PUSCh: Other
PUSCx: Other
R2USC: Riverine
R4USF: Riverine

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FIGURE 6.8-3

WETLAND CLASSIFICATIONS

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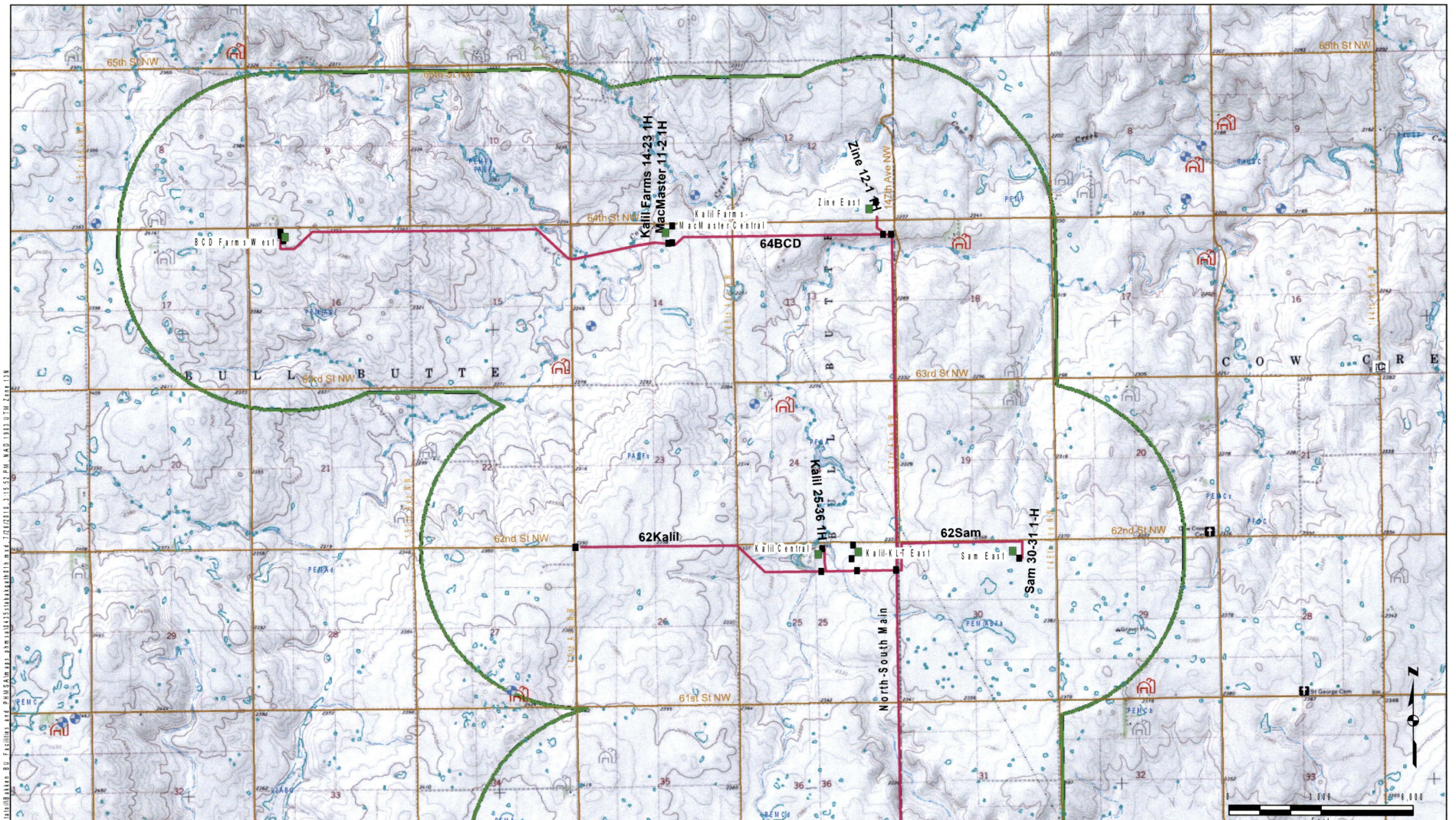

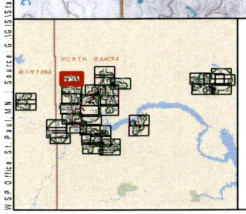

- Sensitivity Location Marker and Label
- Well Pad
- Pipeline Valve
- One Mile Pipeline Buffer and Five Mile Potable Surface Water Intake Buffer
- Pipeline Corridor (DOT Regulated Pipelines)
- Pipeline Corridor

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FIGURE 6.8-4

SENSITIVITY MAP

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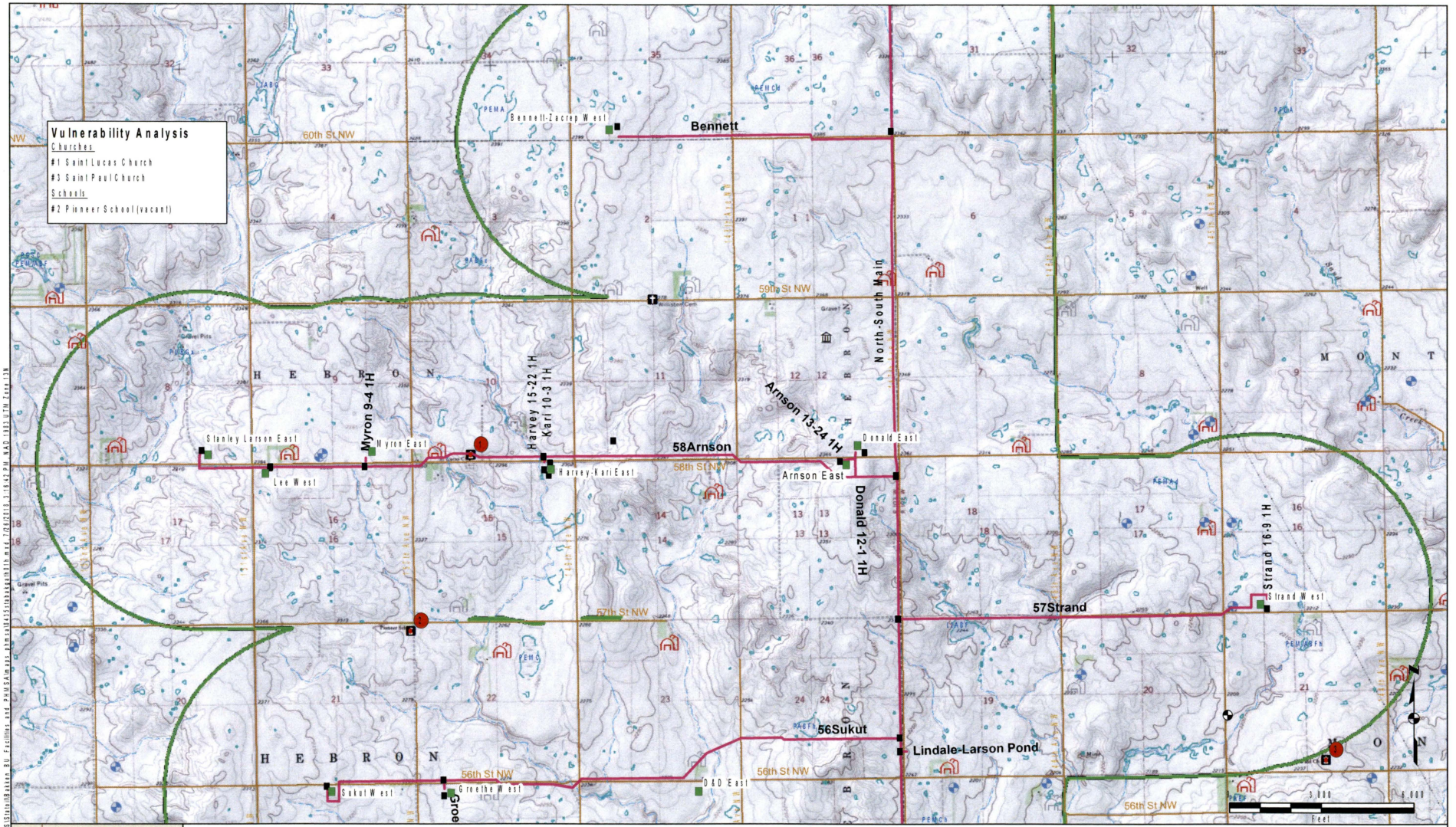

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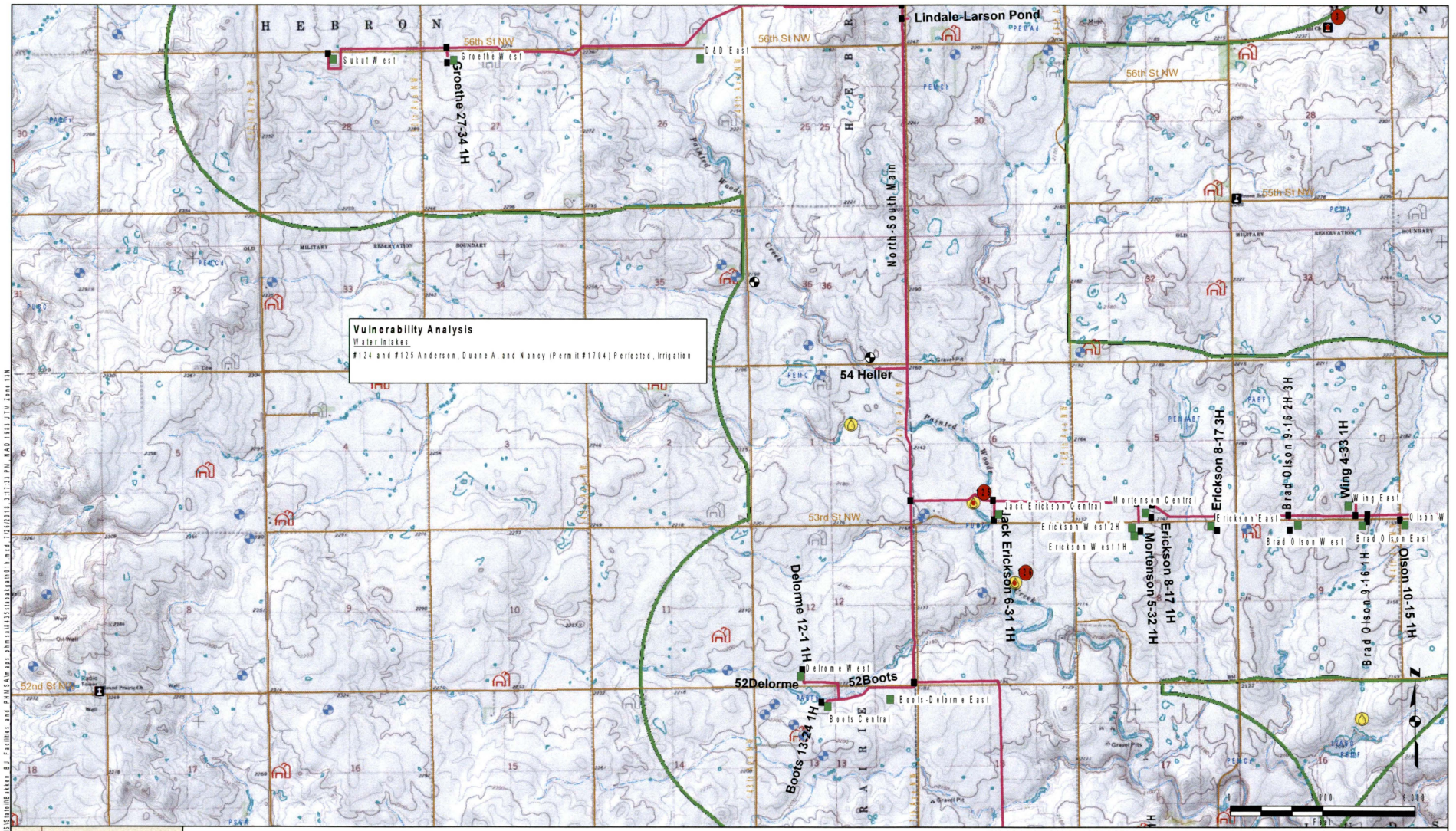
FIGURE 6.8-5

SENSITIVITY MAP


H E B R O N
56th St NW
Sukut West
Groethe West
Groethe 27-34 1H
D&D East
Lindale-Larson Pond
North-South Main
Vulnerability Analysis
Water Intakes
#124 and #125 Anderson, Duane A. and Nancy (Permit #1704) Perfected, Irrigation
54 Heller
53rd St NW
Jack Erickson Central
Jack Erickson 6-31 1H
Mortenson Central
Erickson West 2H
Erickson West 1H
Erickson 8-17 1H
Mortenson 5-32 1H
Erickson East
Erickson 8-17 3H
Brad Olson 9-16 2H-3H
Wing 4-33 1H
Wing East
Brad Olson West
Brad Olson East
Olson 10-15 1H
Brad Olson 9-16 1H
Olson W
Delorme 12-1 1H
Delorme West
52Delorme
52Boots
Boots-Delorme East
Boots Central
Boots 13-24 1H
52nd St NW
55th St NW
Sensitivity Location Marker and Label
Well Pad
Pipeline Valve
One Mile Pipeline Buffer and
Five Mile Potable Surface Water Intake Buffer
Pipeline Corridor (DOT Regulated Pipelines)
Pipeline Corridor
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BAKKEN PIPELINE FACILITY RESPONSE PLAN
GATHERING SYSTEM PIPELINES
PREPARED FOR
GRAYSON MILL OPERATING, LLC
FIGURE 6.8-6
SENSITIVITY MAP



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FIGURE 6.8-7

SENSITIVITY MAP

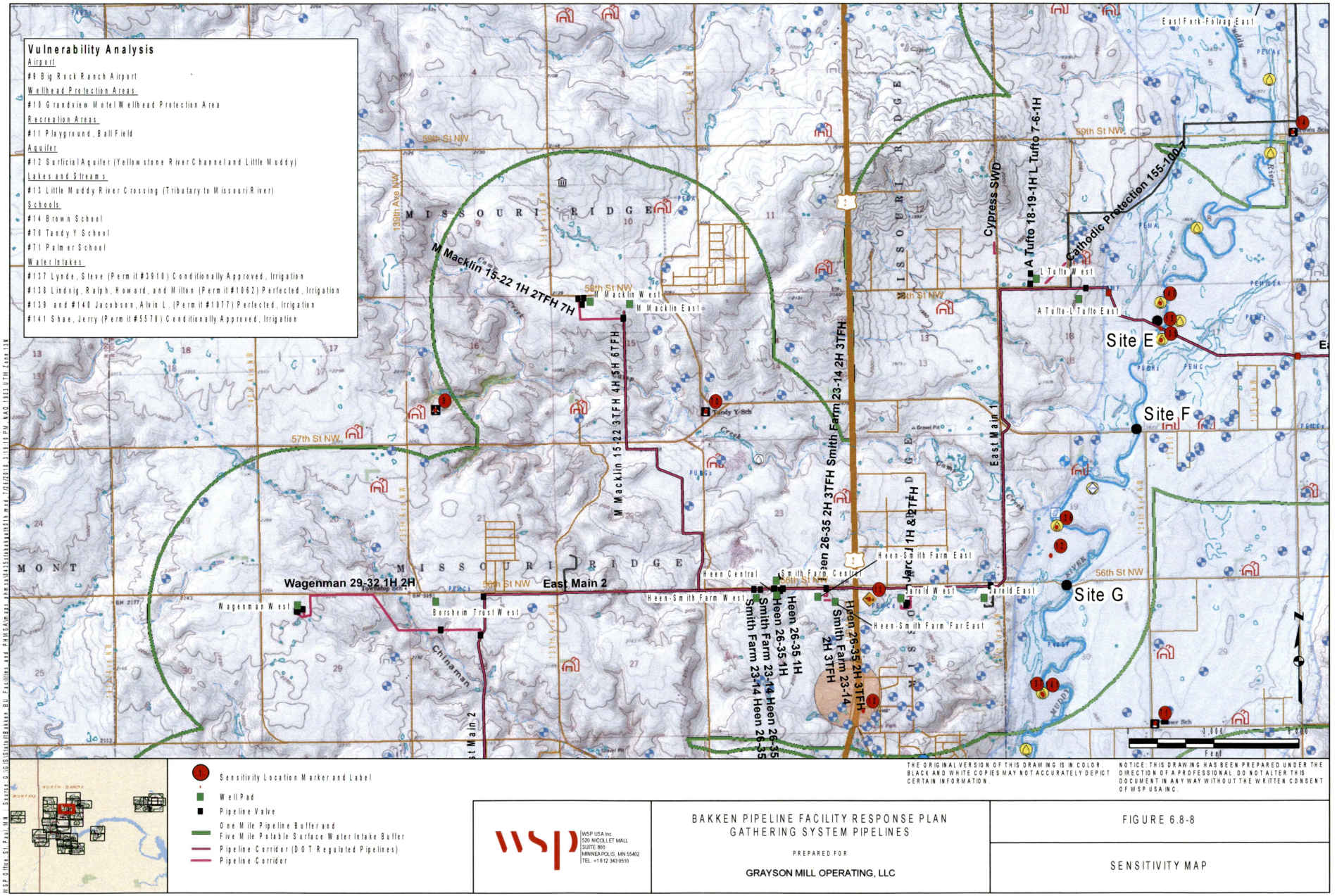

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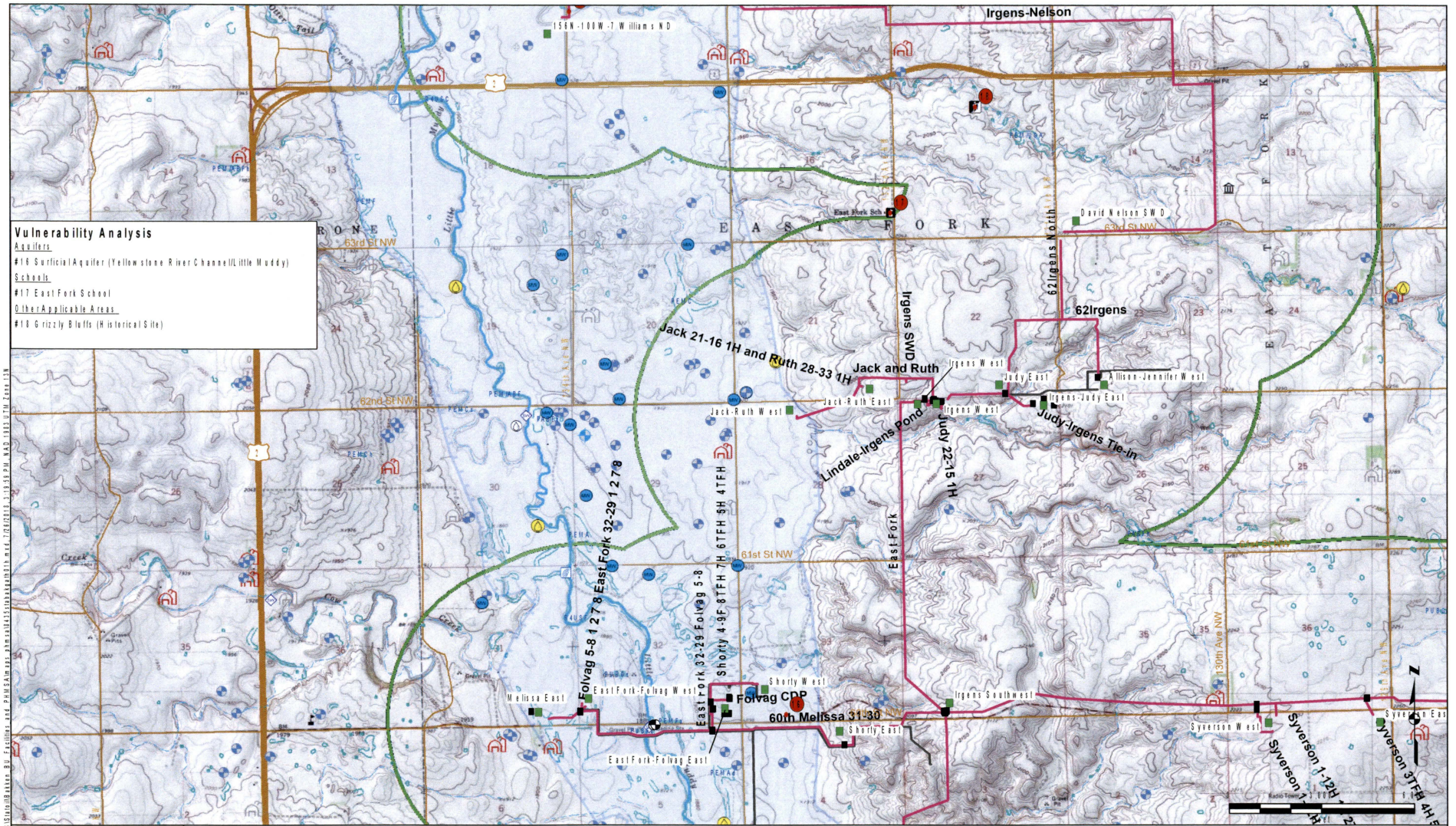
FIGURE 6.8-8

SENSITIVITY MAP

W:\SP Office\St Paul\MN - Savage\GIS\GIS\arcmap\Bakken BU Facilities and PHMSA\mxds\phmsa2015\bakken\bfac_mxd - 7/6/2015 3:16:13 PM NAD 1983 UTM Zone 15N



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BAKKEN PIPELINE FACILITY RESPONSE PLAN
GATHERING SYSTEM PIPELINES

PREPARED FOR

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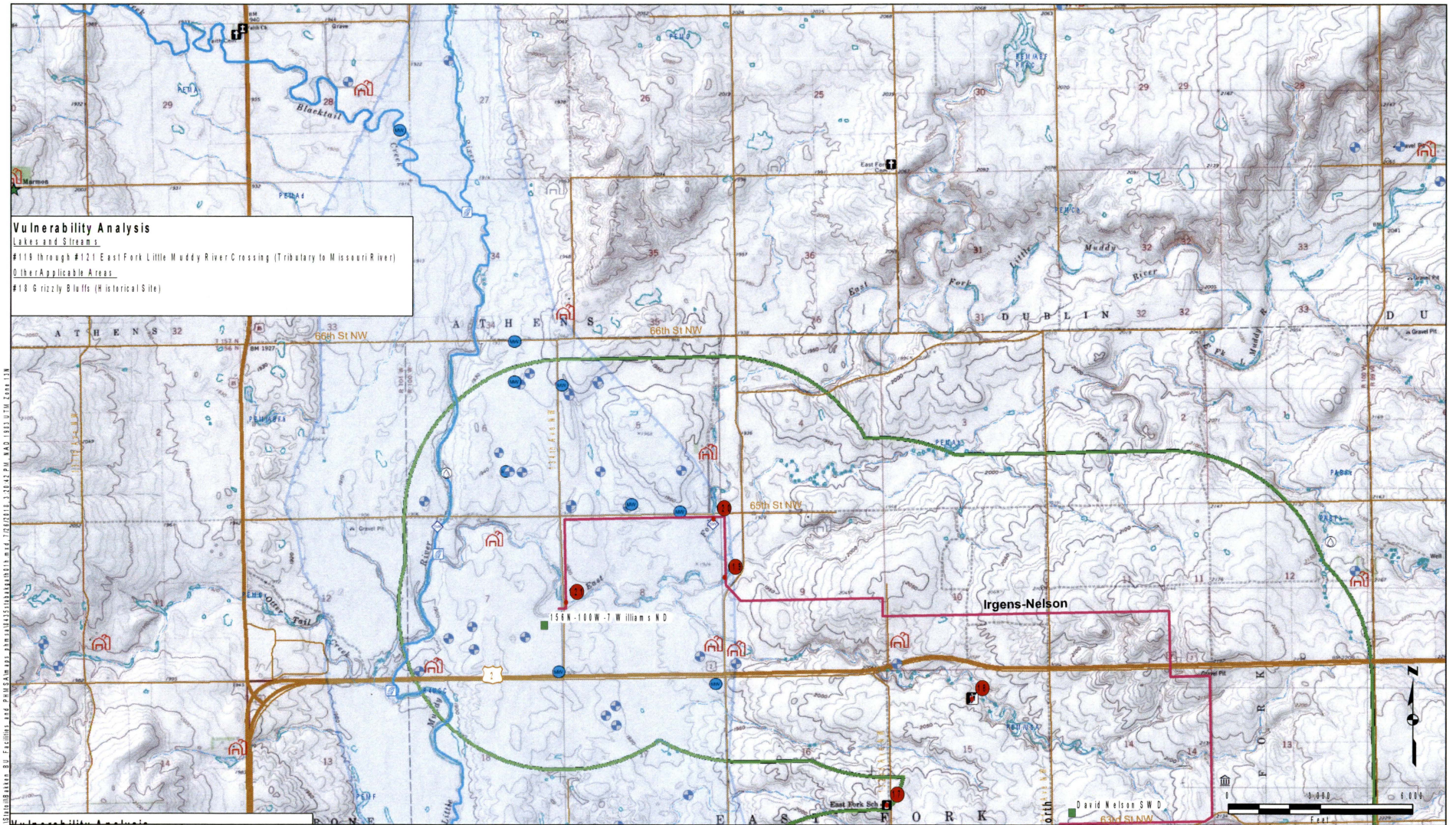
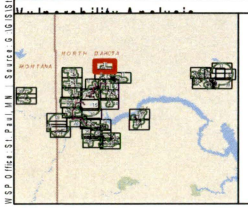
FIGURE 6.8-9

SENSITIVITY MAP





- Sensitivity Location Marker and Label
- Well Pad
- Pipeline Valve
- One Mile Pipeline Buffer and Five Mile Potable Surface Water Intake Buffer
- Pipeline Corridor (DOT Regulated Pipelines)
- Pipeline Corridor

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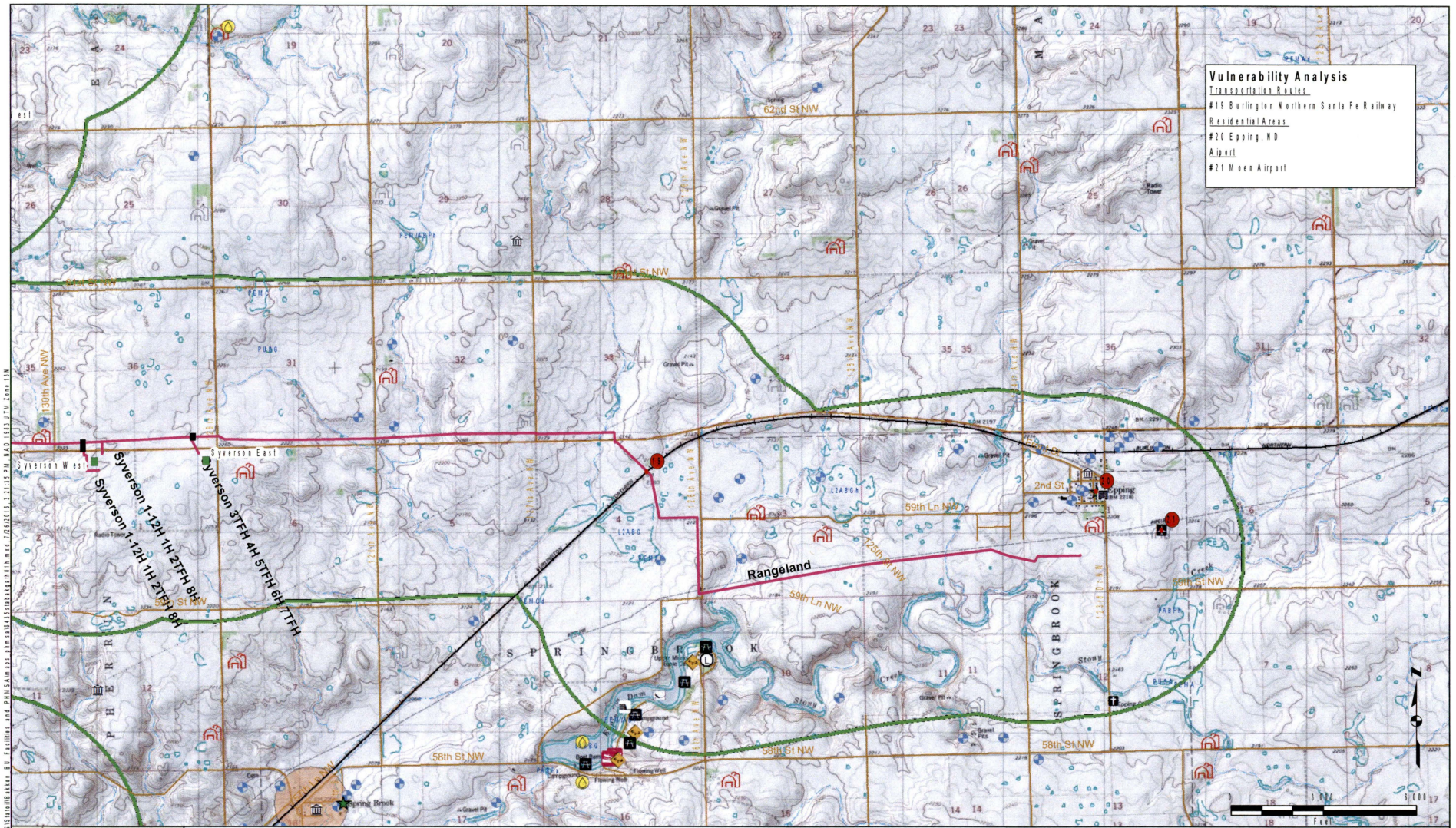
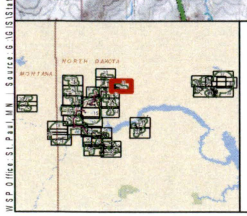
FIGURE 6.8-10

SENSITIVITY MAP

WSP Office: St. Paul, MN Source: G:\GIS\Statoil\Bakken BU Facilities and PHMSA\maps phmsa\1643\Stubbsgeth01.mxd 7/26/2018 3:20:42 PM NAD 1983 UTM Zone 13N





Sensitivity Location Marker and Label

Well Pad

Pipeline Valve

One Mile Pipeline Buffer and Five Mile Potable Surface Water Intake Buffer

Pipeline Corridor (DOT Regulated Pipelines)

Pipeline Corridor

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BAKKEN PIPELINE FACILITY RESPONSE PLAN
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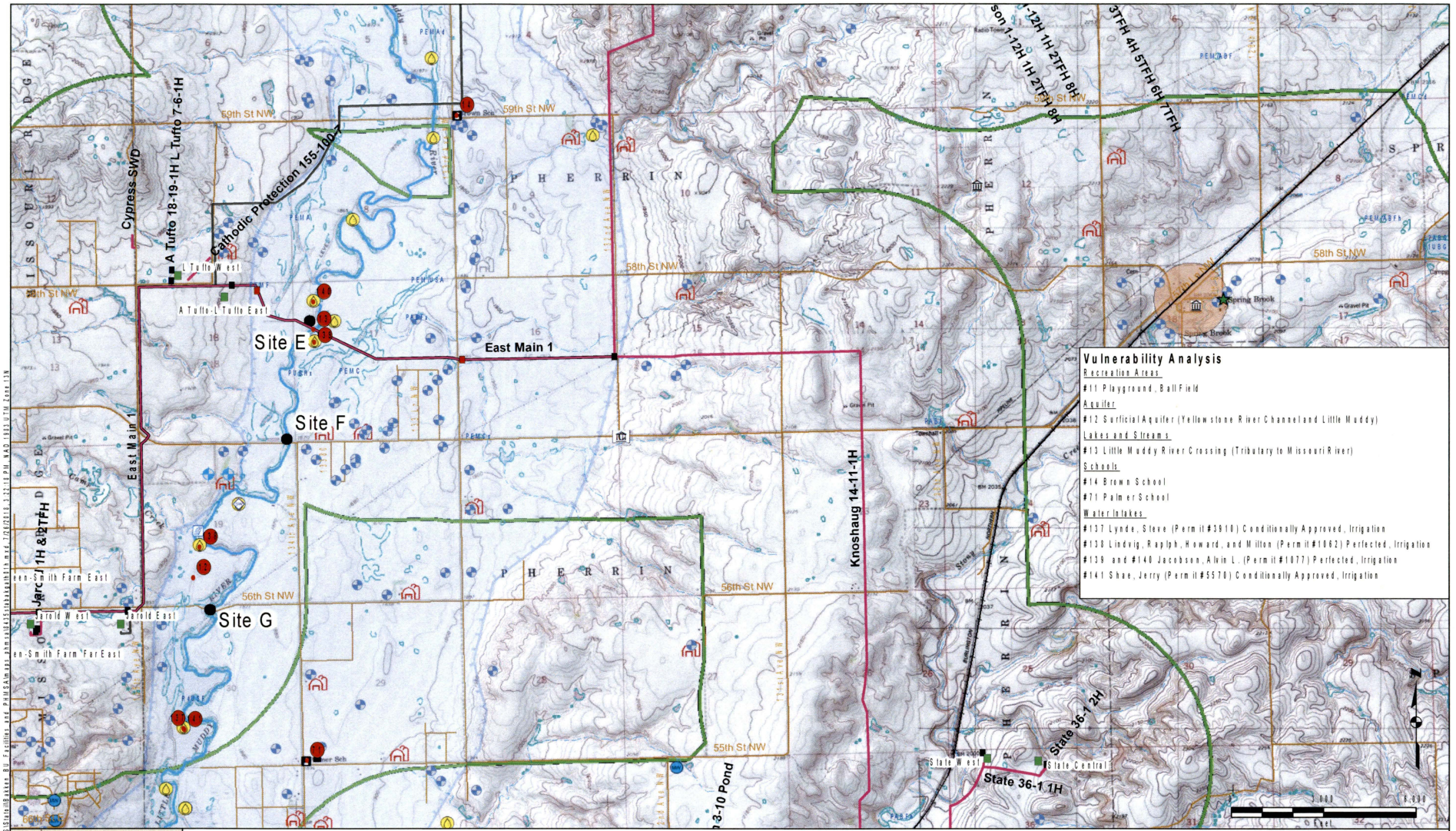
FIGURE 6.8-11

SENSITIVITY MAP

WSP Office: St. Paul, MN | Source: G:\GIS\Stats\Bakken BU Facilities and PHMSA\maps\phmsa\0435stabakgath01.mxd, 7/26/2018, 3:21:35 PM, NAD 1983 UTM Zone 13N


Cypress SWD
A Tufto 18-19-1H L Tufto 7-6-1H
Cathodic Protection 155-100-7
L Tufto West
A Tufto-L Tufto East
Site E
Site F
Site G
East Main 1
59th St NW
58th St NW
56th St NW
55th St NW
Knoshaug 14-11-1H
State 36-1 2H
State 36-1 1H
State West
State Central
Spring Brook
Harold West
Harold East
Jarc 1H &2TFH
Jarc 3TFH 4H 5TFH 6H 7TFH
Son 1-12H 1H 2TFH 8H
Brown Sch
Gravel Pit
Radio Tower
Cem
Vulnerability Analysis
Recreation Areas
#11 Playground, Ball Field
Aquifer
#12 Surficial Aquifer (Yellowstone River Channel and Little Muddy)
Lakes and Streams
#13 Little Muddy River Crossing (Tributary to Missouri River)
Schools
#14 Brown School
#71 Palmer School
Water Intakes
#137 Lynde, Steve (Permit #3910) Conditionally Approved, Irrigation
#138 Lindvig, Raylph, Howard, and Milton (Permit #1062) Perfected, Irrigation
#139 and #140 Jacobson, Alvin L. (Permit #1077) Perfected, Irrigation
#141 Shae, Jerry (Permit #5570) Conditionally Approved, Irrigation
Sensitivity Location Marker and Label
Well Pad
Pipeline Valve
One Mile Pipeline Buffer and
Five Mile Potable Surface Water Intake Buffer
Pipeline Corridor (DOT Regulated Pipelines)
Pipeline Corridor
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BAKKEN PIPELINE FACILITY RESPONSE PLAN
GATHERING SYSTEM PIPELINES
PREPARED FOR
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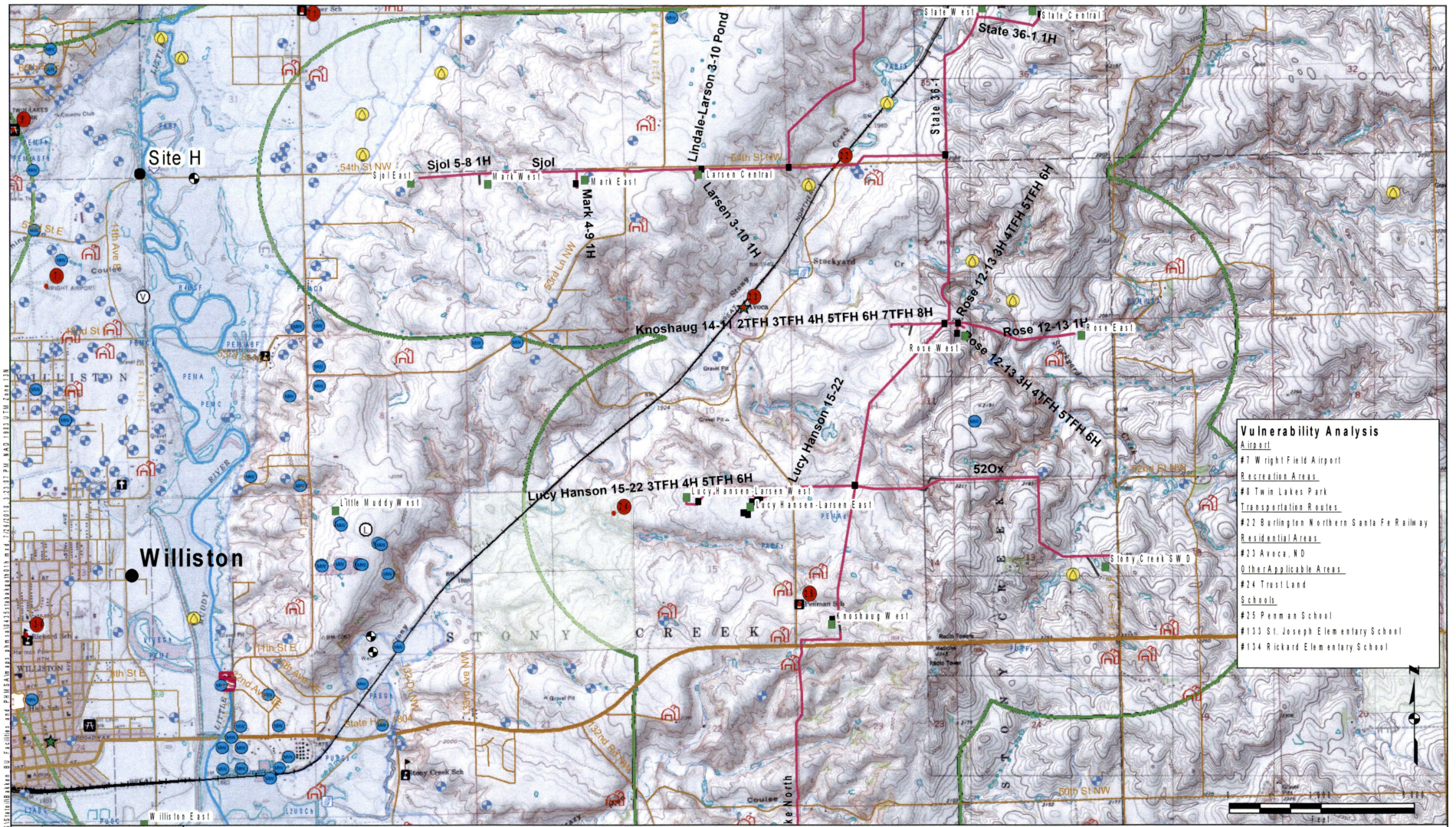
FIGURE 6.8-12
SENSITIVITY MAP


Site H
Williston
Sjol 5-8 1H
Sjol
Mark 4-9 1H
Lindale-Larson 3-10 Pond
Larsen 3-10 1H
State 36-1 1H
State 36-1
Rose 12-13 3H 4TFH 5TFH 6H
Rose 12-13 1H
Rose 12-13 3H 4TFH 5TFH 6H
Knoshaug 14-11 2TFH 3TFH 4H 5TFH 6H 7TFH 8H
Lucy Hanson 15-22
Lucy Hanson 15-22 3TFH 4H 5TFH 6H
52Ox
54th St NW
50th St NW
Sjol East
Mark West
Mark East
Larsen Central
State West
State Central
Rose West
Rose East
Lucy Hansen-Larsen West
Lucy Hansen-Larsen East
Knoshaug West
Little Muddy West
Williston East
Stony Creek SWD
Penman Sch
Richard Sch
Stony Creek Sch
STONY CREEK
Vulnerability Analysis
Airport
#7 Wright Field Airport
Recreation Areas
#8 Twin Lakes Park
Transportation Routes
#22 Burlington Northern Santa Fe Railway
Residential Areas
#23 Avoca, ND
Other Applicable Areas
#24 Trust Land
Schools
#25 Penman School
#133 St. Joseph Elementary School
#134 Richard Elementary School
Sensitivity Location Marker and Label
Well Pad
Pipeline Valve
One Mile Pipeline Buffer and
Five Mile Potable Surface Water Intake Buffer
Pipeline Corridor (DOT Regulated Pipelines)
Pipeline Corridor
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BAKKEN PIPELINE FACILITY RESPONSE PLAN
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PREPARED FOR
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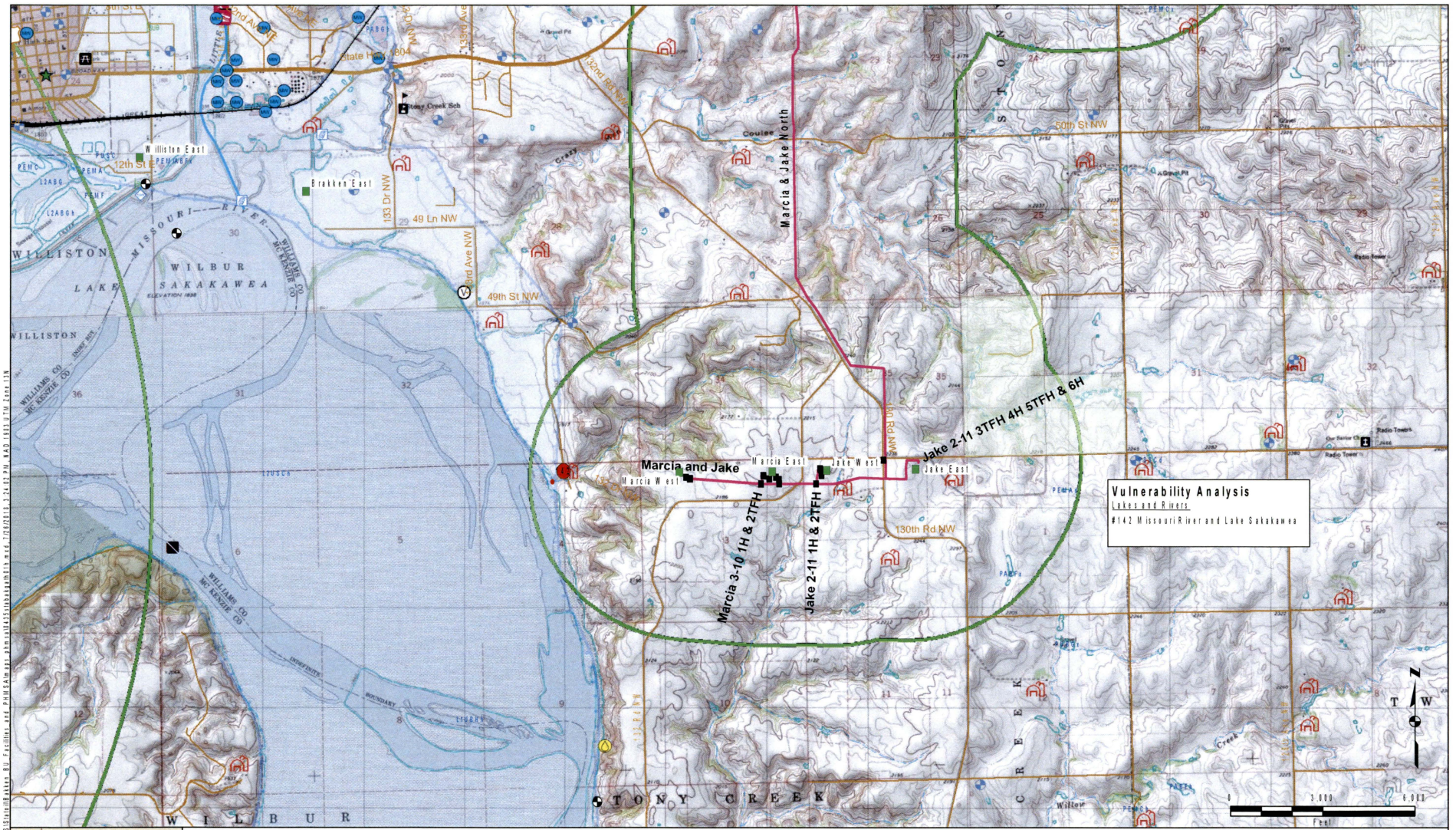
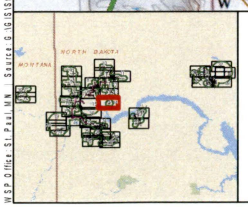
FIGURE 6.8-13
SENSITIVITY MAP





Sensitivity Location Marker and Label
Well Pad
Pipeline Valve
One Mile Pipeline Buffer and Five Mile Potable Surface Water Intake Buffer
Pipeline Corridor (DOT Regulated Pipelines)
Pipeline Corridor

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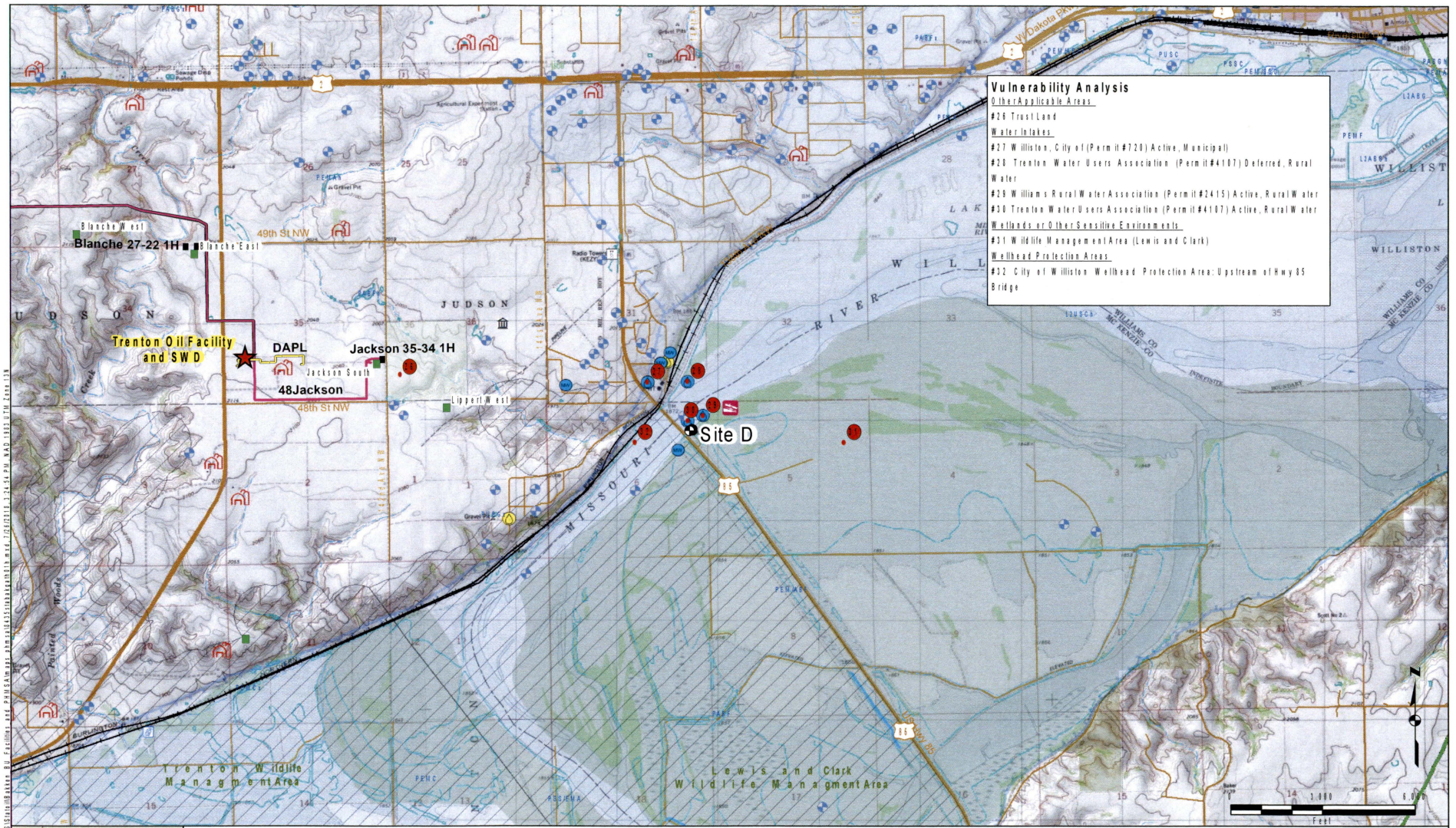
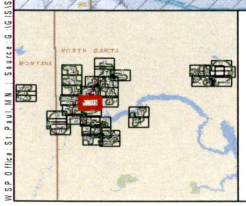
FIGURE 6.8-14

SENSITIVITY MAP

WSP Office: St. Paul, MN | Source: G:\GIS\State\Bakken BU Facilities and PHMSA\maps phmsa\843Sstepbakgath01h.mxd 7/26/2018 3:24:02 PM NAD 1983 UTM Zone 13N





Sensitivity Location Marker and Label
Well Pad
Pipeline Valve
One Mile Pipeline Buffer and Five Mile Potable Surface Water Intake Buffer
Pipeline Corridor (DOT Regulated Pipelines)
Pipeline Corridor

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FIGURE 6.8-15

SENSITIVITY MAP

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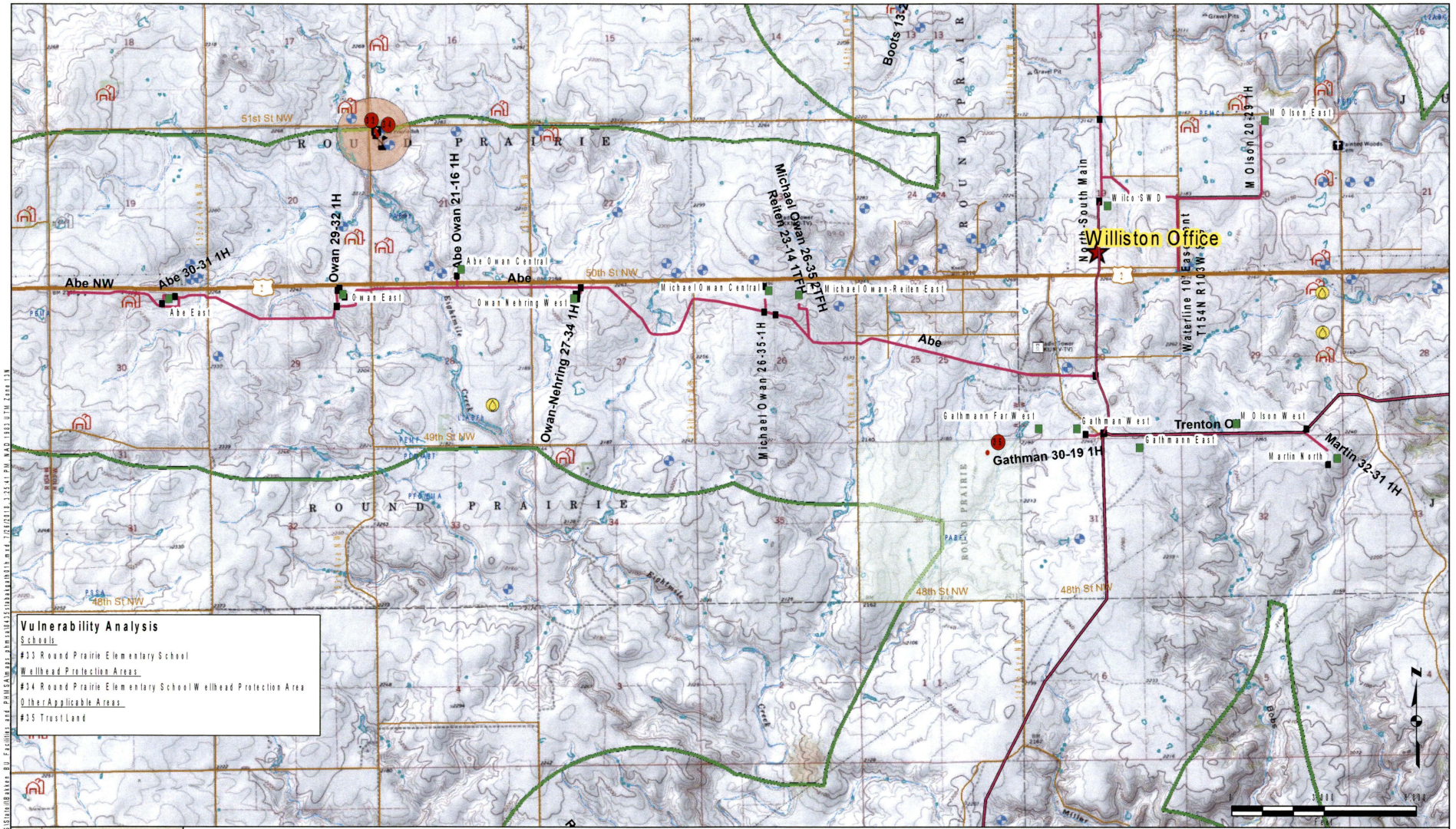

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FIGURE 6.8-16

SENSITIVITY MAP

WSP Office St Paul, MN Source: G:\GIS\State\ND\Bakken_BU_Facilities_and_PHMSA\mxds_pipeline\435\oubakgasphdtls.mxd 7/24/2018 3:25:41 PM NAD 1983 UTM Zone 13N

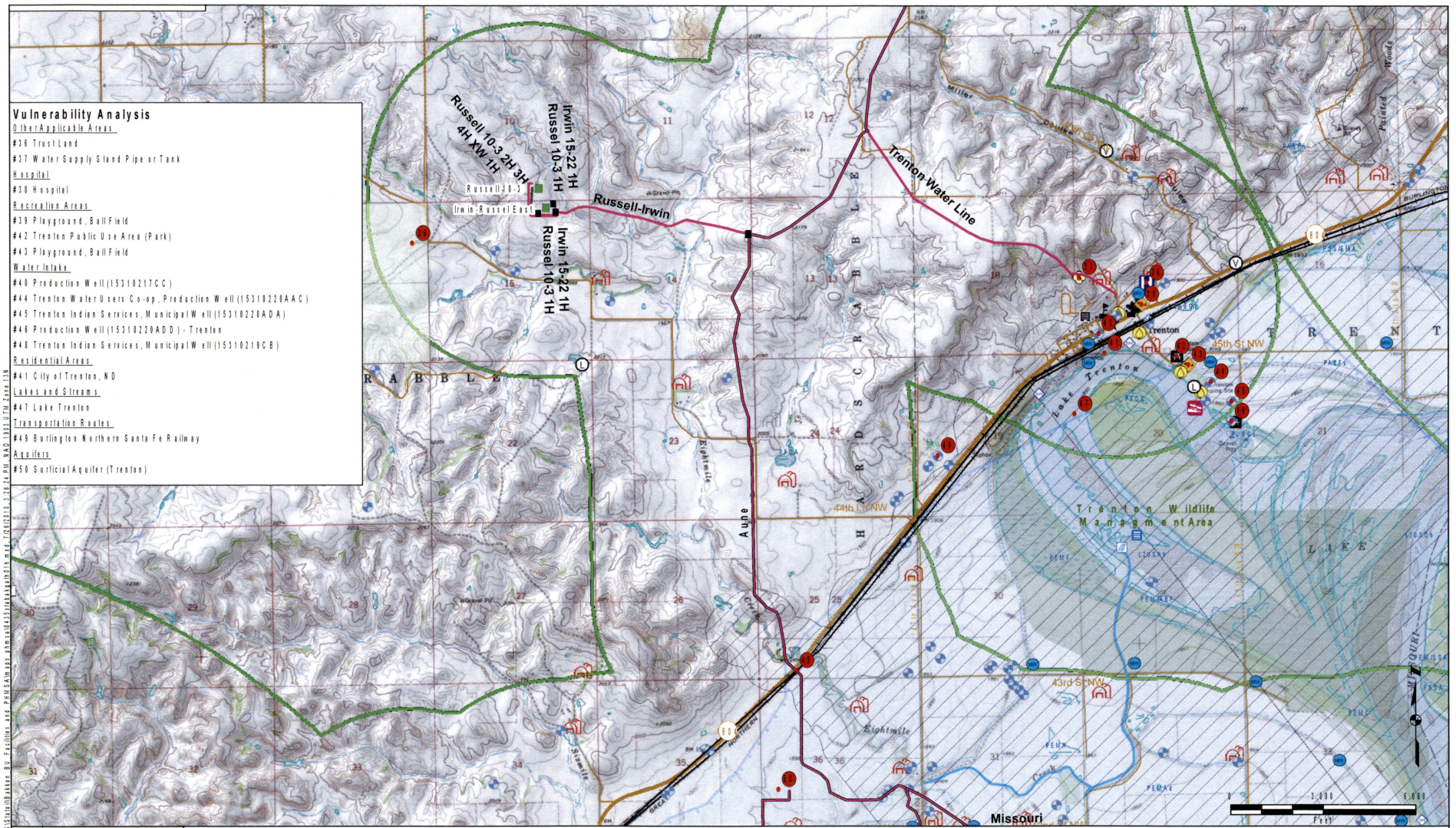

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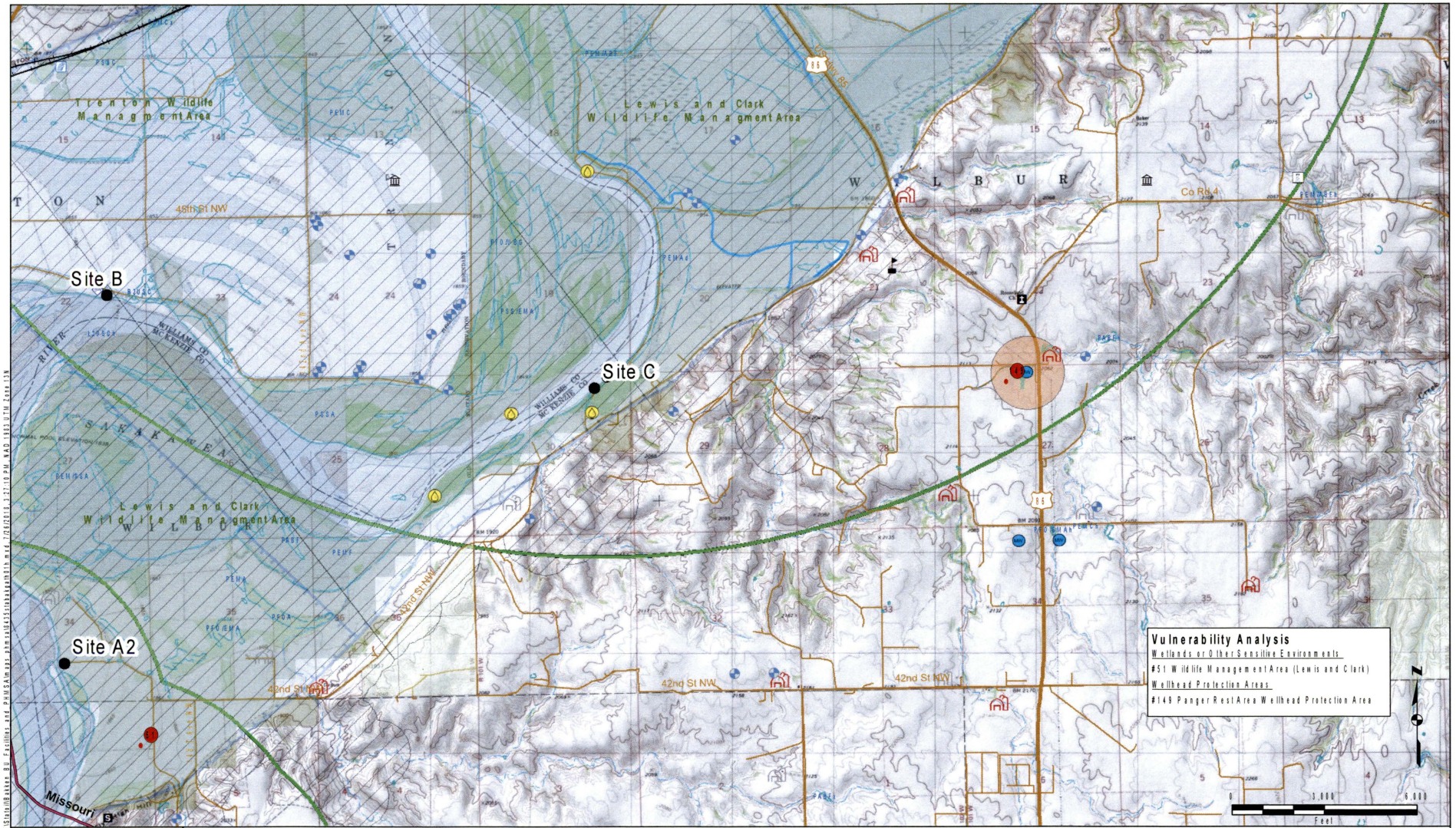
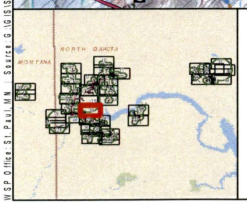
FIGURE 6.8-17

SENSITIVITY MAP

WSP Office: St. Paul, MN | Source: G:\GIS\Stitch\Bakken BU Facilities and PHMSA Maps\mxds\04-35\stitchbakken01h.mxd, 7/26/2018, 3:28:24 PM, NAD 1983 UTM Zone 13N





Sensitivity Location Marker and Label
Well Pad
Pipeline Valve
One Mile Pipeline Buffer and Five Mile Potable Surface Water Intake Buffer
Pipeline Corridor (DOT Regulated Pipelines)
Pipeline Corridor

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PREPARED FOR

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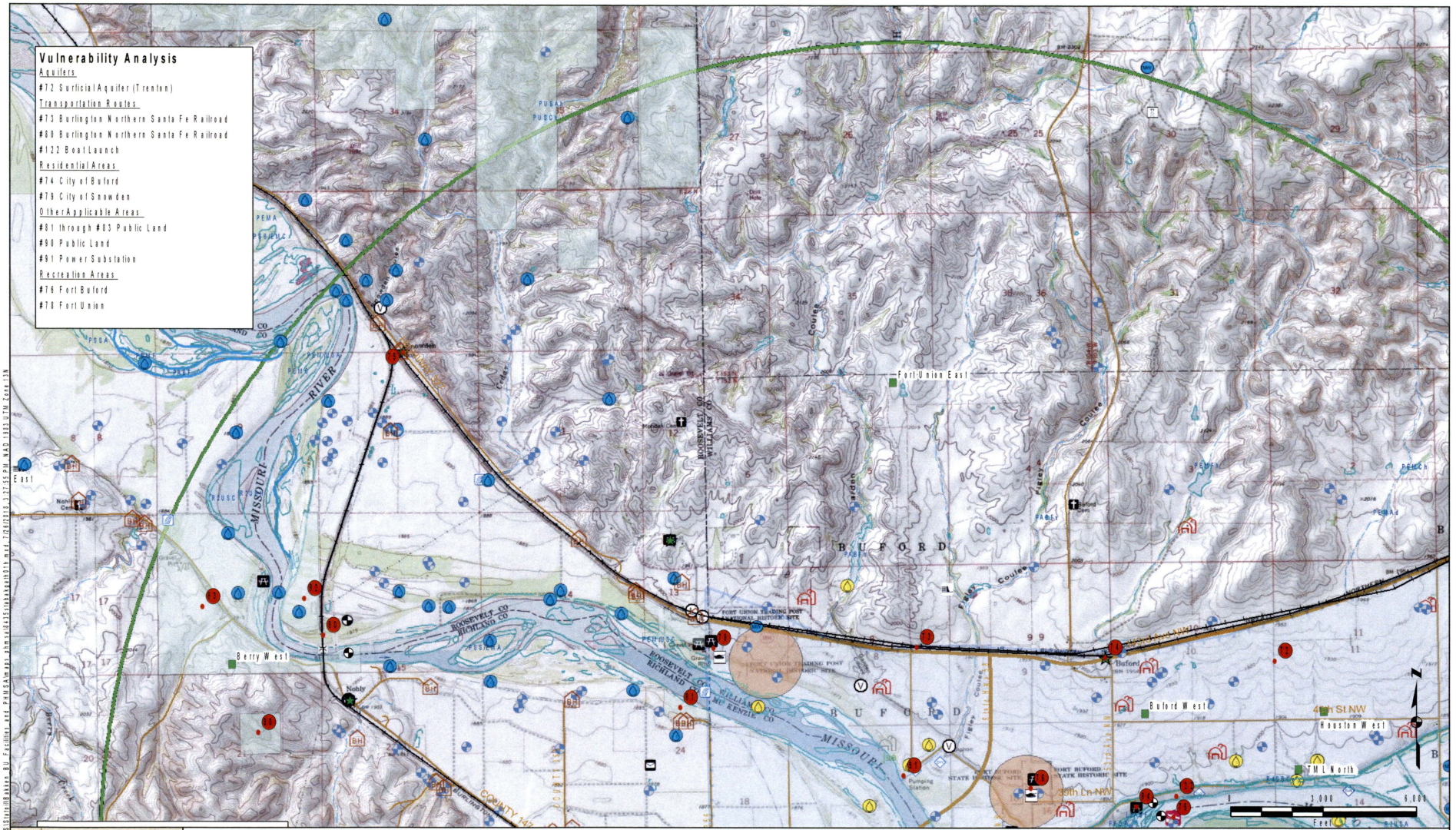
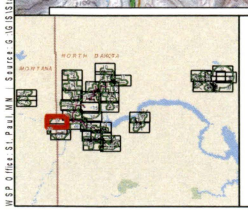
FIGURE 6.8-18

SENSITIVITY MAP

WSP Office: St. Paul, MN Source: G:\GIS\Statoil\Bakken_BU_Facilities_and_PHMSA\maps_phmsa\0435stabakgath01h.mxd, 7/26/2018, 3:27:10 PM, NAD 1983 UTM Zone 13N





Sensitivity Location Marker and Label
Well Pad
Pipeline Valve
One Mile Pipeline Buffer and Five Mile Potable Surface Water Intake Buffer
Pipeline Corridor (DOT Regulated Pipelines)
Pipeline Corridor

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FIGURE 6.8-19

SENSITIVITY MAP

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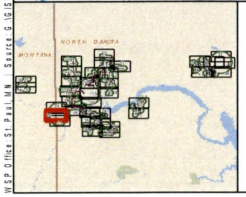

- Sensitivity Location Marker and Label
- Well Pad
- Pipeline Valve
- One Mile Pipeline Buffer and Five Mile Potable Surface Water Intake Buffer
- Pipeline Corridor (DOT Regulated Pipelines)
- Pipeline Corridor

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FIGURE 6.8-20

SENSITIVITY MAP

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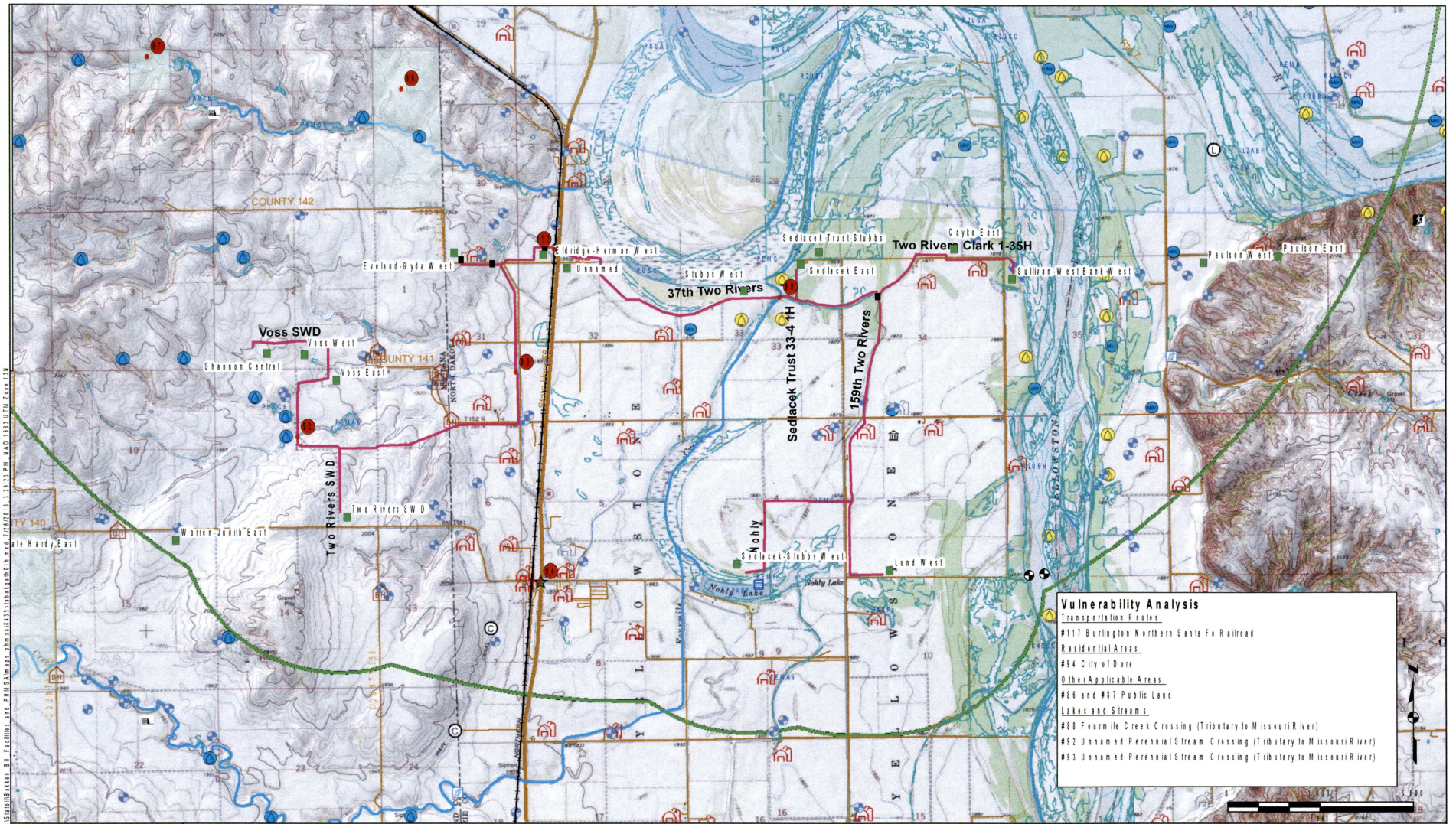

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BAKKEN PIPELINE FACILITY RESPONSE PLAN
GATHERING SYSTEM PIPELINES

PREPARED FOR

GRAYSON MILL OPERATING, LLC

FIGURE 6.8-21

SENSITIVITY MAP

W:\SP Office St Paul MN \ Source G:\GIS\Sys\BBakken_BU_Facilities_and_PHMSA\mxds_submitted\Sys\bakken_submitted\Sys\bakken_submitted.mxd 7/26/2018 3:28:21 PM NAD 1983 UTM Zone 13N

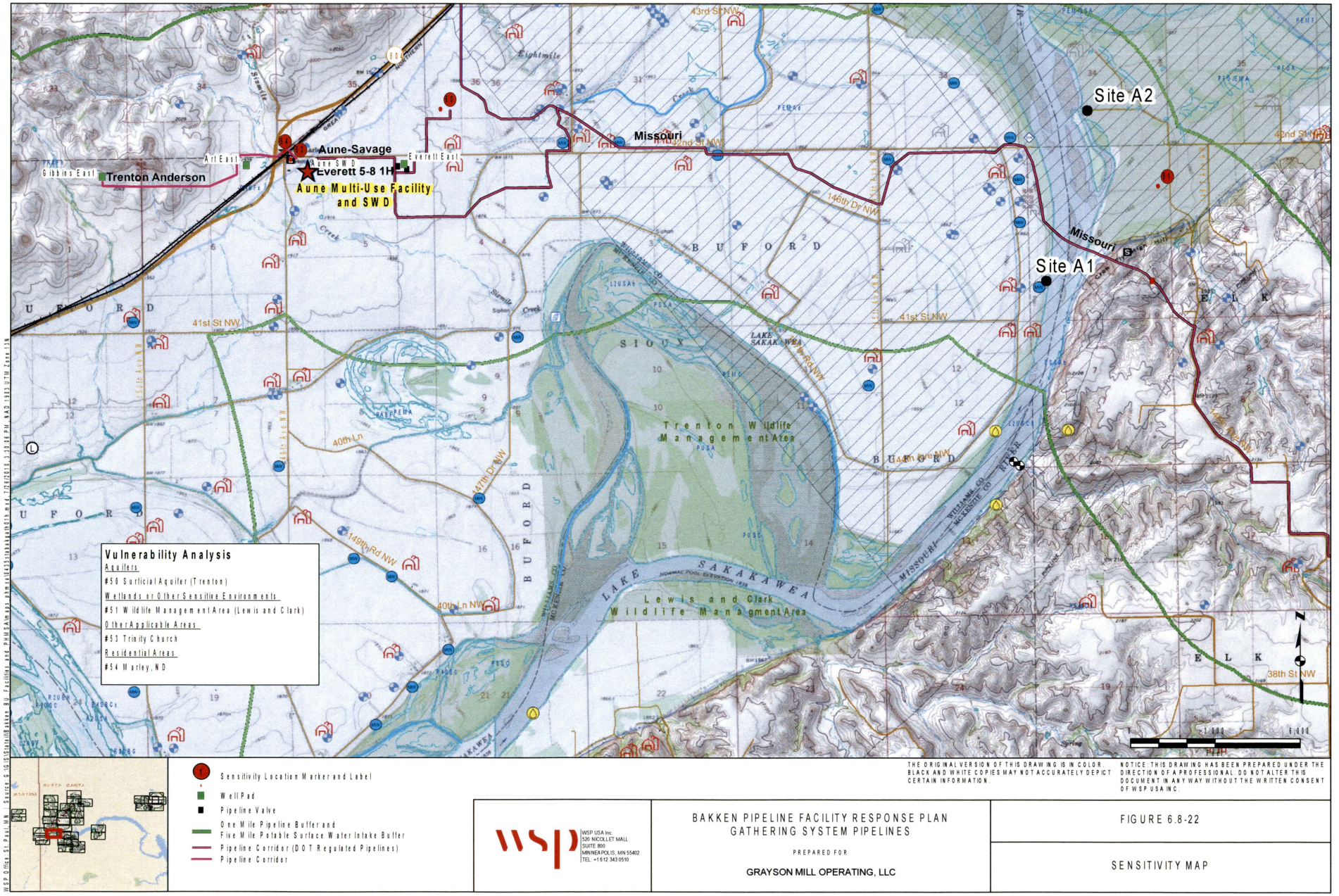

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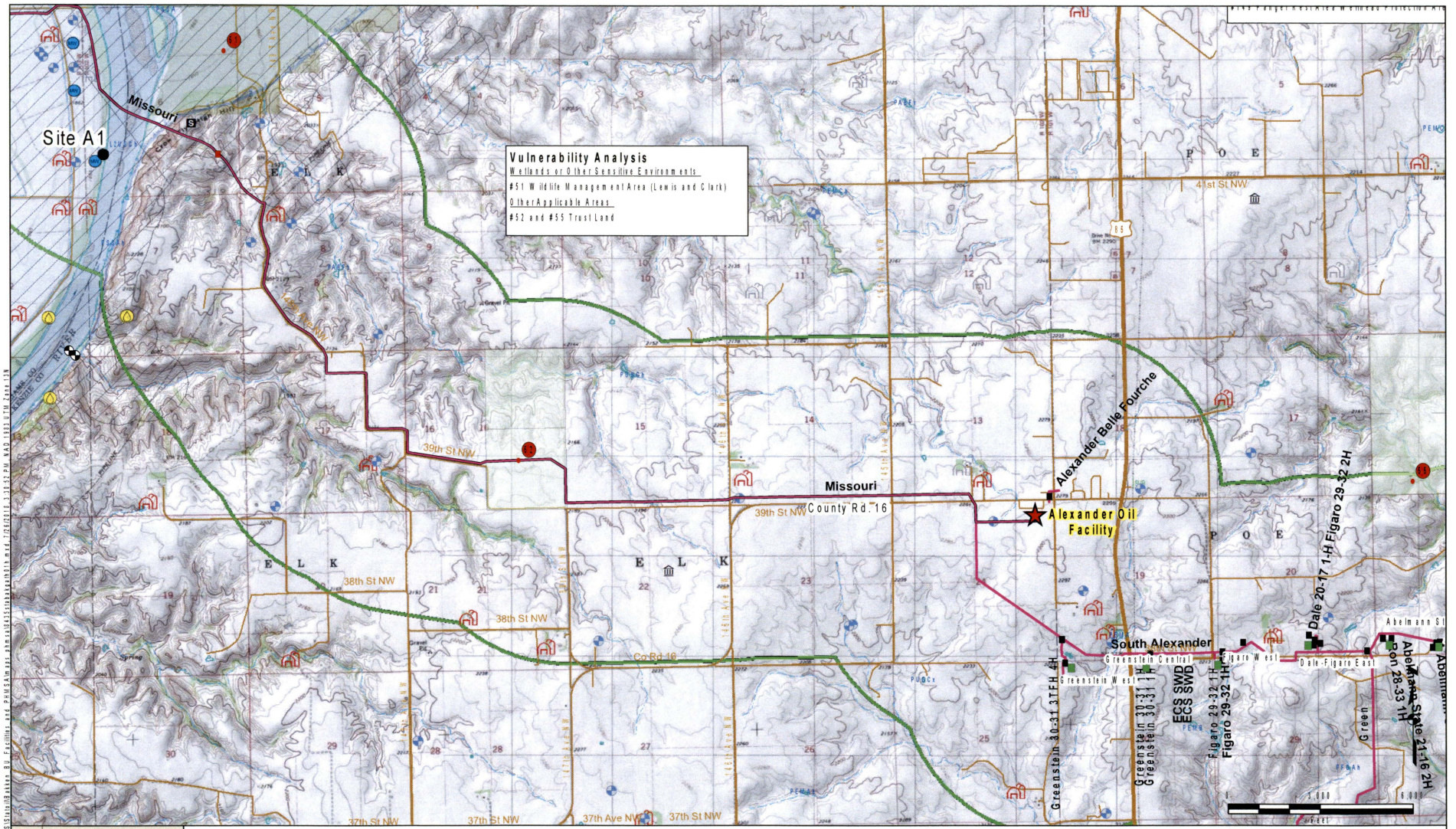
FIGURE 6.8-22

SENSITIVITY MAP

WSP Office: St Paul, MN Source: G:\GIS\State\North Dakota\BU Facilities and PKM\Sakmaps_pkm\sakmaps\mxds\Sensitivity.mxd 7/26/2018 3:30:46 PM, NAD 1983 UTM Zone 13N



Sensitivity Location Marker and Label
Well Pad
Pipeline Valve
One Mile Pipeline Buffer and Five Mile Potable Surface Water Intake Buffer
Pipeline Corridor (D.O.T. Regulated Pipelines)
Pipeline Corridor

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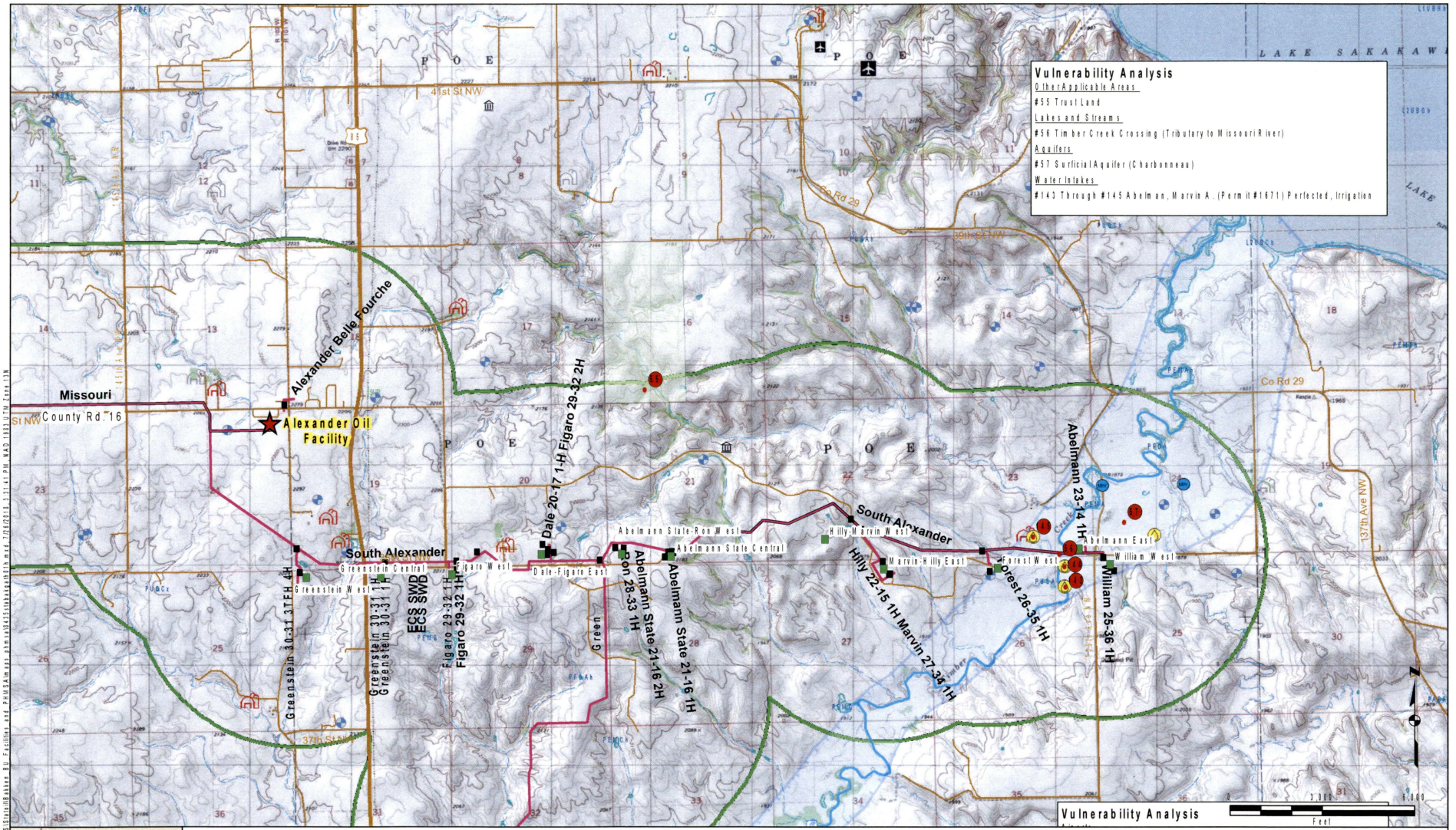
FIGURE 6.8-23

SENSITIVITY MAP



Sensitivity Location Marker and Label
Well Pad
Pipeline Valve
One Mile Pipeline Buffer and Five Mile Potable Surface Water Intake Buffer
Pipeline Corridor (DOT Regulated Pipelines)
Pipeline Corridor

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FIGURE 6.8-24

SENSITIVITY MAP

W:\P Office St Paul\MN_Source G\GIS\Stn\Bakken BU Facilities and PHMSA\mxds\435\stnkeyshpfs.mxd 7/26/2018 3:31:41 PM NAD 1983 UTM Zone 13N

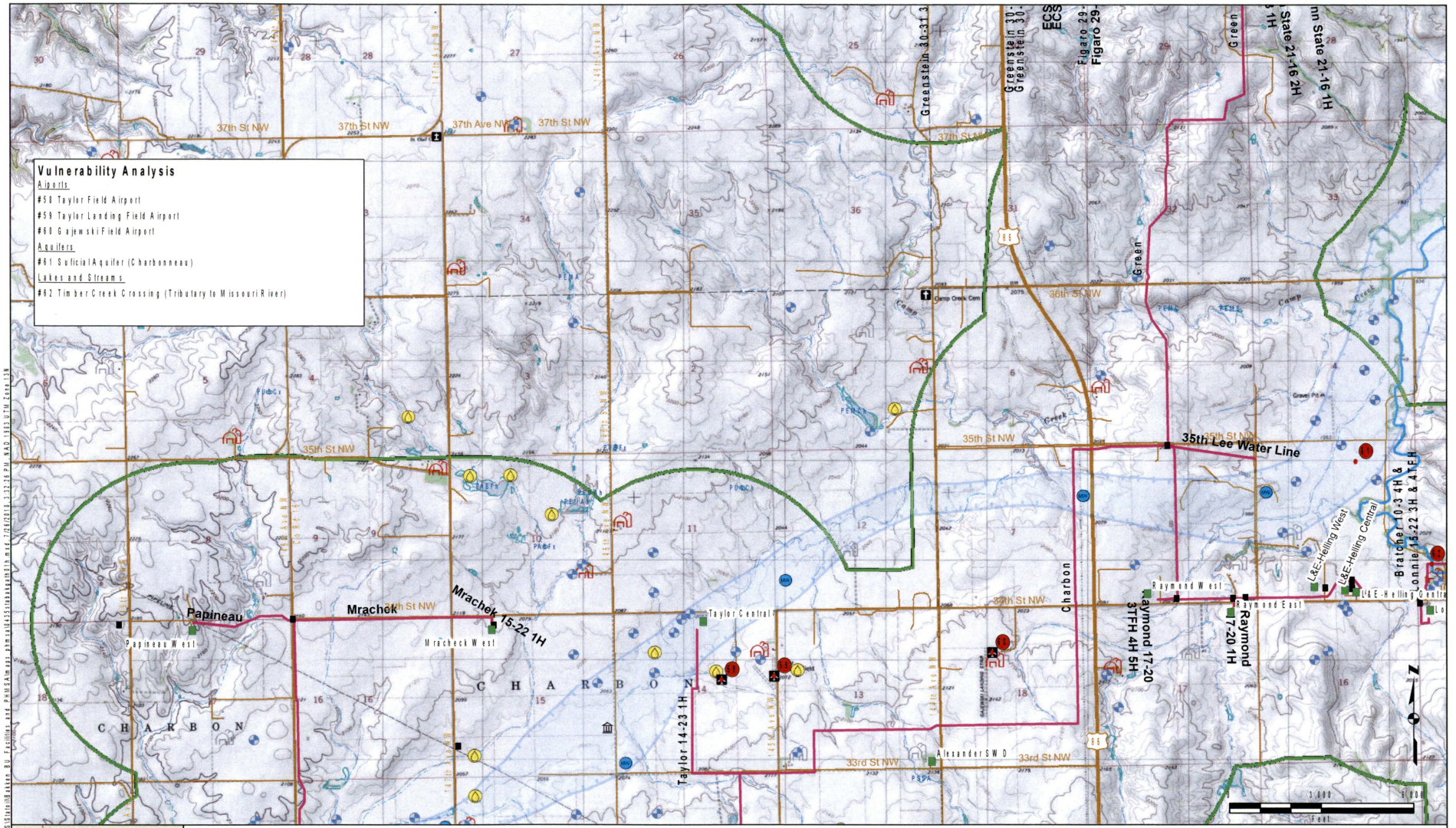

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FIGURE 6.8-25

SENSITIVITY MAP

W:\SP Office\St Paul\MN_Sources\GIS\GIS\Bakken_BU_Facilities_and_PHMSA\mxds\pipeline\35\sensitivity\sensitivity01b.mxd 7/26/2013 3:32:26 PM NAD 1983 UTM Zone 13N

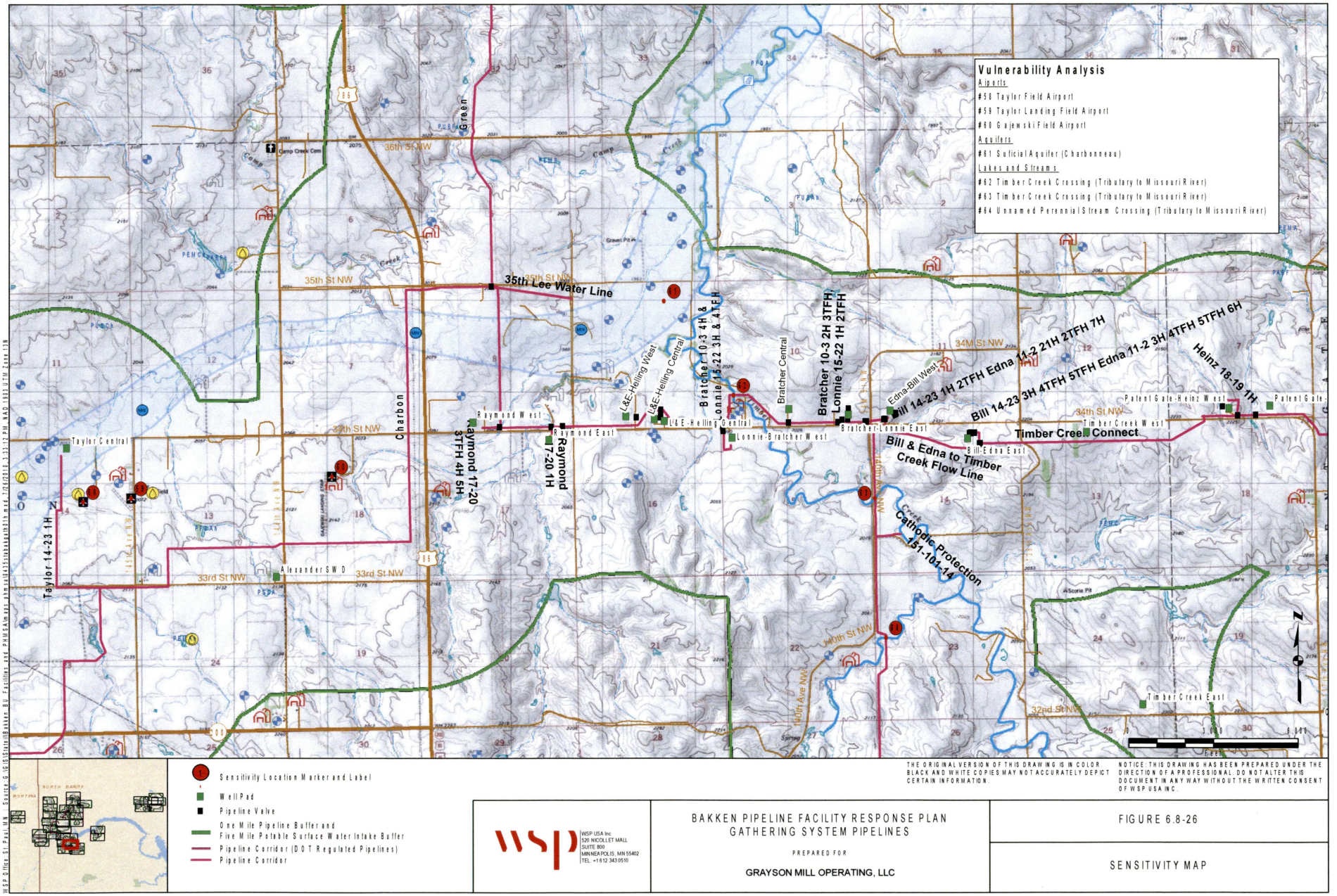

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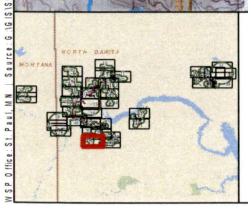
FIGURE 6.8-26

SENSITIVITY MAP

WSP Office: St Paul, MN - Source: G:\GIS\Site\Bakken BU Facilities and PHMSA\mxds and pdfs\FRP\MSA\mxds and pdfs\Sensitivity\Sensitivity.mxd - 7/26/2018 1:31:12 PM, NAD 1983 UTM Zone 13N





Sensitivity Location Marker and Label

Well Pad

Pipeline Valve

One Mile Pipeline Buffer and Five Mile Potable Surface Water Intake Buffer

Pipeline Corridor (DOT Regulated Pipelines)

Pipeline Corridor

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BAKKEN PIPELINE FACILITY RESPONSE PLAN
GATHERING SYSTEM PIPELINES

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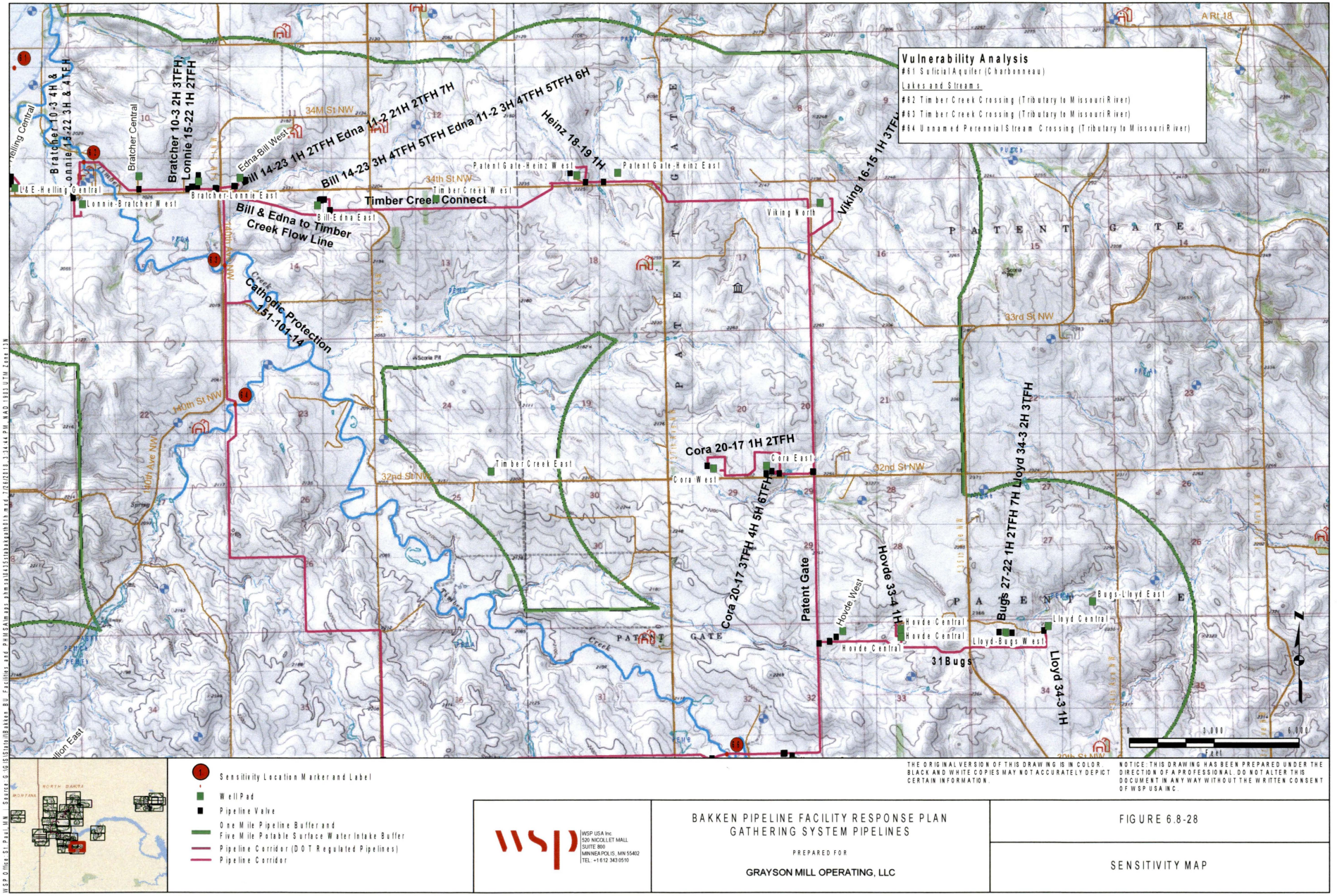
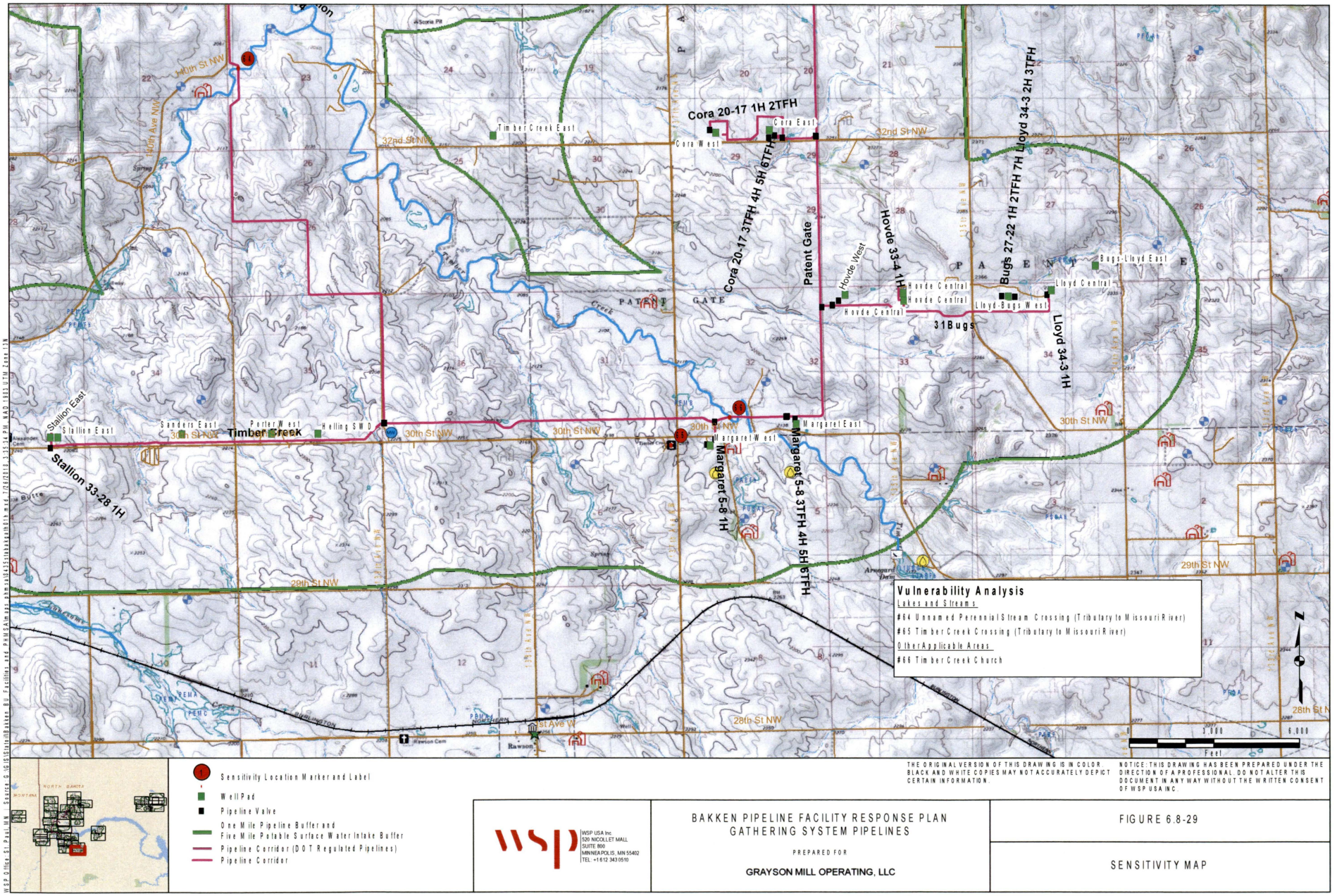
FIGURE 6.8-27

SENSITIVITY MAP


Vulnerability Analysis
#61 Surficial Aquifer (Charbonneau)
Lakes and Streams
#62 Timber Creek Crossing (Tributary to Missouri River)
#63 Timber Creek Crossing (Tributary to Missouri River)
#64 Unnamed Perennial Stream Crossing (Tributary to Missouri River)
Bratcher 10-3 4H & Lonnie 15-22 3H & 4TFH
Bratcher 10-3 2H 3TFH, Lonnie 15-22 1H 2TFH
Bill 14-23 1H 2TFH Edna 11-2 21H 2TFH 7H
Bill 14-23 3H 4TFH 5TFH Edna 11-2 3H 4TFH 5TFH 6H
Heinz 18-19 1H
Viking 16-15 1H 3TFH
Timber Creek Connect
Bill & Edna to Timber Creek Flow Line
Cathodic Protection 151-101-14
Cora 20-17 1H 2TFH
Cora 20-17 3TFH 4H 5H 6TFH
Patent Gate
Hovde 33-4 1H
Bugs 27-22 1H 2TFH 7H Lloyd 34-3 2H 3TFH
31Bugs
Lloyd 34-3 1H
L&E-Helling Central
Bratcher Central
Lonnie-Bratcher West
Bratcher-Lonnie East
Edna-Bill West
Bill-Edna East
Timber Creek West
Patent Gate-Heinz West
Patent Gate-Heinz East
Viking North
Timber Creek East
Cora East
Cora West
Hovde West
Hovde Central
Hovde Central
Hovde Central
Lloyd-Bugs West
Bugs-Lloyd East
Lloyd Central
34M St NW
34th St NW
33rd St NW
32nd St NW
149th St NW
150th Ave NW
PATENT GATE
PEMBINA
PEMBINA
PEMBINA


Cora 20-17 1H 2TFH
Cora East
Cora West
Cora 20-17 3TFH 4H 5H 6TFH
Patent Gate
Hovde West
Hovde 33-4 1H
Hovde Central
Bugs 27-22 1H 2TFH 7H Lloyd 34-3 2H 3TFH
Bugs-Lloyd East
Lloyd Central
Lloyd-Bugs West
31Bugs
Lloyd 34-3 1H
Timber Creek East
Timber Creek
Stallion East
Stallion 33-28 1H
Sanders East
Porter West
Helling SWD
Margaret East
Margaret West
Margaret 5-8 1H
Margaret 5-8 3TFH 4H 5H 6TFH
32nd St NW
30th St NW
29th St NW
28th St NW
140th Ave NW
150th Ave NW
Rawson
Rawson Cem
Vulnerability Analysis
Lakes and Streams
#64 Unnamed Perennial Stream Crossing (Tributary to Missouri River)
#65 Timber Creek Crossing (Tributary to Missouri River)
Other Applicable Areas
#66 Timber Creek Church
Sensitivity Location Marker and Label
Well Pad
Pipeline Valve
One Mile Pipeline Buffer and
Five Mile Potable Surface Water Intake Buffer
Pipeline Corridor (DOT Regulated Pipelines)
Pipeline Corridor
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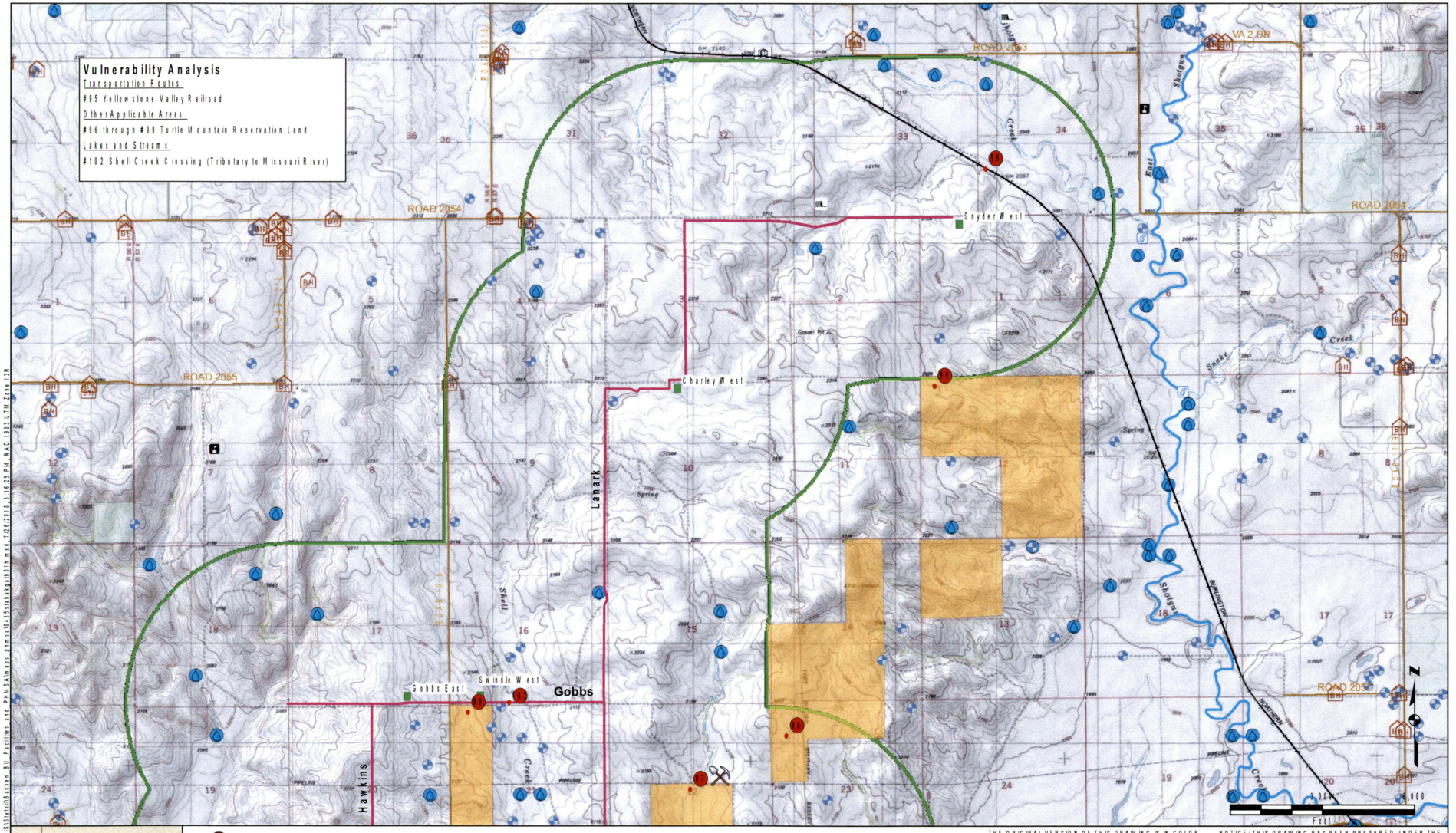
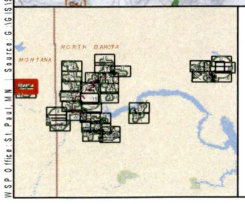
BAKKEN PIPELINE FACILITY RESPONSE PLAN
GATHERING SYSTEM PIPELINES
PREPARED FOR
GRAYSON MILL OPERATING, LLC
FIGURE 6.8-29
SENSITIVITY MAP
WSP Office: St. Paul, MN Source: G:\GIS\Stavin\Bakken BU Facilities and PHMSA\mxds plans\stavinBakkenBU.mxd 7/26/2018 3:35:34 PM NAD 1983 UTM Zone 13N





- Sensitivity Location Marker and Label
- Well Pad
- Pipeline Valve
- One Mile Pipeline Buffer and Five Mile Potable Surface Water Intake Buffer
- Pipeline Corridor (DOT Regulated Pipelines)
- Pipeline Corridor

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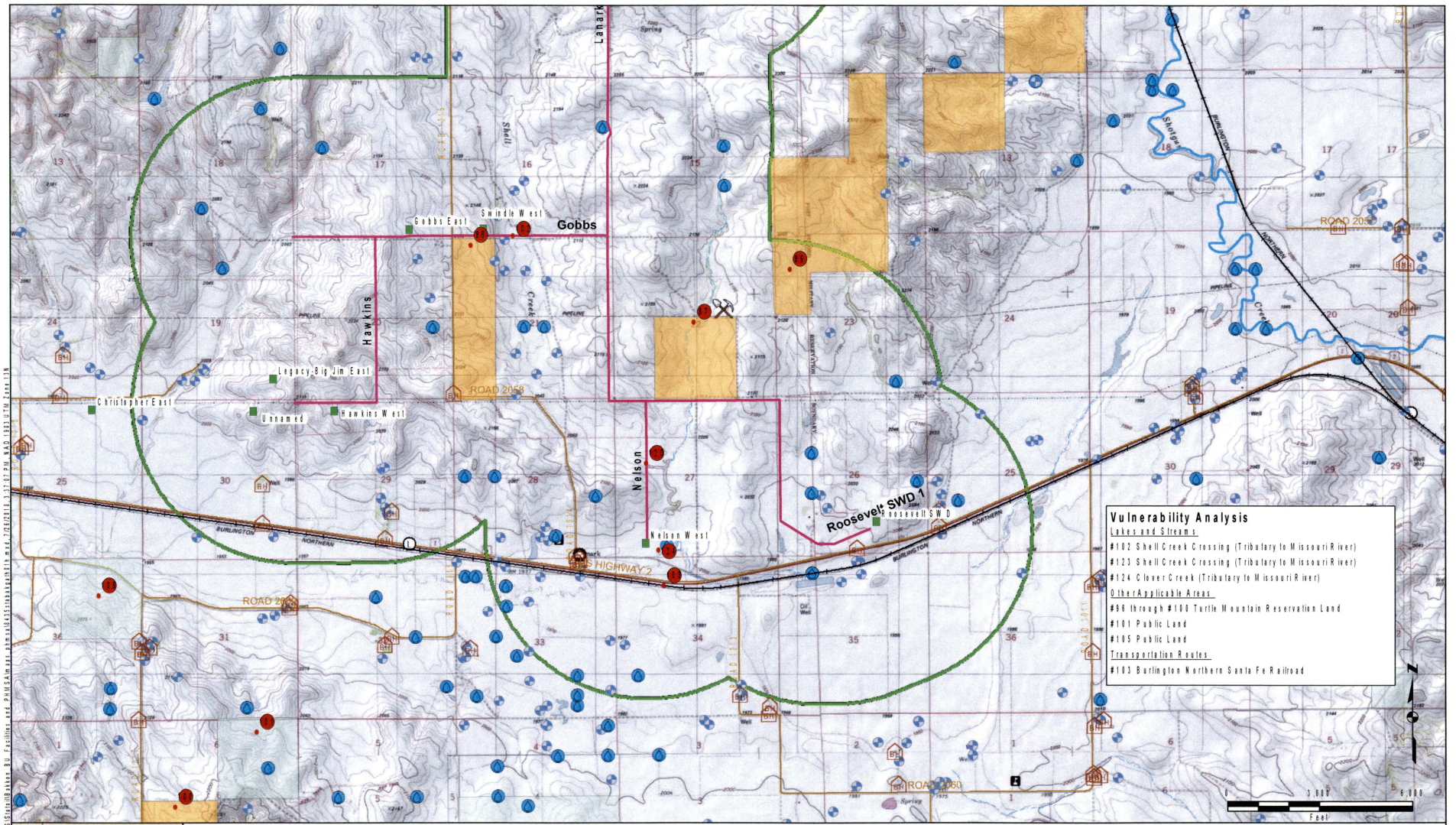
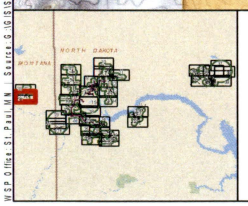
FIGURE 6.8-30

SENSITIVITY MAP

WSP Office: St. Paul, MN Source: G:\GIS\Sites\Bakken_BU_Facilities_and_PHMSA\maps_phmsa\0435strabakgath01h.mxd 7/26/2018 3:36:25 PM NAD 1983 UTM Zone 13N





Sensitivity Location Marker and Label
Well Pad
Pipeline Valve
One Mile Pipeline Buffer and Five Mile Potable Surface Water Intake Buffer
Pipeline Corridor (DOT Regulated Pipelines)
Pipeline Corridor

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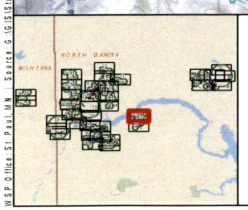
FIGURE 6.8-31

SENSITIVITY MAP

WSP Office: St. Paul, MN | Source: G:\GIS\Sitsfish\Bakken_BU_Facilities_and_PHMSA\maps_phmsa\0435stabakgath01h.mxd, 7/26/2018, 3:37:07 PM, NAD 1983 UTM Zone 13N





Sensitivity Location Marker and Label
Well Pad
Pipeline Valve
One Mile Pipeline Buffer and Five Mile Potable Surface Water Intake Buffer
Pipeline Corridor (DOT Regulated Pipelines)
Pipeline Corridor

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GATHERING SYSTEM PIPELINES

PREPARED FOR

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FIGURE 6.8-32

SENSITIVITY MAP

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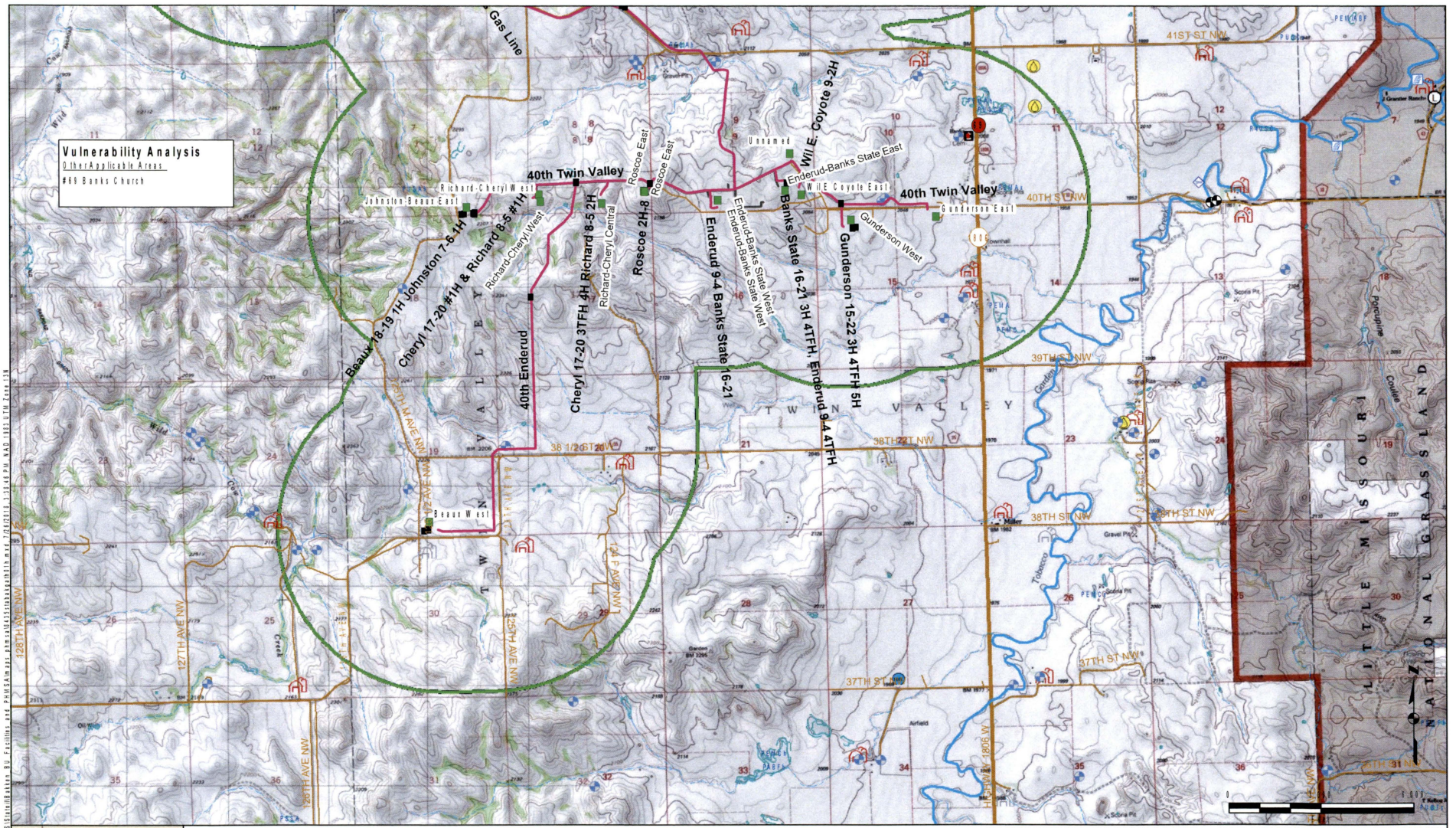

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GATHERING SYSTEM PIPELINES

PREPARED FOR

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FIGURE 6.8-33

SENSITIVITY MAP

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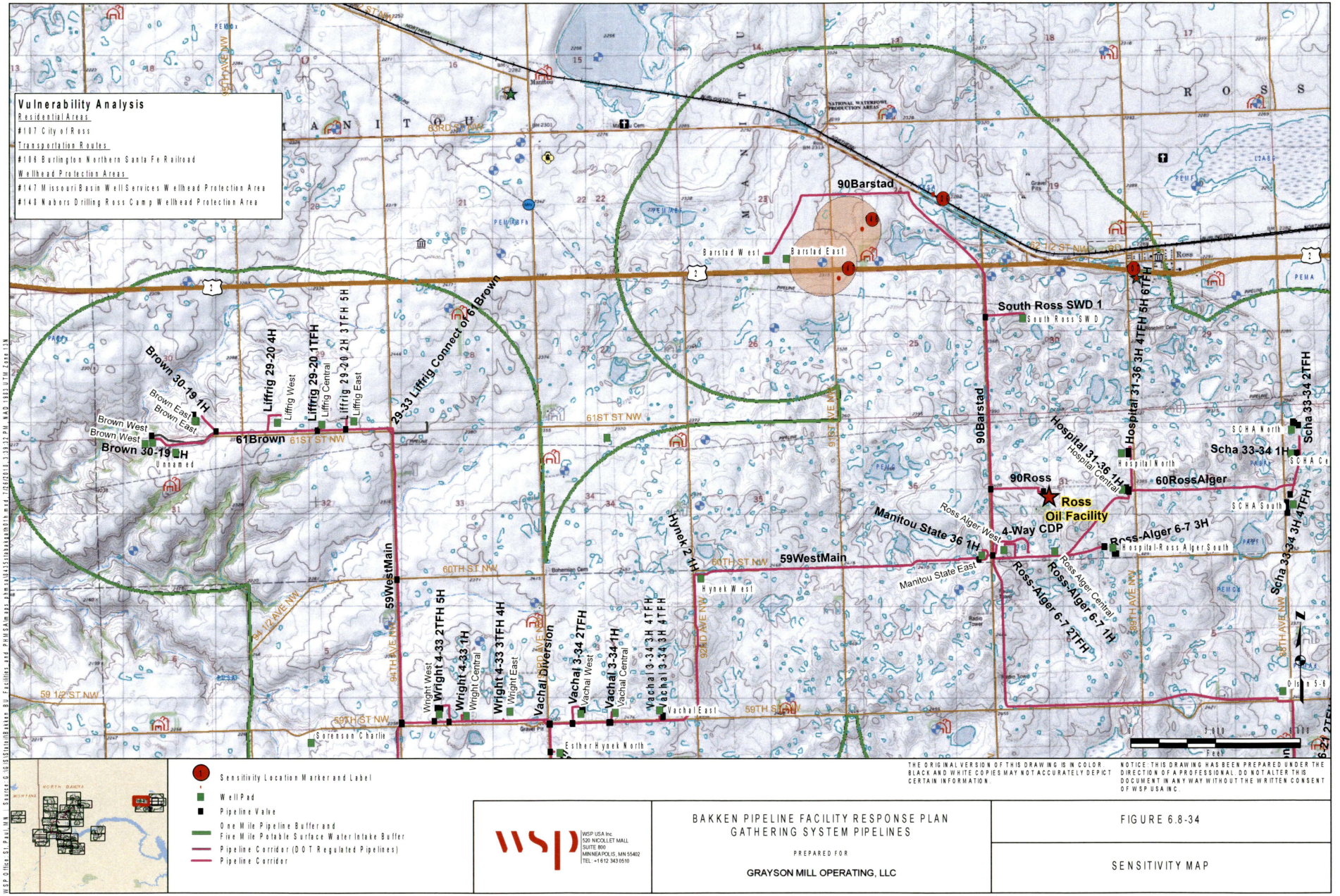

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GATHERING SYSTEM PIPELINES

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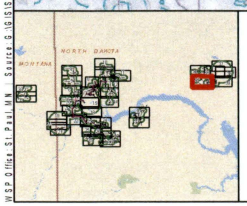
FIGURE 6.8-34

SENSITIVITY MAP





Sensitivity Location Marker and Label

Well Pad

Pipeline Valve

One Mile Pipeline Buffer and Five Mile Potable Surface Water Intake Buffer

Pipeline Corridor (DOT Regulated Pipelines)

Pipeline Corridor

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FIGURE 6.8-35

SENSITIVITY MAP

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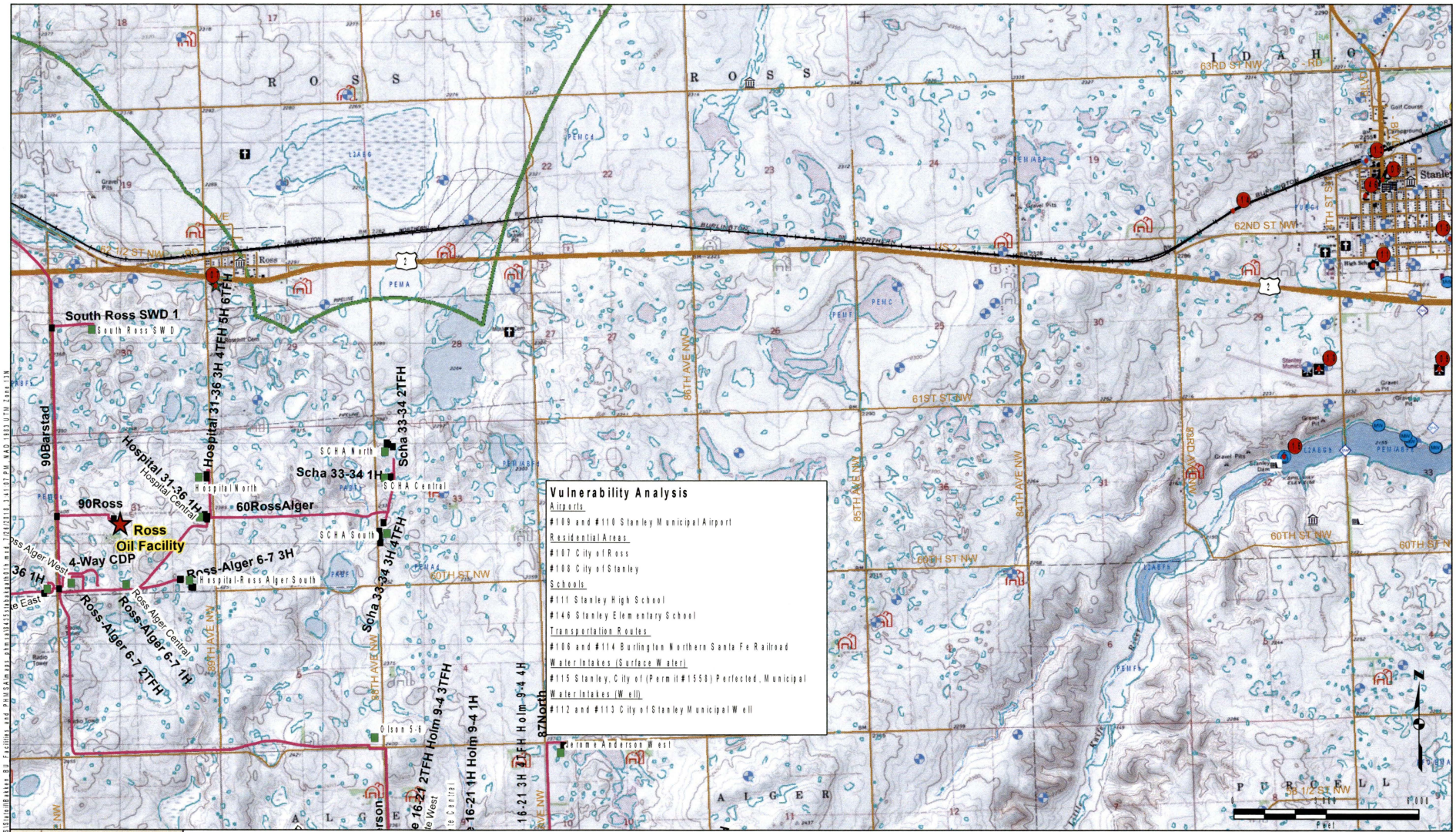

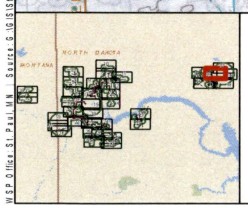

Sensitivity Location Marker and Label

Well Pad

Pipeline Valve

One Mile Pipeline Buffer and Five Mile Potable Surface Water Intake Buffer

Pipeline Corridor (DOT Regulated Pipelines)

Pipeline Corridor

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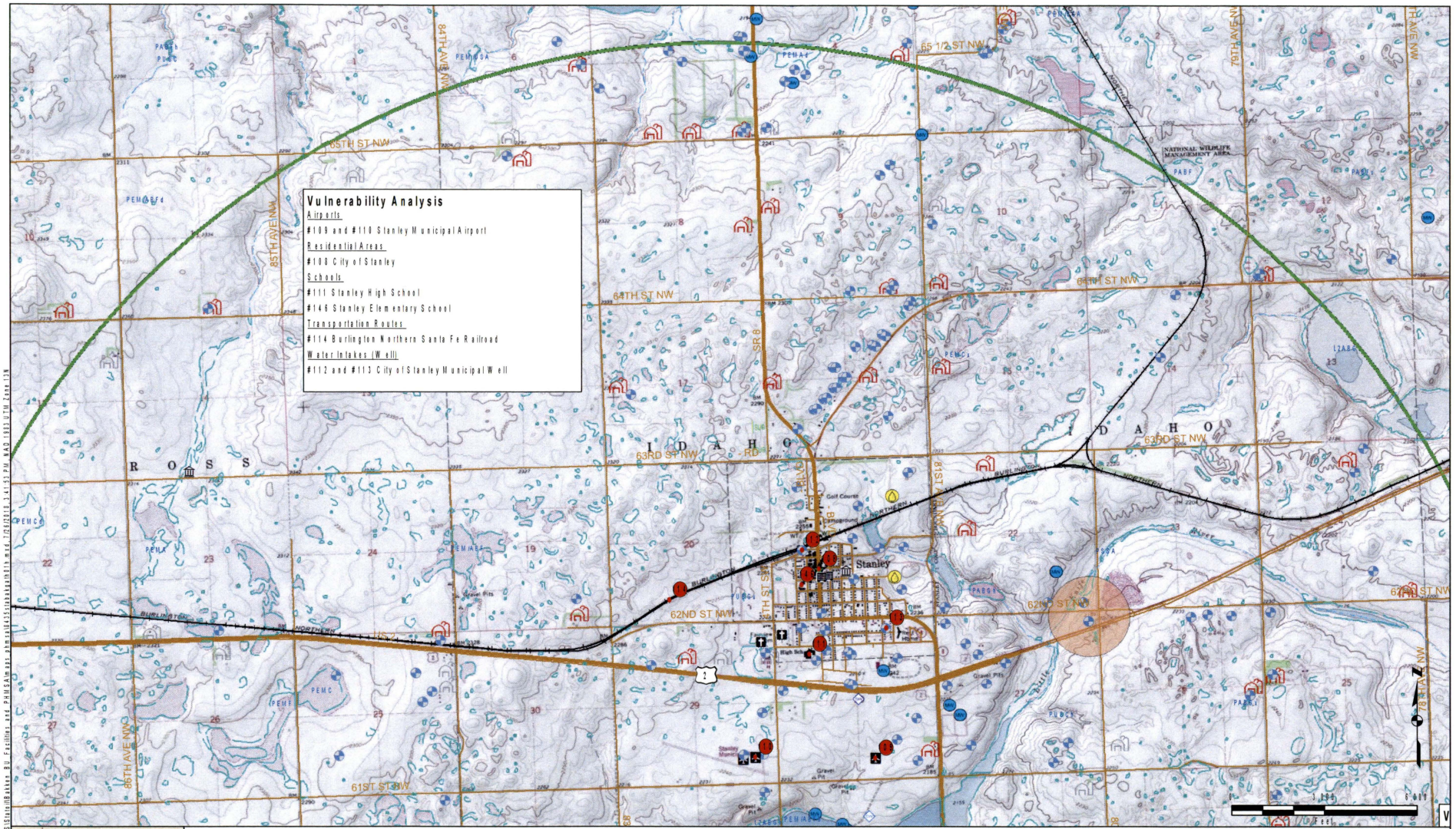
GATHERING SYSTEM PIPELINES

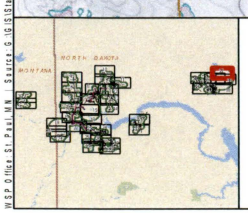
PREPARED FOR

GRAYSON MILL OPERATING, LLC

FIGURE 6.8-36

SENSITIVITY MAP





Sensitivity Location Marker and Label
Well Pad
Pipeline Valve
One Mile Pipeline Buffer and Five Mile Potable Surface Water Intake Buffer
Pipeline Corridor (DOT Regulated Pipelines)
Pipeline Corridor

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BAKKEN PIPELINE FACILITY RESPONSE PLAN
GATHERING SYSTEM PIPELINES

PREPARED FOR

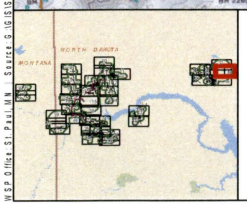
GRAYSON MILL OPERATING, LLC

FIGURE 6.8-37

SENSITIVITY MAP

WSP Office: St. Paul, MN | Source: G:\GIS\Stanley\Bakken BU Facilities and PHMSA\maps_phmsa\6435cr\bakkenbu\bh1h.mxd, 7/28/2018, 3:41:53 PM, NAD 1983 UTM Zone 13N





- Sensitivity Location Marker and Label
- Well Pad
- Pipeline Valve
- One Mile Pipeline Buffer and Five Mile Potable Surface Water Intake Buffer
- Pipeline Corridor (DOT Regulated Pipelines)
- Pipeline Corridor

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BAKKEN PIPELINE FACILITY RESPONSE PLAN
GATHERING SYSTEM PIPELINES

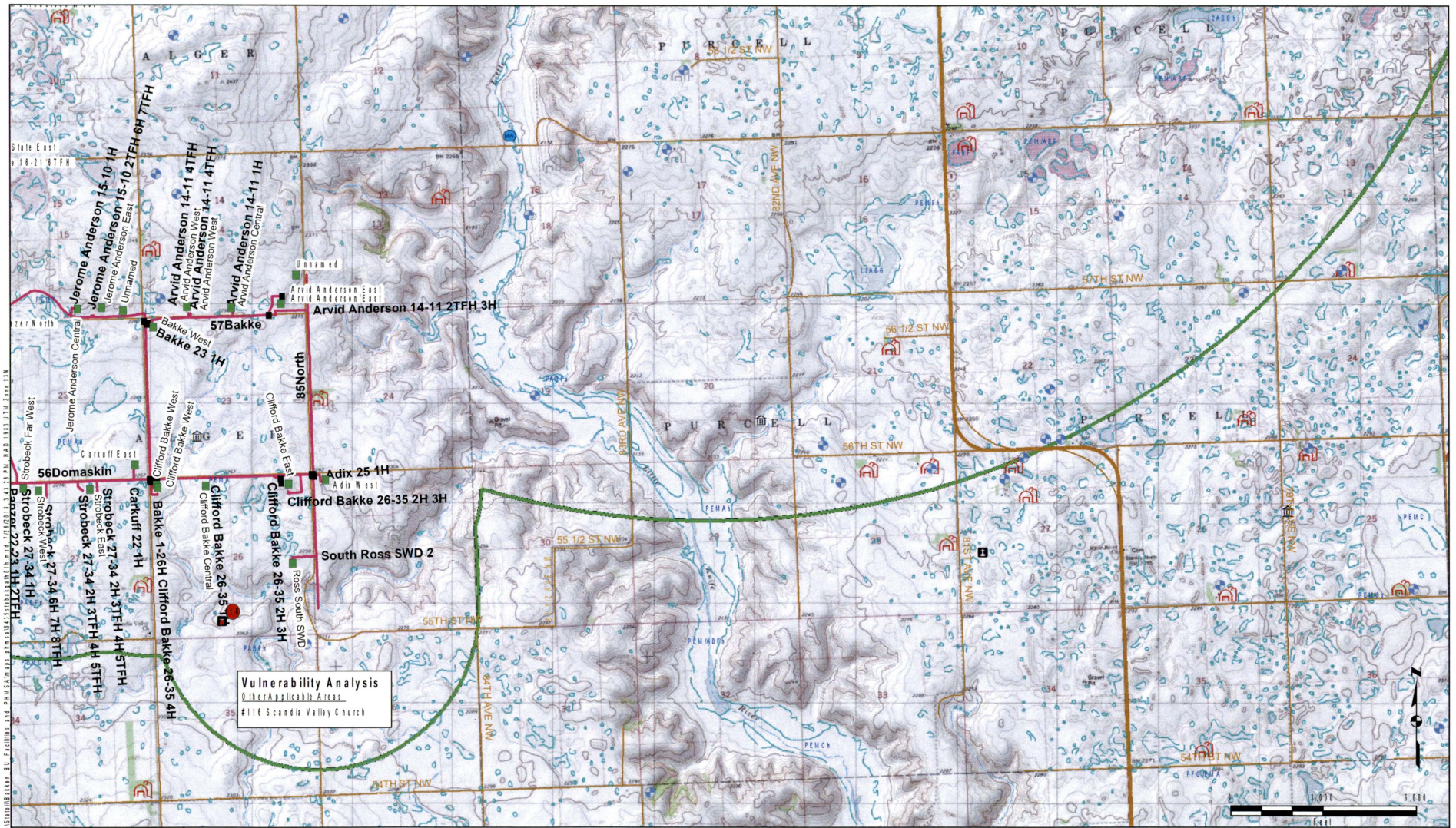
PREPARED FOR

GRAYSON MILL OPERATING, LLC

FIGURE 6.8-38

SENSITIVITY MAP

WSP Office: St. Paul, MN | Source: G:\GIS\Stats\Bakken_BU_Facilities_and_PHMSA\maps_phmsa\845sstabakgath01h.mxd, 7/26/2018, 3:42:39 PM, NAD 1983 UTM Zone 13N


Jerome Anderson 15-10 1H
Jerome Anderson 15-10 2TFH 6H 7TFH
Arvid Anderson 14-11 4TFH
Arvid Anderson 14-11 1H
Arvid Anderson 14-11 2TFH 3H
57Bakke
Bakke 23 1H
85North
56Domaskin
Adix 25 1H
Clifford Bakke 26-35 2H 3H
South Ross SWD 2
Bakke 1-26H Clifford Bakke 26-35 4H
Carkuff 22-1H
Strobeck 27-34 1H 2TFH
Strobeck 27-34 2H 3TFH 4H 5TFH
Strobeck 27-34 6H 7H 8TFH
Vulnerability Analysis
Other Applicable Areas
#116 Scandia Valley Church
Sensitivity Location Marker and Label
Well Pad
Pipeline Valve
One Mile Pipeline Buffer and
Five Mile Potable Surface Water Intake Buffer
Pipeline Corridor (DOT Regulated Pipelines)
Pipeline Corridor
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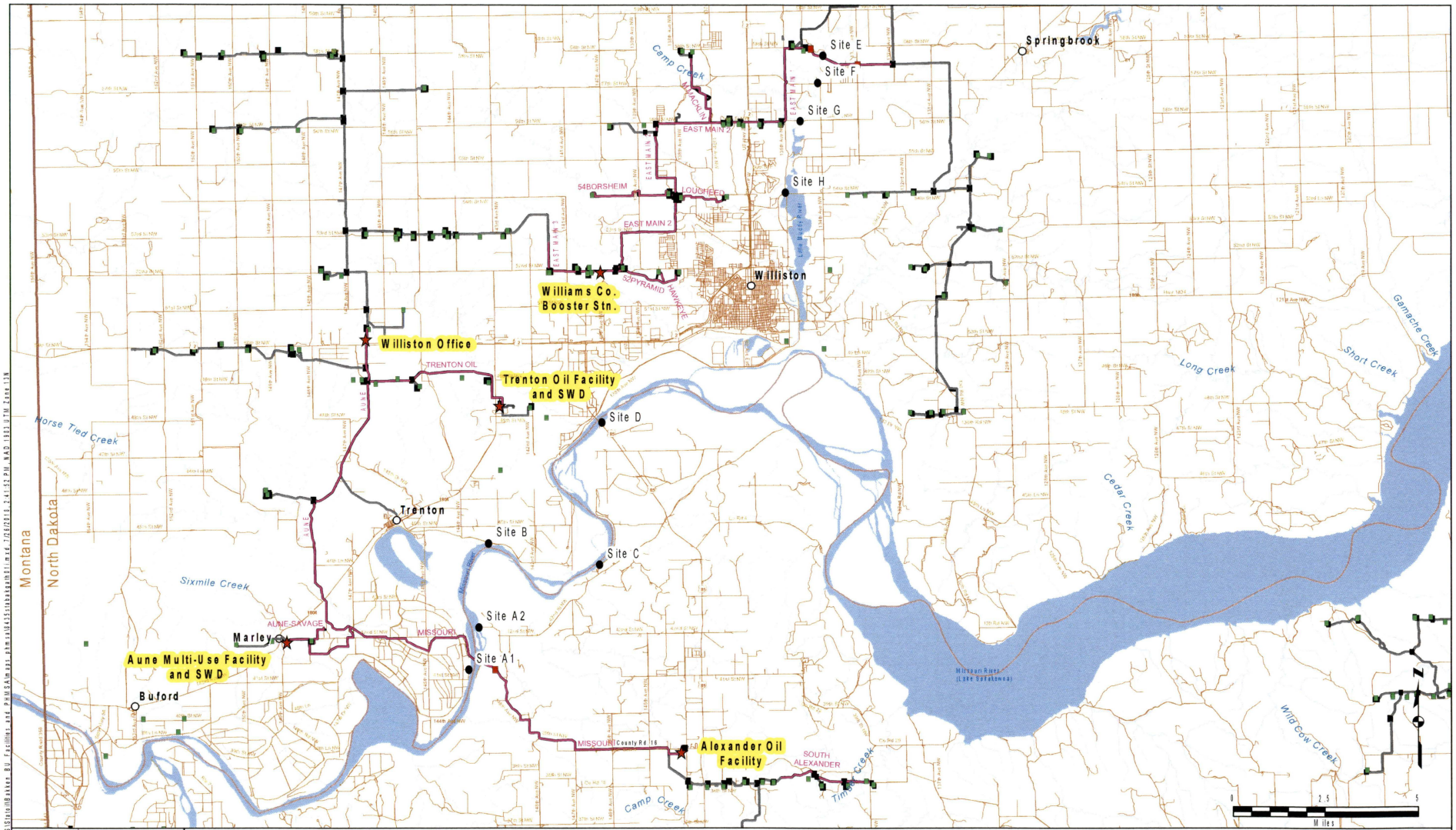
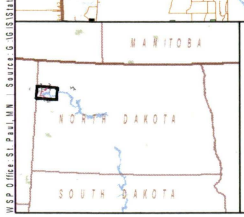
GATHERING SYSTEM PIPELINES
PREPARED FOR
GRAYSON MILL OPERATING, LLC
FIGURE 6.8-39
SENSITIVITY MAP

6.9 TACTICAL OVERVIEW MAP

FIGURE 6-9 TACTICAL OVERVIEW MAP





- Oil Facility or GME Williston Office Location
- Tactical Site
- Valves
- Well Pad Location
- Pipeline Corridor (DOT Regulated)
- Pipeline Corridor
- Figure Extent

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BAKKEN PIPELINE FACILITY RESPONSE PLAN
GATHERING SYSTEM PIPELINES

PREPARED FOR

GRAYSON MILL OPERATING, LLC

FIGURE 6.9

TACTICAL OVERVIEW MAP

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WSP Office: St. Paul, MN | Source: G:\GIS\Stoeil\Bakken BU Facilities and PHMSA\maps phmsa\8435stabakgeo01.mxd 7/26/2018 2:41:52 PM NAD 1983 UTM Zone 13N

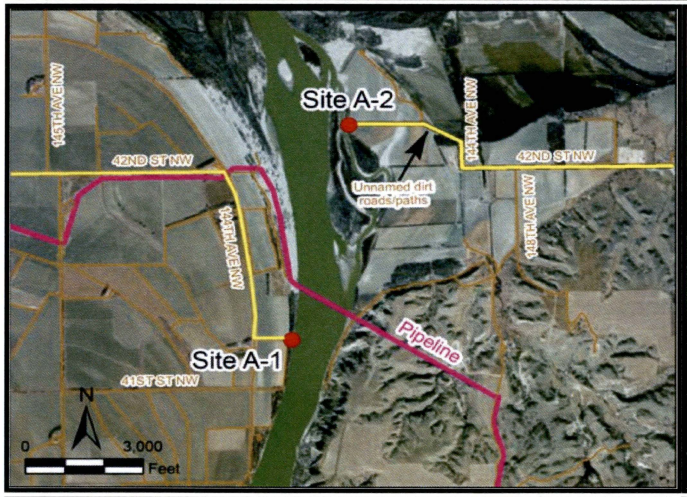
6.10 TACTICAL PLAN INDEX

SITE NAME
1) Missouri River
Site A
Site B
Site C
Site D
2) Little Muddy River
Site E
Site F
Site G
Site H

6.11 TACTICAL PLANS

Bakken Pipeline Facility Response Plan, Gathering System Pipelines







LEGEND Origin Destination

DRIVING DIRECTIONS

Coming from the northeast at the intersection of Hwy 85 and 45th St. NW.
1. Proceed southwest on 45th St. NW for approximately 3.7 miles.
2. 45th St. NW will turn into 142 1/2 Ave. NW.
3. Stay right and proceed southwest on 142 1/2 Ave. NW for 1.4 miles where it will merge with 42nd St. NW.
4. Proceed west on 42nd St. NW until it terminates at 144th Ave. NW; approximately 1.1 miles.
5. Turn right (north) on 144th Ave. NW. This will travel north then curve to the northwest for 0.3 mile.
6. At first encountered intersection, turn left (west) and follow dirt path to river; approximately 0.4 mile.

Travel to Site A-1 from Aune Multi-Use Facility
1. Proceed east 4.7 miles on 42nd St. NW
2. Turn right (south) on 144th Ave. NW and proceed 0.9 mile.
3. Turn left (east) on an unnamed access road and proceed 0.2 miles to Site A-1.

See Figure 6.9 for various routes.

GRAYSON MILL ENERGY

RECOMMENDED EQUIPMENT	
QUANTITY	DESCRIPTION
1500 ft	Containment Boom
3000 ft	Sorbent Boom
2	Vac Truck(s)
	Frac Tank(s)
4	Work Boat(s)
2	Skimmer(s)
50 feet	3/8" Polypropylene Line
12	Stake(s)
4	Sledge hammer(s)
10 bales	Sorbent pad(s)
	85 gallon drum liner
6	Cell Phone(s)
2 rolls	Poly Sheeting
3	Light tower(s)

RECOMMENDED EQUIPMENT	
QUANTITY	DESCRIPTION
2	Port-o-let(s)
	Poly lined roll-off boxes
	Metal Culvert Pipes
	Trac-hoe

RECOMMENDED PERSONNEL	
NUMBERS	DESCRIPTION
4	Boat Operator(s)
3	Equipment Operator(s)
8	Laborer(s)
1	Supervisor(s)
2	Vac Truck Operator(s)

RESPONSE STRATEGY

Latitude/Longitude: N 48° 1' 40.4" / W -103° 47' 18.4"

Location: Missouri River downstream of pipeline crossing. Located at west end of unnamed dirt road/path.

Water Way: Missouri River

Owner: Unknown

Distance from Spill Source: variable

Map Reference: Site A

Response Objective: Containment and Recovery. Assess pipeline crossing.

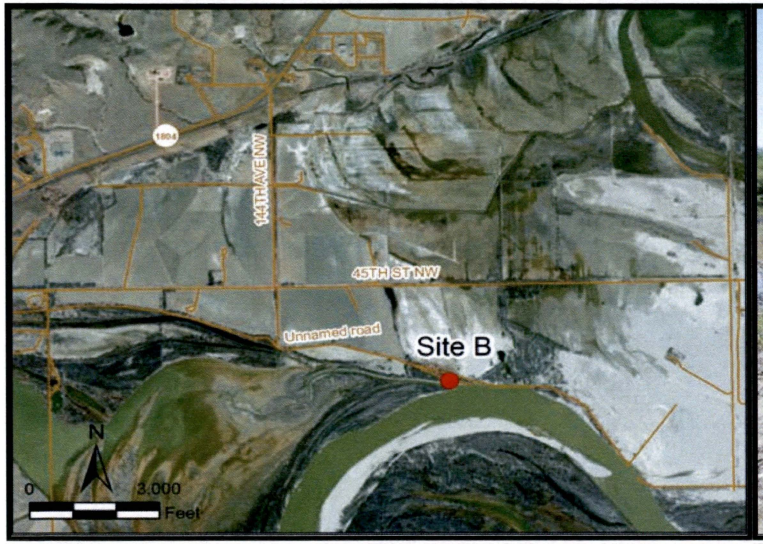
Response Tactic:
This location is approximately 1 mile downstream of the pipeline crossing the Missouri River. Boom may be placed here similar to that shown for Tactical Site C. A concrete boat launch does not exist. The preferred boat launch for this site is at Tactical Plan Site D, then drive up river to Site A.

Watercourse Description: Missouri River. Highly variable flow with main channel approximately 1,000 feet wide. Flow in area is toward the north.

Description of Worksite: The river is accessible by a walking path. Additional access space could be gained but brush and trees would need to be cleared. Level areas are located by the dirt road approach. Access to the river is unpaved.

Critical Response Information: This location is approximately 1 mile downstream of the pipeline crossing the Missouri River. An alternate staging site may be accessible upstream of the pipeline crossing if necessary.







LEGEND Origin Destination

DRIVING DIRECTIONS

From Trenton Oil Facility:
1. Proceed 2.7 miles south on Highway 1804.
2. Turn left (south) on 144th Ave. NW and proceed 1.3 miles.
3. Turn left (east) at the dead end and proceed 0.8 mile on the unnamed road to worksite; keep right at the fork in the road.

See Figure 6.9 for alternate routes.

GRAYSON MILL ENERGY

RECOMMENDED EQUIPMENT	
QUANTITY	DESCRIPTION
1500 ft	Containment Boom
3000 ft	Sorbent Boom
2	Vac Truck(s)
	Frac Tank(s)
4	Work Boat(s)
2	Skimmer(s)
50 feet	3/8" Polypropylene Line
12	Stake(s)
4	Sledge hammer(s)
10 bales	Sorbent pad(s)
	85 gallon drum liners
6	Cell Phone(s)
2 rolls	Poly Sheeting
3	Light tower(s)

RECOMMENDED EQUIPMENT	
QUANTITY	DESCRIPTION
2	Port-o-let(s)
	Poly lined roll-off boxes
	Metal Culvert Pipes
	Trac-hoe

RECOMMENDED PERSONNEL	
NUMBERS	DESCRIPTION
4	Boat Operator(s)
3	Equipment Operator(s)
8	Laborer(s)
1	Supervisor(s)
2	Vac Truck Operator(s)

RESPONSE STRATEGY

Latitude/Longitude: N 48° 3' 39.5" / W -103° 46' 55.4"

Location: Missouri River along unnamed road

Water Way: Missouri River (and Lake Trenton)

Owner: Unknown

Distance from Spill Source: variable

Map Reference: Site B

Response Objective: Containment and Recovery

Response Tactic:
This location is a potential launch and Missouri River access point to access the pipeline crossing upriver. Boom may be placed here similar to that shown for Tactical Site C. If the river stage is high enough, a concrete boat launch can be accessed in Trenton, on the north side of Lake Trenton, at the Trenton Lake campground. However, Trenton Lake is an oxbow and may be disconnected from the Missouri River. A concrete boat launch does not exist. The preferred boat launch for this site is at Tactical Plan Site D, then drive up river to Site B.

Watercourse Description: Missouri River. Highly variable flow with main channel approximately 1,000 feet wide. Flow in area is toward the east around a meander.

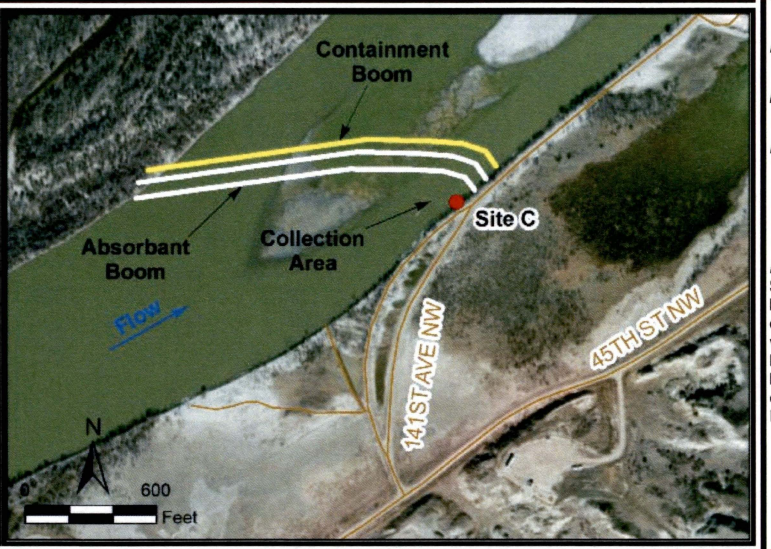
Description of Worksite: Level areas alongside river allow for staging of equipment. Access to the river is unpaved. Some brush clearing and tree trimming may be necessary at worksite and along approach.

Critical Response Information:

Bakken Pipeline Facility Response Plan, Gathering System Pipelines







RESPONSE STRATEGY

Latitude/Longitude: N 48° 03' 08" / W -103° 42' 58"

Location: Missouri River along 141st Ave. NW

Water Way: Missouri River

Owner: Unknown

Distance from Spill Source: variable

Map Reference: Site C

Response Objective: Containment and Recovery

Response Tactic:
String two lines of absorbent boom across the river using boats in such a way that the oil is directed to Site C on right descending bank to be collected with skimmers and vacuum trucks. Back the absorbent boom with containment boom. Water access at this site will be difficult for trailered boats other than air boats. A concrete boat launch does not exist. The preferred boat launch for this site is at Tactical Plan Site D, then drive up river to Site C.

Watercourse Description: Missouri River. Highly variable flow with main channel approximately 1,000 feet wide. Flow in area is toward the northeast.

Description of Worksite: Level areas alongside river allow for staging of equipment. Adjacent road has light to medium use. Will need signage and possible flagmen.

Critical Response Information:

LEGEND Origin ● Destination ●

DRIVING DIRECTIONS

From Alexander Oil Facility:
1. Proceed east on Cty Rd 16 (39th St NW) toward 144th Ave NW for 0.5 Mi.
2. Take the 2nd left onto US-85 and proceed north 6.7 Mi.
3. Turn left (southwest) onto 45th St NW and proceed southwest 2.5 Mi.
4. Turn right (north) onto 141st Ave NW and proceed 0.3 Mi. to worksite.

See Figure 6.9 for alternate routes.

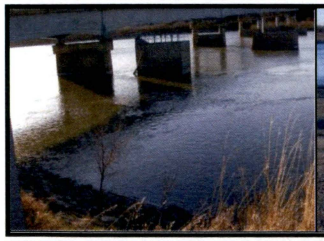
GRAYSON MILL ENERGY

RECOMMENDED EQUIPMENT	
QUANTITY	DESCRIPTION
1500 ft	Containment Boom
3000 ft	Sorbent Boom
2	Vac Truck(s)
	Frac Tank(s)
4	Work Boat(s)
2	Skimmer(s)
50 feet	3/8" Polypropylene Line
12	Stake(s)
4	Sledge hammer(s)
10 bales	Sorbent pad(s)
	85 gallon drum liners
6	Cell Phone(s)
2 rolls	Poly Sheeting
3	Light tower(s)

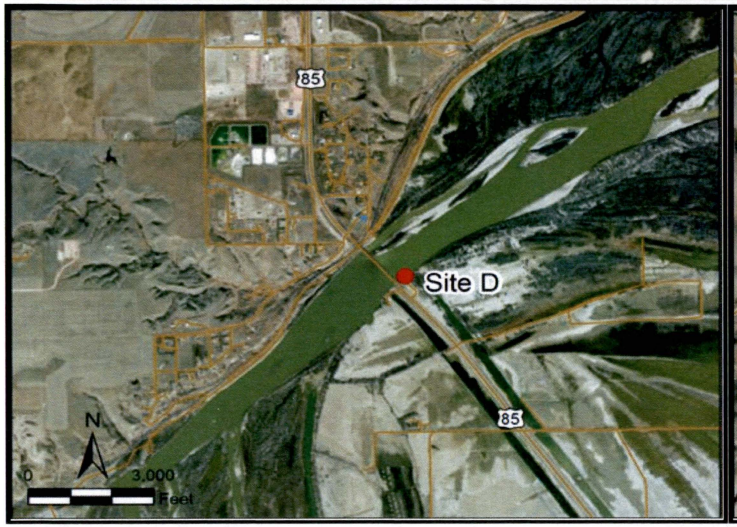
RECOMMENDED EQUIPMENT	
QUANTITY	DESCRIPTION
2	Port-o-let(s)
	Poly lined roll-off boxes
	Metal Culvert Pipes
	Trac-hoe

RECOMMENDED PERSONNEL	
NUMBERS	DESCRIPTION
4	Boat Operator(s)
3	Equipment Operator(s)
8	Laborer(s)
1	Supervisor(s)
2	Vac Truck Operator(s)

Bakken Pipeline Facility Response Plan, Gathering System Pipelines









LEGEND Origin ● Destination ●

DRIVING DIRECTIONS

From Alexander Oil Facility:
1. Proceed east on Cty Rd 16 (39th St NW) toward 144th Ave NW for 0.5 Mi.
2. Take the 2nd left (north) onto US-85 and proceed 9.8 Mi. to public boat ramp at south end of bridge.

From Trenton Oil Facility:
1. From the facility, proceed north on State Hwy 1804 for 1.6 miles.
2. Turn right (east) on Hwy 2 and proceed 2.5 miles.
3. Turn right (south) on Hwy 85 and proceed for 2.5 miles.
4. Turn left (east) into public boat ramp parking lot immediately after crossing the Hwy 85 bridge over the Missouri River.

See Figure 6.9 for alternate routes.

GRAYSON MILL ENERGY

RECOMMENDED EQUIPMENT	
QUANTITY	DESCRIPTION
1500 ft	Containment Boom
3000 ft	Sorbent Boom
2	Vac Truck(s)
	Frac Tank(s)
4	Work Boat(s)
2	Skimmer(s)
50 ft	3/8" Polypropylene Line
12	Stake(s)
4	Sledge hammer(s)
10 bales	Sorbent pad(s)
	85 gallon drum liners
6	Cell Phone(s)
2 rolls	Poly Sheeting
3	Light tower(s)

RECOMMENDED EQUIPMENT	
QUANTITY	DESCRIPTION
2	Port-o-let(s)
	Poly lined roll-off boxes
	Metal Culvert Pipes
	Trac-hoe

RECOMMENDED PERSONNEL	
NUMBERS	DESCRIPTION
4	Boat Operator(s)
3	Equipment Operator(s)
8	Laborer(s)
2	Supervisor(s)
2	Vac Truck Operator(s)

RESPONSE STRATEGY

Latitude/Longitude: N 48° 06' 29.43" / W -103° 42' 51.63"

Location: Boat Ramp on Missouri River

Water Way: Missouri River

Owner: Public boat ramp.

Distance from Spill Source: variable

Map Reference: Site D

Response Objective: Containment and Recovery

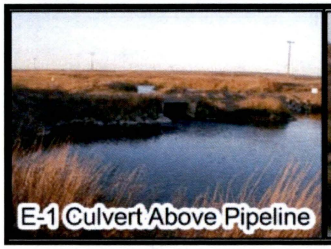
Response Tactic:
String two lines of absorbent boom across the river using boats in such a way that the oil is directed to Site D on right descending bank to be collected with skimmers and vacuum trucks at the boat ramp. Back the absorbent boom with containment boom. The boom will need to be strung under the bridge and may need to be placed to allow for passing boat traffic.

Watercourse Description: Missouri River. Highly variable flow with main channel approximately 1,000 feet wide. Flow in area is toward the northeast.

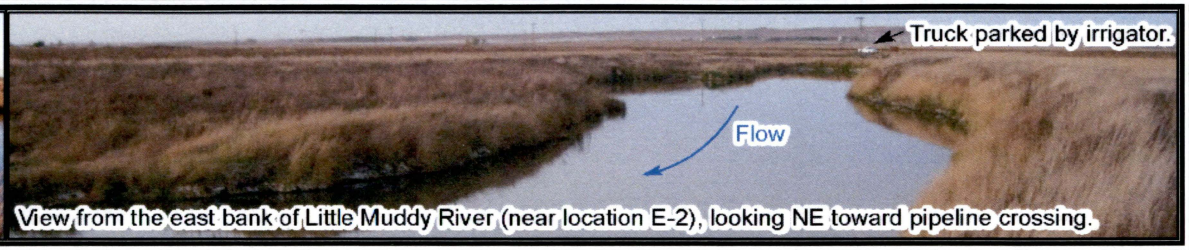
Description of Worksite: Large lot at boat ramp with easy access to water as well as staging areas for equipment. Adjacent road is US Highway 85 and has heavy traffic levels. Will need signage and multiple flagmen. River passes under bridge immediately upstream of site.

Critical Response Information: The purpose of this tactical location is to protect the surface water intake immediately downstream of the Hwy 85 bridge and to serve as a boat launch for all tactical locations along the Missouri River.

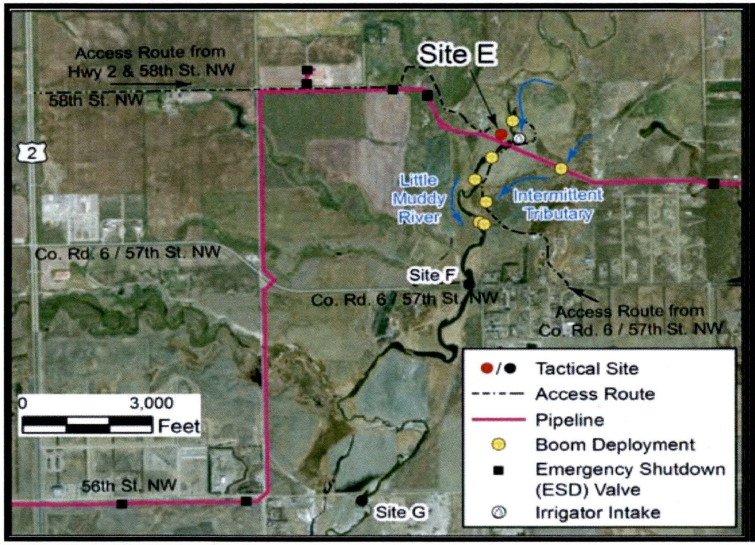
Bakken Pipeline Facility Response Plan, Gathering System Pipelines

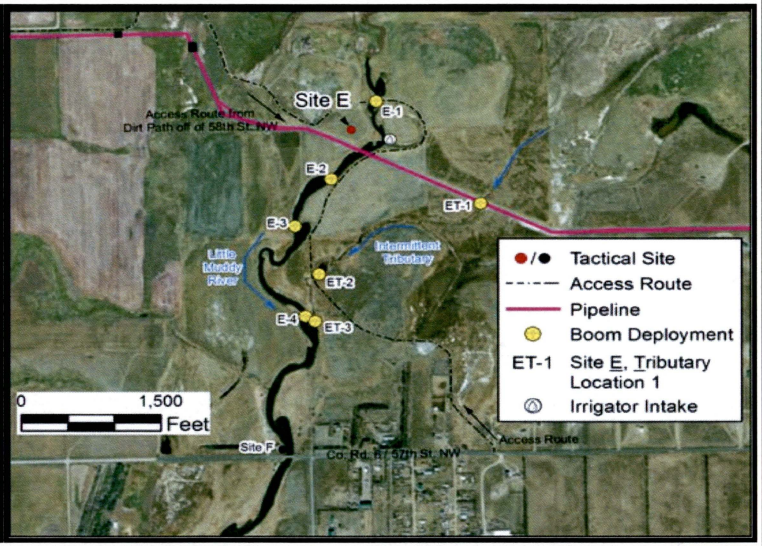


E-1 Culvert Above Pipeline



View from the east bank of Little Muddy River (near location E-2), looking NE toward pipeline crossing.





LEGEND Origin ● Destination ●

DRIVING DIRECTIONS

Northern Route:
1) Take Hwy 2 to 58th St. NW and go east. Continue on 58th St. NW for approximately 1.5 miles.
2) Continue on the winding dirt path to site.

Southern Route:
1) Enter the access route from the north side of Co. Rd. 6 / 57th St. NW.
2) Continue on no-maintenance ATV path approximately 0.6 mile where you will cross the intermittent tributary to the Little Muddy River.
3) Continue approximately 0.6 mile north, then northeast, then around a former oxbow to the site.

GRAYSON MILL ENERGY

RECOMMENDED EQUIPMENT	
QUANTITY	DESCRIPTION
1500 ft	Containment Boom
3000 ft	Sorbent Boom
2	Vac Truck(s)
	Frac Tank(s)
2	Work Boat(s)
2	Skimmer(s)
200 ft	Rope
1 bundle (50)	Stake(s)
4	Sledge hammer(s)
10 bales (50 per)	Sorbent pad(s)
	85 gallon drum liners
3	Cell Phone(s)
	Portable Radios(s)
3	Light tower(s)

RECOMMENDED EQUIPMENT	
QUANTITY	DESCRIPTION
2	Port-o-let(s)
	Poly lined roll-off boxes
	Metal Culvert Pipes
	Trac-hoe

RECOMMENDED PERSONNEL	
NUMBERS	DESCRIPTION
4	Boat Operator(s)
3	Equipment Operator(s)
8	Laborer(s)
2	Supervisor(s)
2	Vac Truck Operator(s)

RESPONSE STRATEGY

Latitude/Longitude: N 48° 15' 7.4" / W -103° 34' 51.3"

Location: Pipeline crossing the Little Muddy River

Water Way: Little Muddy River

Owner: Jacobson, Alvin L. & Eunice G.

Distance from Spill Source: Adjacent to pipeline/river crossing

Map Reference: Site E

Response Objective: Pipeline Repairs. Containment & Recovery

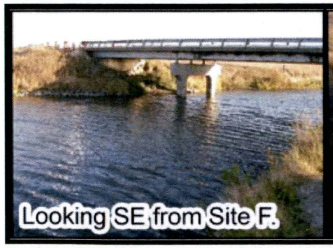
Response Tactic:
String absorbent boom across the river using boats or ropes in such a way that the oil is directed to either the right or left bank to be collected with skimmers and vacuum trucks. Back the absorbent boom with containment boom. The boom will need to be securely staked on both sides of the river.

Watercourse Description: Little Muddy River. Variable flow conditions dependent on recent precipitation events. River width can range from 50 feet to 200 feet where river widens in pooled areas. River widens considerably south of 54th St. NW and south to the Missouri River.

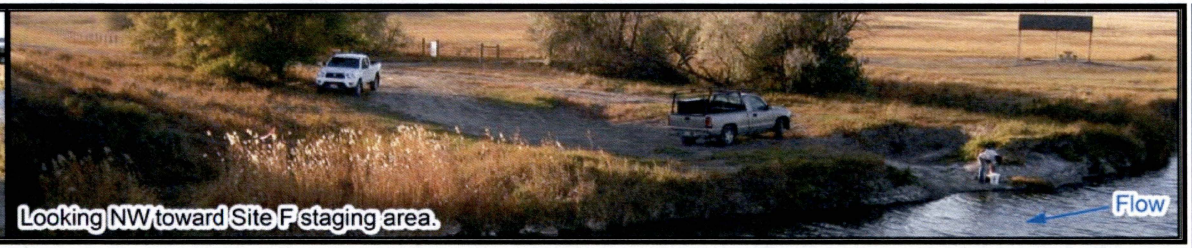
Description of Worksite: A large, level grassy area is located west of the river and north of the pipeline (marked in the photo as "Site E"). Large, level grassy areas are also present on the east side of the river. Access to the site may be difficult depending on the season. The access routes are primarily unmaintained ATV paths as illustrated in the map. Access will be across and the site is on private property.

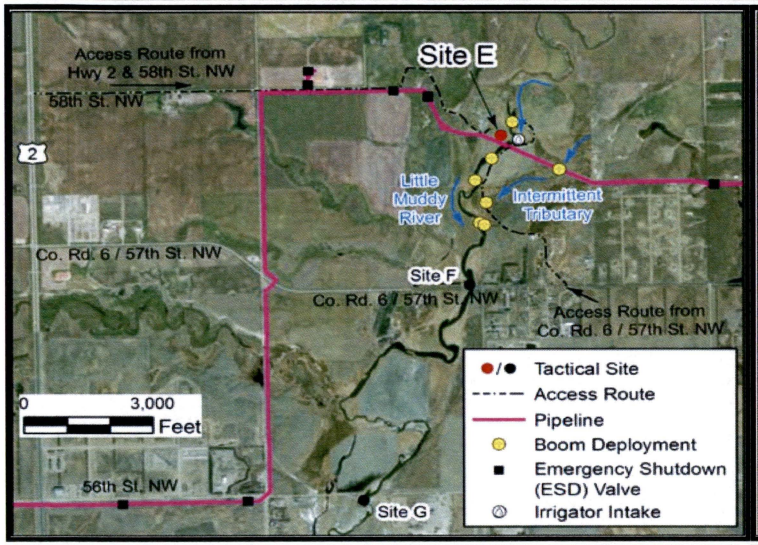
Critical Response Information: The purpose of this tactical location is to prevent or minimize the downstream extent and volume of product. Three other tactical staging areas are located downstream on the Little Muddy River. If product travels down the Little Muddy River to the Missouri River during high flood stage, the surface water intake on the Missouri River (immediately downstream of the Hwy 85 bridge) may be vulnerable (See Tactical Site D). If boat launching is difficult at the site, there is a boat launch on the east side of Little Muddy River just north of Hwy 1804 / East Broadway.

Bakken Pipeline Facility Response Plan, Gathering System Pipelines



Looking SE from Site F.







LEGEND Origin Destination

DRIVING DIRECTIONS

From Highway 2:

1) Proceed east on Co. Rd. 6 / 57th St. NW approximately 2 miles to the bridge over Little Muddy Creek. There is a gravel parking area on the north side of Co. Rd. 6 / 57th St. NW just before the bridge n the west bank.

GRAYSON MILL ENERGY

RECOMMENDED EQUIPMENT	
QUANTITY	DESCRIPTION
500 ft	Containment Boom
1000 ft	Sorbent Boom
2	Vac Truck(s)
	Frac Tank(s)
1	Work Boat(s)
1	Skimmer(s)
200 ft	Rope
1 bundle (50)	Stake(s)
2	Sledge hammer(s)
10 bales (50 per)	Sorbent pad(s)
	85 gallon drum liners
2	Cell Phone(s)
	Portable Radios(s)
2	Light tower(s)

RECOMMENDED EQUIPMENT	
QUANTITY	DESCRIPTION
1	Port-o-let(s)
	Poly lined roll-off boxes
	Metal Culvert Pipes
	Trac-hoe

RECOMMENDED PERSONNEL	
NUMBERS	DESCRIPTION
2	Boat Operator(s)
2	Equipment Operator(s)
4	Laborer(s)
1	Supervisor(s)
2	Vac Truck Operator(s)

RESPONSE STRATEGY

Latitude/Longitude: N 48° 14' 29.19" / W -103° 35' 3.32"

Location: 57th St. NW bridge

Water Way: Little Muddy River

Owner: Public

Distance from Spill Source: Approximately 1 mile

Map Reference: Site F

Response Objective: Containment & Recovery

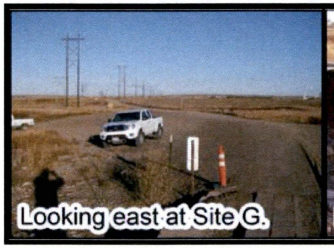
Response Tactic:
String absorbent boom across the river using boats, ropes, or walking across bridge in such away that the oil is directed to the west bank to be collected with skimmers and vacuum trucks. Back the absorbent boom with containment boom. The boom will need to be securely staked on both sides of the river, preferably upstream/north of the bridge.

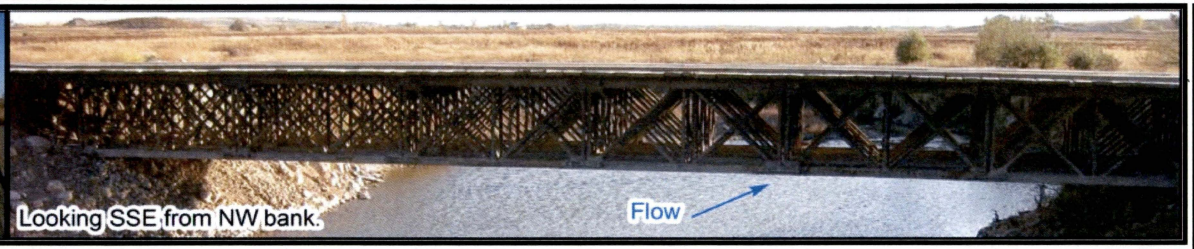
Watercourse Description: Little Muddy River. Variable flow conditions dependent on recent precipitation events. River width at this site is approximately 90 feet; however, it can range up to 200 feet where river widens in pooled areas. River widens considerably south of 54th St. NW and south to the Missouri River.

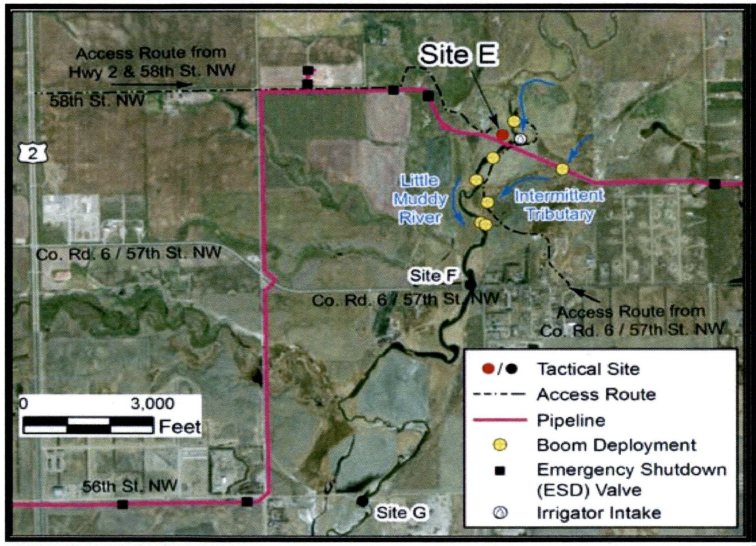
Description of Worksite: A gravel parking area is located west of the river and north of Co. Rd. 6 / 57th St. NW. Boat launching at this site may be difficult due to steep river banks. Jon boats might be put in by hand (at the gravel staging area), not by trailer. Traffic control may be necessary near the entrance along Co. Rd. 6 / 57th St. NW.

Critical Response Information: The purpose of this tactical location is to prevent or minimize the downstream extent and volume of product. Two other tactical staging areas are located downstream on the Little Muddy River. If product travels down the Little Muddy River to the Missouri River during high flood stage, the surface water intake on the Missouri River (immediately downstream of the Hwy 85 bridge) may be vulnerable (See Tactical Site D). If boat launching is required, there is a boat launch on the east side of Little Muddy River just north of Hwy 1804 / East Broadway.

Bakken Pipeline Facility Response Plan, Gathering System Pipelines









LEGEND Origin ● Destination ●

DRIVING DIRECTIONS

From Highway 2:

1) Proceed east on 56th St. NW approximately 1.4 miles to the bridge over Little Muddy Creek. This is a minimal maintenance wooden bridge. There is a gravel parking area on the north side of 56th St. NW just east of the bridge.

GRAYSON MILL ENERGY

RECOMMENDED EQUIPMENT	
QUANTITY	DESCRIPTION
500 ft	Containment Boom
1000 ft	Sorbent Boom
2	Vac Truck(s)
	Frac Tank(s)
1	Work Boat(s)
1	Skimmer(s)
200 ft	Rope
1 bundle (50)	Stake(s)
2	Sledge hammer(s)
10 bales (50 per)	Sorbent pad(s)
	85 gallon drum liners
2	Cell Phone(s)
	Portable Radios(s)
2	Light tower(s)

RECOMMENDED EQUIPMENT	
QUANTITY	DESCRIPTION
1	Port-o-let(s)
	Poly lined roll-off boxes
	Metal Culvert Pipes
	Trac-hoe

RECOMMENDED PERSONNEL	
NUMBERS	DESCRIPTION
2	Boat Operator(s)
2	Equipment Operator(s)
4	Laborer(s)
1	Supervisor(s)
2	Vac Truck Operator(s)

RESPONSE STRATEGY

Latitude/Longitude: N 48° 13' 34.51" / W -103° 35' 41.42"

Location: 56th St. NW bridge

Water Way: Little Muddy River

Owner: Hegney, Clay T.

Distance from Spill Source: Approximately 2 miles

Map Reference: Site G

Response Objective: Containment & Recovery

Response Tactic:
String absorbent boom across the river using boats, ropes, or walking across bridge in such a way that the oil is directed to the east bank to be collected with skimmers and vacuum trucks. Back the absorbent boom with containment boom. The boom will need to be securely staked on both sides of the river, preferably upstream/north of the bridge.

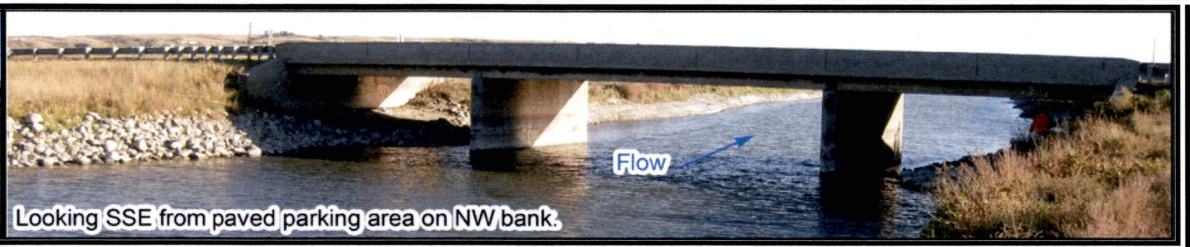
Watercourse Description: Little Muddy River. Variable flow conditions dependent on recent precipitation events. River width at this site is approximately 75 feet; however, it can range up to 200 feet where river widens in pooled areas. River widens considerably south of 54th St. NW and south to the Missouri River.

Description of Worksite: A gravel parking area is located east of the river and north of 56th St. NW. Boat launching at this site will not be possible due to steep river banks. Traffic control may be necessary as the gravel parking area is immediately adjacent to 56th St. NW.

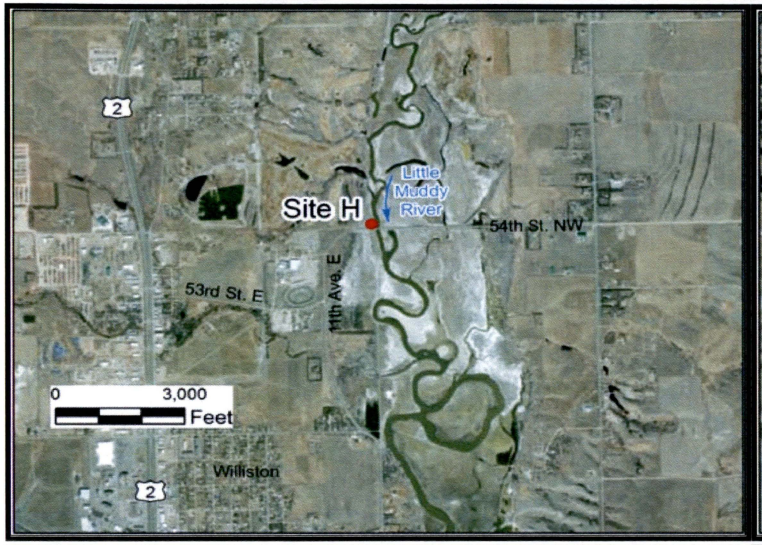
Critical Response Information: The purpose of this tactical location is to prevent or minimize the downstream extent and volume of product. One other tactical staging area is located downstream on the Little Muddy River. If product travels down the Little Muddy River to the Missouri River during high flood stage, the surface water intake on the Missouri River (immediately downstream of the Hwy 85 bridge) may be vulnerable (See Tactical Site D). If boat launching is required, there is a boat launch on the east side of Little Muddy River just north of Hwy 1804 / East Broadway.

Bakken Pipeline Facility Response Plan, Gathering System Pipelines


Looking SE at Site H.



Looking SSE from paved parking area on NW bank.





LEGEND Origin ● Destination ●

DRIVING DIRECTIONS

From Highway 2:

1) Proceed east on 53rd St. E approximately 0.8 mile to the intersection of 11th Ave. E.
2) Turn left (north) on 11th Ave. E. and proceed 0.5 mile. 11th Ave. E. will sweep to the east and turn in to 54th St. NW.
3) There is a paved parking area on the north side of 54th St. NW just west of the bridge over Little Muddy River.

GRAYSON MILL ENERGY

RECOMMENDED EQUIPMENT	
QUANTITY	DESCRIPTION
500 ft	Containment Boom
1000 ft	Sorbent Boom
2	Vac Truck(s)
	Frac Tank(s)
1	Work Boat(s)
1	Skimmer(s)
200 ft	Rope
1 bundle (50)	Stake(s)
2	Sledge hammer(s)
10 bales (50 per)	Sorbent pad(s)
	85 gallon drum liners
2	Cell Phone(s)
	Portable Radios(s)
2	Light tower(s)

RECOMMENDED EQUIPMENT	
QUANTITY	DESCRIPTION
1	Port-o-let(s)
	Poly lined roll-off boxes
	Metal Culvert Pipes
	Trac-hoe

RECOMMENDED PERSONNEL	
NUMBERS	DESCRIPTION
2	Boat Operator(s)
2	Equipment Operator(s)
4	Laborer(s)
1	Supervisor(s)
2	Vac Truck Operator(s)

RESPONSE STRATEGY

Latitude/Longitude: N 48° 11' 52.9" / W -103° 36' 16.0"

Location: 54th St. NW bridge

Water Way: Little Muddy River

Owner: Public

Distance from Spill Source: Approximately 4 miles

Map Reference: Site H

Response Objective: Containment & Recovery

Response Tactic:
String absorbent boom across the river using boats, ropes, or walking across bridge in such a way that the oil is directed to the west bank to be collected with skimmers and vacuum trucks. Back the absorbent boom with containment boom. The boom will need to be securely staked on both sides of the river, preferably upstream/north of the bridge.

Watercourse Description: Little Muddy River. Variable flow conditions dependent on recent precipitation events. River width at this site is approximately 125 feet; however, it can range up to 250 feet where river widens in pooled areas. River widens considerably south of 54th St. NW and south to the Missouri River.

Description of Worksite: A paved parking area is located west of the river and north of 54th St. NW. A gravel parking area is also located on the east side of the river, south of 54th St. NW. Boat launching at this site will not be possible due to steep river banks. Traffic control may be necessary at the entrance of the parking areas adjacent to 54th St. NW.

Critical Response Information: The purpose of this tactical location is to prevent or minimize the downstream extent and volume of product. No other tactical staging areas are located downstream on the Little Muddy River. If product travels down the Little Muddy River to the Missouri River during high flood stage, the surface water intake on the Missouri River (immediately downstream of the Hwy 85 bridge) may be vulnerable (See Tactical Site D). If boat launching is required, there is a boat launch on the east side of Little Muddy River just north of Hwy 1804 / East Broadway

7 RESPONSE RESOURCES

7.1.1 FACILITY RESPONSE EQUIPMENT

Facility response equipment provided by the OSRO is listed below and in Appendix B.

SWAT Inventory-North Dakota Response Equipment

USTRL06 28' Response Trailer

Quantity	UoM	Item Description
		Containment Boom & Hardware
1,000'	Each	Elastec 12" x 50' Optimax Containment Boom (20 sections)
250'	Each	Elastec 10" x 25' Creek Boom
1	Each	Elastec 0.5m Boom Vane
20	Each	Boom Bridles
		Skimming Equipment
1	Each	Elastec Skimmer TDS 118 Groovy w/Hydraulic Power Pack, Pump, 3" Hoses, 3" Hose Floats
1	Each	2" Pedco Weir Skimmer
		Absorbents
6	Bags	Absorbent Boom
9	Bundles	Absorbent Pad
		Anchors & Buoys
4	Each	Danforth Anchors, 40lbs
12	Each	Pin Anchors (6' T-Posts)
1	Each	T-Post Driver
		Rope & Chain
8	Rolls	1/2" MFP Double Braided Nylon Rope x 600'
2	Each	Boom Pulley Setup
6	Each	Locking Carabiners
1	Each	4 Ton Come-A-Long
		Inverted Weir Materials
2	Each	6" x 10' PVC Pipe (Weir Dams)
50	Each	Sandbags (Empty)
		Pumps/Generators/Compressor
1	Each	Honda Trash/Water Pump 3"
1	Each	Generac 3,250 Watt Generator
1	Each	Portable Air Compressor w/hose
2	Each	50' Outdoor Extension Cords
2	Each	100' Outdoor Extension Cords
		Hoses & Hardware

1	Each	3"x 20' Suction Hose and Fittings
2	Each	3"x 50' Layflat Discharge Hose
Tools/Hand Tools		
1	Each	Sledge Hammer
2	Each	21" Bow Saw
1	Each	21" Replacement Blades For Bow Saw
4	Each	Shovels
1	Each	Pick Axe
3	Each	Pitch Forks
2	Each	Loppers
1	Each	Broom
1	Each	Water Velocity Meter (Global FP-111)
Personal Protective Equipment		
24	Each	Tyvek Suits
3	Boxes	12 Safety Glasses
3	Packs	12 Leather Gloves
3	Boxes	XL Nitrile Gloves (100/box)
6	Each	Hi Vis Vest
1	Box	Earplugs
7	Pairs	Waders
7	Pairs	Steel Toe Rubber Boots
8	Each	Hard Hats
15	Each	Adjustable Life Vest
3	Each	Safety Harness
2	Each	100' Safety Rope
1	Each	50' Safety Rope
Safety Items		
1	Each	First Aid Kit
1	Each	32 oz Eye Wash Station
6	Each	Flashlights
6	Each	Spare Batteries for Flashlights
1	Each	20 # ABC Fire Extinguisher
1	Each	Emergency Reflective Triangles
1	Each	Air Horn
1	Each	Life Ring
1	Each	Throw Bag
6	Rolls	Barricade Tape
2	Rolls	Orange Construction Fence 4' x 100'
2	Each	1,000 Watt Light Stand

4	Each	500 Watt Light Bulbs For Light Stands
2	Bags	21" Zip Ties, 120#
4	Rolls	50 Drum Liners
24	Rolls	Duct Tape
		Fuel
1	Each	5 Gallon Safety Fuel Can
2	Each	2 Gallon Safety Fuel Can
1	Each	5 Gallon Safety Can For Diesel Fuel (skimmer power pack fuel)

USTRL05 12' Response Trailer		
Quantity	***UoM***	***Item Description***
		Hand Tools
2	Each	Scoop Shovel
2	Each	Pick Axe
1	Each	Trench Shovel
1	Each	Spade Head Shovel
1	Each	Snow Shovel
3	Each	Squeegee
2	Each	Ice Pick
4	Each	Aluminum Pole (1"x10')
1	Each	Post Pounder
		Personal Protective Equipment
4	Box	2x Tyvek Suits
10	Pair	Boot Covers-2XL
4	Each	Survivair Full Face Respirator
2	Set	Respirator Filters
1	Box	Safety Glasses (clear)
1	Box	Safety Glasses (tinted)
4	Each	Rainsuit
2	Each	Hi Vis Safety Vest
7	Pair	PVC Gloves
1	Each	Hard Hat
1	Each	Chain Saw Hard Hat
1	Each	Face Shield
3	Pair	Waders
1	Box	Rags
		Absorbents
1	Box	Spill Pads

1	Bag	Peat Moss
4	Bag	Snare
		Safety Equipment
1	Kit	First Aid
1	Each	ABC Fire Extinguisher (20lb)
1	Each	Spot Light
1	Pair	Wheel Chocks
2	Each	Ratchet Strap (1")
1	Roll	Barrier Fence (50')
2	Each	Grounding Rod
2	Each	Throw Ring
3	Bundle	1/2" Double Braided Nylon Rope (100')
2	Each	Safety Harness Lanyard (50')
1	Each	Dry Bag
2	Each	Safety Harness
1	Each	Boat Hook
1	Each	Throw Bag
		Machinery Fluids/Miscellaneous
3	Gallon	Antifreeze
1	Gallon	Chainsaw Bar Oil
2	Each	Coolers
2	Each	5 Gallon Buckets
1	Each	Squirrel Cage Fan
40' Conex Container		**TTNU 5949261**
Quantity	***UoM***	***Item Description***
9,000'	Each	Lamor 18" x 100' Containment Boom (90 sections)
Containment/Recovery		
Quantity	***UoM***	***Item Description***
1,000'	Each	Elastec 12" x 50' Containment Boom
1,800'	Each	Lamor 18" x 100' Containment Boom
275'	Each	Elastec 10" x 25' Creek Boom
120	Each	Danforth Anchors (40lb)
78	Bags	Snare
2	Rolls	Absorbent Pads
9	Bags	Soft Boom (2 each)
8	Bundle	Spill Pads
2	Rolls	Poly Sheeting

2	Rolls	Drum Liners (50 per roll)
5	Spool	1/2" Double Braided Nylon Rope (600')
1	Each	Honda Capstan Winch (GCAFK-1106859)
6	Bags	Bio Matrix (2.2 cubic ft.)
5	Bags	Perlite (20lbs)
4	Kit	Truck Spill/Safety Kits in Contico Boxes (for Rental Vehicles)
127	Each	SWAT Hand Bridles
100	Feet	1/2" Chain
200	Feet	1/4" Chain
6	Each	Ice Anchors
20	Each	Walsh 13" Rope Buoy (W1300BO)
6	Each	Taylor Inflatable Buoy/Bumpers
3	Each	55 Gallon Open Top Drums
1	Each	3" Honda Trash Pump (GCBKT-1556990)
3	Each	3" Honda Trash Pump (GX270)
1	Each	4" Honda Trash Pump
4	Each	Plastic Drip Trays for Pumps/Generators
1	Each	3" x 25 'Hose
487	Feet	3" Lay Flat Hose (no ends)
2	Each	3" x 50' Lay Flat Hose (with ends)
2	Each	3" Plastic Strainer
6	Each	3" Metal Strainer
9	Each	3" Camlock Fitting
2	Each	2" Camlock Fitting
4	Each	Garden Hose (100')
Sampling Materials/Tools		
Quantity	***UoM***	***Item Description***
7	Each	ALS Soil Sample Kits
22	Liter	Liquid Test Vials
1	Each	Portable Multi Gas Detector in Pelican Case (71-0028RK)
2	Bottle	High Range Chloride Tabs (40ct)
6	Bottle	Low Range Chloride Tabs (40ct)
3	16oz	Test Container
70	Each	Sample Vials
13	Kit	Sample Kits 8620
1	Each	EC Test Kit-TDS Tester Kit in Pelican Case
1	Each	Soil Probe (2265F5T24P)
8	Each	Coolers
1	Each	AMS Edelman Clay Auger w/two 3' extensions
sonal Air Monitoring		

Quantity	UoM	Item Description
4	Each	Honeywell Multi Gas Clip (KA415-10277791, KA414-1110955, KA414-1110954, KA415-102780
1	Each	GCT Multi Gas Clip (M4SF061028)
1	Each	Honeywell Gas Cylinder-Bump Test Gas

Communication

Quantity	UoM	Item Description
4	Each	Motorola VHF Radios (442TQQ0079, 442TQQ0167, 442TQQ0086, 442TQQ0087)

Boats

Unit #	Year	Manufacturer	Hull ID#	Engine Make	Motor Type	Engine S/N
Propeller Boats						
USB10	1991	Riviera Pontoon	RCD18385I091	Mercury	40HP EFI ELPT BF	C214128
USB22	2012	Tracker Topper 1542	BUJ19209A212	Mercury	Mercury 8hp	OR450762
USB33	2017	Hewes Craft	HEW80212K617	Yamaha 2016	150 HP F 150 XB/25"	63PX1178227
Jet Boats						
USB03	2012	Alweld 1856 Custom Jon	AWLC0795I112	Mercury	115 ProXS w/Jet Model 115P73HY	1B808072
USB 11	2013	Alweld 1856J	AWLC0826B212	Mercury	90HP Optimax Model 1090D73HY	1B962730
USB30	2014	Alweld 2270	AWLC0116B414	Mercury	150 Optimax w/Jet Model 1150P73EY	2B016756
Airboats						
USAB01	2007	American Airboat	AMA00394F707	Levitator	8100HO Model 08-811-01	475271
USAB03	2011	American Airboat	AMA00585F111	Levitator	6000 Model 08-602-02	502655

Boats

Unit #	Year	Manufacturer	Hull ID#	Engine Make	Motor Type	Engine S/N
USB23	1997	Gencraft 24 "Transformer"	UNV01033H597	Mercury 60HP Model 1A60453BZ	60ELPT BF 4 stroke	1C232162

7.1.2 RESPONSE EQUIPMENT INSPECTION AND MAINTENANCE

GMO response equipment is only used as a backup to the identified OSROs. It is the responsibility of the individual OSRO to maintain their equipment.

- **Containment boom**
  - During boom deployment exercises, boom will be inspected by the OSRO for signs of structural deficiencies. If tears in fabric or rotting is observed, boom will be repaired or replaced. In addition, end connectors will be inspected for evidence of corrosion. If severe corrosion is detected, equipment will be repaired or replaced.
- **Miscellaneous equipment**
  - The individual OSRO will inventory and test on an annual basis to ensure that the stated quantities are in inventory and in proper working order. The equipment inspection and deployment exercises are recorded and maintained with the OSRO and retained for a period of five years.

7.1.3 CONTRACTORS, CONTRACTOR EQUIPMENT AND LABOR

- GMO's primary response employees'/contractors' names and phone numbers, as well as other companies who can provide spill response services are provided in **Table 3-1.4**
- GMO has ensured by contract the availability of private personnel and equipment necessary to respond, to the maximum extent practicable, to the worst-case discharge or the substantial threat of such discharge.
- Contractors without USCG classification deploy and inspect boom to meet PREP guidelines.
- GMO requires that these exercises are completed annually.
- **APPENDIX B** contains evidence of contracts for GMO's primary response contractors and equipment lists of contractors without USCG classification.

7.1.4 COMMAND POST

In the event of a major spill or other emergency, both a GMO off-site IMT Command Center and a Command Post (located close to but at a safe distance back from the incident scene) may be established. For a minor emergency, only a Command Post may be established.

TABLE 7-1.4 COMMAND POST CHECKLIST

COMMAND POST CHECKLIST	NAME	DATE/TIME STARTED	DATE/TIME COMPLETED
Location:			
Ensure adequate space for size of staff.			
Ensure 24-hour accessibility.			
Ensure personal hygiene facilities.			
Ensure suitability of existing communications resources (phone/fax/radio).			
Ensure suitability of private conference and briefing rooms.			
Identify Command Post security requirements, safe location.			
Notify other parties of Command Post location; provide maps/driving directions.			
Determine staging areas and incident base locations.			
Identify future need to move, upgrade facilities.			

7.1.5 STAGING AREA

According to the incident type and magnitude, numerous staging areas may be required to support containment and cleanup operations. The staging area should be located in the cold zone inside the delineated isolation perimeter.

In selecting a suitable staging area, the following criteria should be considered:

- Accessibility to impacted areas.
- Proximity to secure parking, airports, docks, pier, or boat launches; and
- Accessibility to large trucks and trailers which may be used to transfer equipment.

In addition, the staging area should:

- Be in a large open area in order to provide storage for equipment and not interfere with equipment loading and offloading operations.

7.1.6 COMMUNICATIONS PLAN

Normal GMO communications to the Facility are conducted via telephone lines, cellular telephones, two-way radios, e-mail, and fax machines.

The majority of GMO personnel have cellular phones. Two-way radios are located in field vehicles. Laptops are available to receive email.

Additional communications equipment (satellite phones, VHF portable radios with chargers and accessories, command post with UHF, VHF, single sideband, marine, aeronautical, telephone, and hardline capability) may be provided by the GMO or leased from a communications company in the area. Communications with government agencies, state police, and contractors can be conducted on portable radios.

The Communications Plan, written at the time of an incident, will identify telephone numbers and radio frequencies used by responders. This may also involve activation of multiple types of communications equipment and coordination among multiple responding agencies and contractors.

TABLE 7-1.6 COMMUNICATIONS CHECKLIST

COMMUNICATIONS CHECKLIST	NAME	DATE/TIME STARTED	DATE/TIME COMPLETED
Location:			
Develop a Communications Plan.			
Ensure adequate phone lines per staff element - contact local provider.			
Evaluate need for internet access.			
Ensure recharging stations for cellular phones.			
VHF radio communications: - Establish frequencies. - Assign call signs. - Distribute radios. - Establish communications schedule.			
Ensure recharging stations for VHF radios.			
Determine need for VHF repeaters.			
Ensure copy machine available.			
Ensure communications resource accountability.			
Ensure responders have capability to communicate with aircraft.			

7.2 PUBLIC AFFAIRS

This section contains guidelines for dealing with the media during an emergency. The Incident Commander will play a key role in providing the initial public assessment and taking the first steps to provide the GMO's public response. Information in this section includes:

- Guidelines for dealing with the media
- Incident Fact Sheet

GUIDELINES FOR MEDIA COMMUNICATIONS

- GMO management personnel may receive media requests for interviews.
- Reporters will look elsewhere to find out what happened if you do not answer their questions; however, if you do not have this information or are not prepared to answer a particular question, say so then say when they can expect the answers to their questions (such as in one hour).
- It is important to be courteous to all media representatives and to provide a safe place for them to wait until a GMO representative can meet them; you may need to provide an initial statement.

Provide

- A brief, general description of what happened.
- Number of injured or killed, if known.
- Steps being taken to handle the emergency.

Don't provide

- Names of deceased or seriously injured employees until the next of kin have been notified.
- Speculation about the cause of the emergency.
- Any statement implying personal or GMO negligence.
- Cost estimates of damage.

Other considerations

- Safety considerations should always receive priority in determining access to GMO property.
- Anticipate likely questions.
- There are only six questions that can be asked about any subject: who, what, when, where, why, and how.
- Keep answers short and understandable. Don't use industry jargon or acronyms.
- Answer only the question that is asked by the reporter.
- Give the most important facts first.
- Talk to the public's concern about the incident such as whether these were deaths, injuries, any threat to the public, or danger of explosion or fire.
- If you don't know the answer to a question, don't be afraid to say "I don't know"; make note of the question and tell the reporter that you will try to get the answer - then do it. Don't use the phrase "No Comment".
- Don't be defensive.
- There is no such thing as "Talking off the record"; assume that anything and everything you say to a reporter is going to be printed and/or used in the story.
- Avoid "What If?" or speculative questions; these questions should be answered with a restatement of the problem and what is being done to control it.

- Don't speculate about the cause of the incident.
- Don't minimize the situation.

7.3 SITE SECURITY MEASURES

Due to the large amount of public attention created at an oil spill site, additional security measures are required. Several measures should be planned in advance to prepare security personnel for possible events that may occur at the spill site.

TABLE 7-3 SITE SECURITY CHECKLIST

SITE SECURITY CHECKLIST	NAME	DATE/TIME STARTED	DATE/TIME COMPLETED
Location:			
Restrict access to the facility.			
Direct traffic away from the spill area.			
Request assistance from the spill area.			
Request assistance from the sheriff department to: - Establish roadblocks where necessary to secure the area. - Divert local traffic away from the spill area. - Provide access for spill response equipment and personnel.			
Coordinate rescue operations with the local fire department paramedics.			
Request the Federal On-Scene Coordinator ask the FAA to restrict air space over the safety zone.			
Contract for additional security personnel (as needed).			
Maintain strict control over all personnel and entering vehicular traffic.			
Position security personnel to effectively control non-response personnel.			
Barricade lesser traveled points with appropriate signs warning against entry.			
Establish check points at barricaded points to verify security effectiveness.			
Maintain a log that documents all security related incidents and observations made at the spill site.			
Establish a pass system and distribute pre-prepared security passes to all spill related personnel.			
Ensure all response equipment is safeguarded.			

7.4 WASTE MANAGEMENT

Initial oil handling and disposal needs may be overlooked in the emergency phase of a response, which could result in delays and interruptions of cleanup operations. Initially, waste management concerns should address:

- Equipment capacity,
- Periodic recovery of contained oil, and
- Adequate supply of temporary storage capacity and materials.

The following action items should be conducted during a spill response:

- Development of a Site Safety and Health Plan (**SECTION 5.4**) addressing the proper PPE and waste handling procedures.
- Development of a Disposal Plan (**SECTION 5.6**) in accordance with any federal, state, and/or local regulations.
- Continuous tracking of oil disposition in order to better estimate amount of waste that could be generated over the short and long-term.
- Organization of waste collection, segregation, storage, transportation, and proper disposal.
- Minimization of risk of any additional pollution.
- Regulatory review of applicable laws to ensure compliance and (if appropriate) obtain permits.
- Documentation of all waste handling and disposal activities.
- Disposal of all waste in a safe and approved manner.

Good hazardous waste management includes:

- Reusing materials when possible.
- Recycling or reclaiming waste.
- Treating waste to reduce hazards or reducing amount of waste generated.

The management of the wastes generated in cleanup and recovery activities must be conducted with the overall objective of ensuring:

- Worker safety,
- Waste minimization,
- Cost effectiveness, and
- Minimization of environmental impacts.
- Proper disposal.
- Minimization of present and future environmental liability.

Solid wastes, such as sorbents, PPE, debris, and equipment will typically be transported from the collection site to a designated facility for:

- Storage
- Waste segregation
- Packaging
- Transportation

Once this process is complete, the waste will be shipped off-site to an approved facility for required disposal.

A general flow chart for waste management guidelines is provided in the table below.

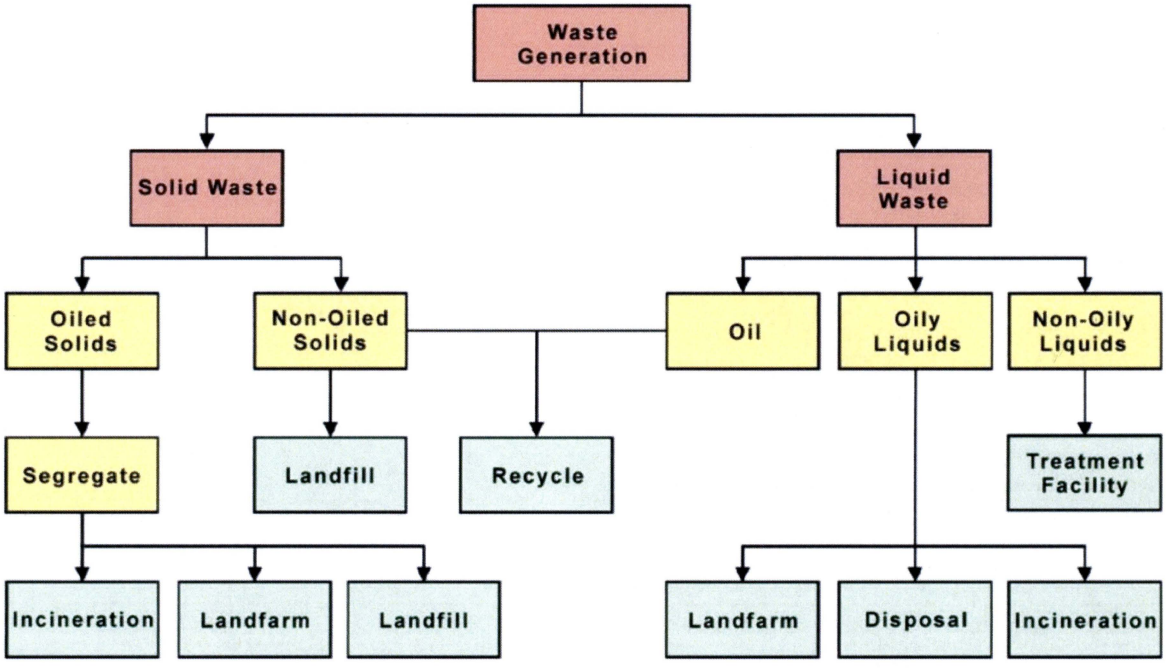

Waste Generation
Solid Waste
Liquid Waste
Oiled Solids
Non-Oiled Solids
Oil
Oily Liquids
Non-Oily Liquids
Segregate
Landfill
Recycle
Treatment Facility
Incineration
Landfarm
Landfill
Landfarm
Disposal
Incineration

TABLE 7-4 GENERAL WASTE CONTAINMENT AND DISPOSAL CHECKLIST

CONSIDERATION	YES/NO/NA
Name:	
Date:	
Location:	
Is the material being recovered a waste or reusable product?	
Has all recovered waste been containerized and secured so there is no potential for further leakage while the material is being stored?	
Has each of the discrete waste streams been identified?	
Has a representative sample of each waste stream been collected?	
Has the sample been sent to an approved laboratory for the appropriate analysis, (i.e., hazardous waste determination)?	
Has the appropriate waste classification and waste code number(s) for the individual waste streams been received?	
Has a temporary EPA identification number and generator number(s) been received, if they are not already registered with EPA?	
Have the services of a registered hazardous waste transporter been contracted if waste is hazardous?	
If the waste is nonhazardous, is the transporter registered?	
Is the waste being taken to an approved disposal site?	
Is the waste hazardous or Class I nonhazardous?	
If the waste is hazardous or Class I nonhazardous, is a manifest being used?	
Is the manifest properly completed?	
Are all federal, state, and local laws/regulations being followed?	
Are all necessary permits being obtained?	
Has a Disposal Plan been submitted for approval/review?	
Has PPE and waste-handling procedures been included in the Site Safety and Health Plan to protect the health and safety of waste handling personnel?	

7.4.1 WASTE STORAGE

During an oil spill, the volume of oil that can be recovered depends on the storage capacity available. If storage containers such as bags or drums are used, the container should be clearly marked and/or color-coded to indicate the type of material or waste contained and/or the ultimate disposal option. Use of any site for storage is dependent on the approval of local authorities. The following elements affect the choice of a potential storage site:

- Geology
- Ground water
- Soil
- Flooding
- Surface water
- Slope
- Covered materials
- Capacity
- Climatic factor
- Land use
- Toxic air emissions
- Security
- Access
- Public contact

TABLE 7-4.1 WASTE STORAGE

CONTAINMENT	PRODUCT						
	OIL	OIL/WATER	OIL/SOIL	OIL/DEBRIS (Small)	OIL/DEBRIS (Medium)	OIL/DEBRIS (Large)	CAPACITY
Drums	X	X	X				0.2-0.5 yd^3
Bags		X	X	X			1.0-2.0 yd^3
Boxes		X	X	X			1-5 yd^3
Open top roll off	X	X	X	X	X	X	8-40 yd^3
Roll top roll off	X	X	X	X	X	X	15-25 yd^3
Vacuum box	X	X					15-25 yd^3
Frac tank	X	X					500-20,000 gal
Poly tank	X	X					200-4,000 gal
Vacuum truck	X	X	X				2,000-5,000 gal
Tank trailer	X	X					2,000-4,000 gal
Barge	X	X					3,000+ gal
Berm, 4 ft		X	X	X	X	X	1 yd^3
Bladders	X	X					25-1,500 gal

7.4.2 WASTE TRANSFER

In most oil spill response operations, it would be necessary to transfer recovered oil and oil debris from one point to another several times before the oil and oily debris are ultimately disposed of at a state approved disposal site. Depending on the location of response operations, any, or all of the following transfer operations may occur:

- Directly into the storage tank of a vacuum device.
- Directly into impermeable bags that, in turn, are placed in impermeable containers.
- From a vacuum device storage tank to a truck.
- From containers to trucks.
- From trucks to lined pits.
- From lined pits to incinerators and/or landfills.
- From a tank truck to a processing system (i.e., oil/water separator).
- From a processing system to a recovery system and or incinerator.
- From a skimming vessel or flexible bladder to a barge.
- From a barge to a tank truck.
- Directly into the storage tank on a dredge.
- From portable or vessel mounted skimmers into flexible bladder tanks, the storage tanks of the skimming vessel itself, or a barge.

There are four general classes of transfer systems that could be employed to effect oily waste transfer operations. The following is a brief description of the four transfer systems:

Pumps
Rotary pumps, such as centrifugal pumps, may be used when transferring large volumes of oil, but they may not be appropriate for pumping mixtures of oil and water. The extreme shearing action of centrifugal pumps tends to emulsify oil and water, thereby increasing the viscosity of the mixture and causing low, inefficient transfer rates.

The resultant emulsion would also be more difficult to separate into oil and water fractions. Lobe or "positive displacement" pumps work well on heavy, viscous oils, and do not emulsify the oil/water mixture. Double-acting piston and double acting diaphragm pumps are reciprocating pumps that may also be used to pump oily wastes.

Vacuum Systems
Vacuum systems, such as air conveyors, vacuum trucks, and portable vacuum units, may be used to transfer viscous oils and debris but they usually pick up a very high water/oil ratio.

Belt / Screw Conveyors
Conveyors may be used to transfer oily wastes containing a large amount of debris. These systems can transfer weathered debris laden oil either horizontally or vertically for short distances but are bulky and difficult to operate.

Wheeled Vehicles
Wheeled vehicles may be used to transfer liquid waste of oily debris to storage or disposal sites. These vehicles are readily available but have a limited capacity (i.e., 100 bbl.) and require good site access.

7.4.3 WASTE DISPOSAL

In order to obtain the best overall Incident Disposal Plan, a combination of methods should be used. There is no template or combination of methods that can be used in every spill situation. Each incident should be reviewed carefully to ensure an appropriate combination of disposal techniques are employed.

The following is a brief description of some disposal techniques available for recovered oil and oily debris.

Recycling
Recycling involves processing discarded materials for another use.

Incineration
This technique entails the destruction of the recovered oil by high temperature thermal oxidation reactions. There are licensed incineration facilities as well as portable incinerators that may be brought to a spill site. Incineration may require the approval of the local Air Pollution Control Authority.

In-Situ Burning / Open Burning
Burning techniques entail igniting oil or oiled debris allowing it to burn under ambient conditions. These disposal techniques are subject to restrictions and permit requirements established by federal, state, and local laws. Permission for in-situ burning may be difficult to obtain when the burn takes place near populated areas.

As a general rule, in-situ burning would be appropriate only when atmospheric conditions will allow the smoke to rise several hundred feet and rapidly dissipate. Smoke from burning oil will normally rise until its temperature drops to equal the ambient temperature. Afterwards, it will travel in a horizontal direction under the influence of prevailing winds.

Landfill Disposal
This technique entails burying the recovered oil in an approved landfill in accordance with regulatory procedures. Landfill disposal of free liquids is prohibited by federal law in the United States.

TABLE 7-4.3 FACILITY SPECIFIC DISPOSAL LOCATIONS

Material	Disposal facility	Location/Phone	Permits
Recovered Product	Secure Energy Services	5807 Front Street W Williston, ND 58801 701-774-7570	Yes
Contaminated Soil	Secure Energy Services	5807 Front Street W Williston, ND 58801 701-774-7570	Yes
Contaminated Equipment	R360 Environmental Solutions PDI Landfill	102 C10 52nd Street NW Tioga, North Dakota 58852 701-664-3383	Yes
Personnel Protective Equipment	R360 Environmental Solutions PDI Landfill	102 C10 52nd Street NW Tioga, North Dakota 58852 701-664-3383	Yes
Decontamination Solutions	R360 Environmental Solutions PDI Landfill	102 C10 52nd Street NW Tioga, North Dakota 58852 701-664-3383	Yes
Adsorbents and Spent Chemicals	R360 Environmental Solutions PDI Landfill	102 C10 52nd Street NW Tioga, North Dakota 58852 701-664-3383	Yes

8 DEMOBILIZATION/POST-INCIDENT REVIEW

8.1 TERMINATING THE RESPONSE

- A team of federal, state, and GMO personnel must certify that each area is clean before halting cleanup operations.
- Demobilize equipment and personnel at the first opportunity in order to reduce cost.
- Consider which resources should be demobilized first; for example, berthing expenses can be saved by demobilizing out-of-area contractors before local ones.
- Equipment may need both maintenance and decontamination before being demobilized.
- All facilities (staging area, Command Post, etc.) should be returned to their pre-spill condition before terminating operations.
- Determine what documentation should be maintained, where, and for how long.
- Contract personnel may be more susceptible to "suffering" injuries as they approach termination.
- Some activities will continue after the cleanup ends; examples include incident debriefing, bioremediation, NRDA studies, claims, and legal actions.
- Consider expressing gratitude to the community, police department, fire department, and emergency crews for their work during the response.

8.2 DEMOBILIZATION

The GMO can reduce costs considerably by developing a demobilization plan. Therefore, emphasis must be placed on establishing efficient procedures.

TABLE 8-2 DEMOBILIZATION CHECKLIST

DEMOBILIZATION CHECKLIST	NAME	DATE/TIME STARTED	DATE/TIME COMPLETED
Name:			
Date:			
Location:			
Assign personnel to identify surplus resources and probable release times.			
Establish demobilization priorities.			
Develop decontamination procedures.			
Initiate equipment repair and maintenance.			
Develop a Disposal Plan.			
Identify shipping needs.			
Identify personnel travel needs.			
Develop impact assessment and statements.			
Obtain concurrence of Planning and Operations Group Leaders before release of personnel or equipment.			

8.3 POST-INCIDENT REVIEW

All Facility personnel involved in the incident shall be debriefed (by the GMO) within two weeks after termination of operations. The primary purpose of the post-incident review is to identify actual or potential deficiencies in the Plan and determine the changes required to correct the deficiencies. The post-incident review also is intended to identify which response procedures, equipment, and techniques were effective and which were not and the reason(s) why. This type of information is very helpful in the development of a functional Plan by eliminating or modifying those response procedures that are less effective and emphasizing those that are highly effective. This process should also be used for evaluating training drills or exercises. Key agency personnel that were involved in the response will be invited to attend the post-incident review.

8.3.1 FINAL SPILL CLEANUP REPORT

A final, comprehensive report shall be prepared by the Incident Commander or designee and forwarded to the Administrator within 90 days after completion of spill cleanup activities for internal use. It should be written in the narrative form and include the information listed below (as appropriate):

- Name, address, and telephone number of the owner or operator.
- Name, address, and telephone number of the Facility.
- Time, location, and date of discharge.
- Type of material discharged.
- Quantity discharged (indicate volume, color, length and width of slick, and rate of release, if continuous).
- Source of spill (tank, flowline, etc.) in which the oil was originally contained, path of discharge, and impact area.
- Detailed description of what actually caused the discharge and actions taken to control or stop the discharge.
- Estimated quantity and disposition of recovered material that resulted from the incident.
- Description of actual or potential hazards to human health or the environment.
- Steps taken to clean up the spilled oil along with dates and times steps were taken.
- The equipment used to remove the spilled oil, dates, and number of hours equipment was used.
- The number of persons employed in the removal of oil from each location, including their identity, employer, and the number of hours worked at that location.
- The extent of injuries, if any.
- Actions by the GMO or contractors to mitigate damage to the environment.
- Measures taken by the GMO or contractors to prevent future spills.
- The federal and state agencies to which the GMO or contractors reported the discharge; show the agency, its location, the date and time of notification, and the official contacted.
- Description of the effectiveness of equipment and cleanup techniques and recommendations for improvement.
- The names, addresses, and titles of people who played a major role in responding to the event.
- A section identifying problems and deficiencies noted during the response event; a follow-up section should include recommended procedure modifications to make a future response more effective and efficient.
- All other relative information.
- A final signature as follows

Name:
Title:
Signature:
Date:

APPENDIX

A TRAINING/EXERCISES

EXERCISE REQUIREMENTS AND SCHEDULES

- GME participates in the National Preparedness for Response Exercise Program (PREP).

- During each triennial cycle, all components of the Plan must be exercised at least once.

- The Emergency Response Coordinator is responsible for the following aspects:
    - Scheduling,
    - Maintaining records,
    - Implementing,
    - Evaluation of the Company's training and exercise program, and
    - Post-drill evaluation improvements.

- GME shall establish and conduct a continuing training program to instruct emergency response personnel to:

    - Carry out the emergency procedures that relate to their assignments;
    - Know the characteristics and hazards of the hazardous liquids transported, including, in case of flammable HVL, flammability of mixtures with air, odorless vapors, and water reactions;
    - Recognize conditions that are likely to cause emergencies, predict the consequences of facility malfunctions or failures and hazardous liquids spills, and take appropriate corrective action;
    - Take steps necessary to control any accidental release of hazardous liquid and to minimize the potential for fire, explosion, toxicity, or environmental damage; and
    - Learn the potential causes, types, sizes, and consequences of fire and the appropriate use of portable fire extinguishers and other on-site fire control equipment, involving, where feasible, a simulated pipeline emergency

- At the intervals not exceeding 15 months, but at least once each calendar year, GME shall:
    - Review with personnel their performance in meeting the objectives of the emergency response training program; and
    - Make appropriate changes to the emergency response training program as necessary to ensure that it is effective.

- GME shall require and verify that its supervisors maintain a thorough knowledge of that portion of the emergency response procedures for which they are responsible to ensure compliance.

PREP RESPONSE PLAN CORE COMPONENTS

CORE COMPONENTS	DESCRIPTION
1. Notifications	Test the notifications procedures identified in the Area Contingency Plan (ACP) and the Plan.
2. Staff mobilization	Demonstrate the ability to assemble the spill response organization identified in the ACP and the Plan.
3. Ability to operate within the response management system described in the Plan: • Unified Command • Response management system	 Demonstrate the ability of the spill response organization to work within a unified command. Demonstrate the ability of the response organization to operate within the framework of the response management system identified in their respective plans.
4. Source control	Demonstrate the ability of the spill response organization and Company to control and stop the discharge at the source.
5. Assessment	Demonstrate the ability of the spill response organization and Company to provide initial assessment of the discharge and provide continuing assessments of the effectiveness of the tactical operations.
6. Containment	Demonstrate the ability of the spill response organization to contain the discharge at the source or in various locations for recovery operations.
7. Recovery	Demonstrate the ability of the spill response organization to recover, mitigate, and remove the discharged product.
8. Protection	Demonstrate the ability of the spill response organization to protect the environmentally and economically sensitive areas identified in the ACP and the Plan.
9. Disposal	Demonstrate the ability of the spill response organization to dispose of the recovered material and contaminated debris in compliance with guidance found in the ACP and other regulatory guidance.
10. Communications	Demonstrate the ability to establish an effective communications system throughout the scope of the Plan for the spill response organization.
11. Transportation	Demonstrate the ability to establish effective multi-mode transportation both for execution of the discharge and support functions.
12. Personnel support	Demonstrate the ability to provide the necessary logistical support of all personnel associated with the response.
13. Equipment maintenance and support	Demonstrate the ability to maintain and support all equipment associated with the response.
14. Procurement	Demonstrate the ability to establish an effective procurement system.
15. Documentation	Demonstrate the ability of the spill response organization to document all operational and support aspects of the response and provide detailed records of decisions and actions taken.

EXERCISE REQUIREMENTS

EXERCISE TYPE	EXERCISE CHARACTERISTICS
Facility/QI notification	• Conducted quarterly. • The facility initiates mock spill notification to QI. • The Qualified Individual documents time/date of notification, name, and phone number of individual contacted.
Equipment deployment	• Response contractors listed in the plan must participate in annual deployment exercise. • An exercise where response equipment is deployed to a specific site and operated in its normal operating medium.
IMT tabletop	• Conducted annually. • Tests IMT's response activities/responsibilities. • Documents Plan's effectiveness. • Must exercise worst case discharge scenario once every three years. • Must test all Plan components at least once every three years
Unannounced	• Company will either participate in unannounced tabletop exercise or equipment deployment exercise on an annual basis, if selected. • Company may take credit for participation in government-initiated unannounced drill in lieu of drill required by PREP guidelines. • Plan holders who have participated in a PREP government-initiated unannounced exercise will not be required to participate in another one for at least 36 months from the date of the exercise.
Area	• An industry plan holder that participates in an Area Exercise would not be required to participate in another Area Exercise for a minimum of six years.
OTHER EXERCISE CONSIDERATIONS	
Drill program evaluation procedures	• Company conducts post-exercise meetings to discuss positive items, areas for improvement, and to develop action item checklist to be implemented later.
Records of drills	• Company will maintain exercise records for five years following completion of each exercise. • Records will be maintained in the Training/Exercise tool in the electronic interface. • Company will verify appropriate records are kept for each spill response contractor listed in Plan as required by PREP guidelines (annual equipment deployment drill, triennial unannounced drill, etc.). • Available to USCG for inspection upon request.

SPILL / EXERCISE DOCUMENTATION FORM

Retain this form for a minimum of five years.			
1. Date(s) performed:			
2. Exercise Actual spill			
If exercise: Announced Unannounced	Deployment	Notification	Tabletop
If exercise, frequency: Quarter 1st 2nd	3rd	4th	Annual
3. Location of exercise/spill:			
4. Time started:			
5. Description of scenario or spill including volume and content (crude oil, condensate, etc.):			
6. Describe how the following objectives were exercised:			

Team's knowledge of the Oil Spill Response Plan:	**Yes**	**No**
Was briefing meeting conducted:		
Established field Command Post:		
Confirmed source was stopped:		
Developed Site Safety and Health Plan:		
Prepared ICS 201:		
Established work zones and perimeter security:		
Developed short range tactical plan:		
Developed long range tactical plan:		
Proper Notifications:		
Qualified Individual (or designee):		
Operations Manager:		
Release/Spill Report Form completed:		
Notification to agencies completed (attach log):		
Transportation/Communication System:		
Established primary/secondary communication system:		

Primary:
Secondary:
Other

SPILL / EXERCISE DOCUMENTATION FORM

Transportation/Communication System, Continued:		
	Yes	No
Motor vessel deployed:		
Provider name:		
Helicopter/Sea plane deployed:		
Call sign:		
Describe function (i.e., transportation, surveillance, dispersant application):		
Ability to access contracted Oil Spill Removal Organizations (OSROs):		
Who contacted - (name of individual and OSRO):		
When contacted:		
Response time projection for deployment:		
Type and amount of containment used:		
Spill material recovered:		
Spilled material disposed:		
Where?		
Ability to coordinate spill response with on-scene coordinator, state, and applicable agencies:		
Was regulatory on-scene coordinator(s) contacted:		
List person and agency represented:		
Ability to access sensitive site and resource information in the Area Contingency Plan (ACP):		
Was pre-impact assessment conducted:		
Were pre-impact samples taken:		
Were pre-impact photographs taken:		
Were NRDA specialists mobilized:		
Were deficiencies identified:		
If yes, changes implemented:		
If no, why were changes not implemented:		

LESSONS LEARNED	PERSON RESPONSIBLE FOR FOLLOW-UP OF CORRECTIVE MEASURES
	Name:
	Position:
	Certifying Signature:

EPA REQUIRED RESPONSE EQUIPMENT TESTING AND DEPLOYMENT DRILL LOG

Item:	Date of Last Update:
ACTIVITY	**INFORMATION**
Last inspection or response equipment test date	
Inspection frequency	
Last deployment drill date	
Deployment frequency	
OSRO Certification (if applicable)	
Item:	Date of Last Update:
ACTIVITY	**INFORMATION**
Last inspection or response equipment test date	
Inspection frequency	
Last deployment drill date	
Deployment frequency	
OSRO Certification (if applicable)	
Item:	Date of Last Update:
ACTIVITY	**INFORMATION**
Last inspection or response equipment test date	
Inspection frequency	
Last deployment drill date	
Deployment frequency	
OSRO Certification (if applicable)	
Item:	Date of Last Update:
ACTIVITY	**INFORMATION**
Last inspection or response equipment test date	
Inspection frequency	
Last deployment drill date	
Deployment frequency	
OSRO Certification (if applicable)	

QUALIFIED INDIVIDUAL NOTIFICATION DRILL LOG

NOTIFICATION EXCERCISE		
1. Date Performed:	2. Exercise or actual response?	3. Vessel/Facility/Pipeline/Offshore Facility Initiating exercise:
4. Name of person notified:		
Is this person identified in your response plan as qualified individual or designee?		
5. Time Initiated:		
Time in which qualified individual or designee responded:		
6. Method used of contact: Phone Pager Radio Other_____		
7. Description of notification procedures:		
8. Identify which of the 15 core components of your response plan were exercised during this particular exercise:		
Organizational Design	**Operational Response**	**Response Support**
Notifications Staff mobilization Ability to operate within the response management system described in the plan	Discharge control Assessment of discharge Containment of discharge Recovery of spilled material Protection of economically and environmentally sensitive areas Disposal of recovered product	Communications Transportation Personnel Support Equipment Maintenance and support Procurement Documentation
Certifying Signature		Date

INCIDENT MANAGEMENT TEAM TABLETOP EXERCISE LOG

Company:	Date:
ACTIVITY	**INFORMATION**
Emergency Scenario	
Evaluation	
Changes to be Implemented	
Time Table for Implementation	
Company:	Date:
ACTIVITY	**INFORMATION**
Emergency Scenario	
Evaluation	
Changes to be Implemented	
Time Table for Implementation	
Company:	Date:
ACTIVITY	**INFORMATION**
Emergency Scenario	
Evaluation	
Changes to be Implemented	
Time Table for Implementation	
Company:	Date:
ACTIVITY	**INFORMATION**
Emergency Scenario	
Evaluation	
Changes to be Implemented	
Time Table for Implementation	

TRAINING PROGRAM

TRAINING REQUIREMENTS

TRAINING TYPE	TRAINING CHARACTERISTICS
Training in use of spill response plan	· All field personnel will be trained to properly report/monitor spills. · Plan will be reviewed annually with all employees and contract personnel.
OSHA training requirements	· All Company responders designated in Plan must have 24 hours of initial spill response training. · Laborers having potential for minimal exposure must have 24 hours of initial oil spill response instruction and eight hours of actual field experience. · Spill responders having potential exposure to hazardous substances at levels exceeding permissible exposure limits must have 40 hours of initial training offsite and 24 hours of actual field experience. · On-site management/supervisors required to receive same training as equipment operators/general laborers plus eight hours of specialized hazardous waste management training. · Managers/employees require eight hours of annual refresher training.
Incident management team personnel training	· See recommended PREP Training Matrix
Training for casual laborers or volunteers	· Company will not use casual laborers/volunteers for operations requiring HAZWOPER training.
Wildlife	· Only trained personnel approved by USFWS and appropriate state agency will be used to treat oiled wildlife.
Training documentation and record maintenance	· Training activity records will be retained for five years for all personnel following completion of training. · Company will retain training records indefinitely for individuals assigned specific duties in the Plan. · Available to USCG for inspection upon request.

PREP TRAINING PROGRAM MATRIX

TRAINING ELEMENT	QUALIFIED INDIVIDUAL (QI)	SPILL MANAGEMENT TEAM (IMT)	FACILITY PERSONNEL
Captain of the Port (COTP) Zones or Environmental Protection Agency (EPA) Regions in which the facility/pipeline is located	x	x	x
Notification procedures and requirements for facility owners or operators, internal response organizations, federal and state agencies, and contracted oil spill removal organizations (OSROs) and the information required for those organizations	x	x	x
Communication system used for the notifications	x	x	x
Information on the products stored, used, or transferred by the facility, including familiarity with the safety data sheets (SDS), special handling procedures, health and safety hazards, spill and fire fighting procedures	x	x	x
Procedures the facility personnel may use to mitigate or prevent any discharge or a substantial threat of a discharge of oil resulting from facility operational activities associated with internal or external cargo transfers, storage, or use	x		
Facility personnel responsibilities and procedures for use of facility equipment which may be available to mitigate or prevent an oil discharge	x	x	x
Operational capabilities of the contracted OSROs to respond to small, medium, and large discharges	x	x	x
Responsibilities and authority of the Qualified Individual (QI) as described in the Plan and Company response organization	x	x	x
The organization structure that will be used to manage the response actions including: • Command and control • Public information • Safety • Liaison with government agencies • Spill response operations • Planning • Logistics support • Finance	x	x	x
The responsibilities and duties of each Incident Management Team (IMT) within the organization structure	x	x	
The drill and exercise program to meet federal and state regulations as required under Oil Pollution Act of 1990 (OPA 90)	x	x	x
The role of the QI in the post discharge review of the Plan to evaluate and validate its effectiveness	x		
The Area Contingency Plan (ACP) for the area in which the facility is located	x	x	x
The National Contingency Plan (NCP)	x	x	x
Roles and responsibilities of federal and state agencies in pollution response	x	x	x

PREP TRAINING PROGRAM MATRIX

TRAINING ELEMENT	QUALIFIED INDIVIDUAL (QI)	SPILL MANAGEMENT TEAM (IMT)	FACILITY PERSONNEL
Available response resources identified in the Plan	x	x	
Contracting and ordering procedures to acquire OSRO resources identified in the Plan	x	x	
OSHA requirements for worker health and safety (29 CFR 1910.120)	x	x	x
Incident Command System/Unified Command System	x	x	
Public affairs	x	x	
Crisis management	x	x	
Procedures for obtaining approval for dispersant use or in-situ burning of the spill	x		
Oil spill trajectory analyses	x		
Sensitive biological areas	x	x	
This training procedure as described in the Plan for members of the IMT		x	
Procedures for the post discharge review of the Plan to evaluate and validate its effectiveness		x	
Basic information on spill operations and oil spill cleanup technology including: · Oil containment · Oil recovery methods and devices · Equipment limitations and uses · Shoreline cleanup and protection · Spill trajectory analysis · Use of dispersants, in-situ burning, bioremediation · Waste storage and disposal considerations		x	
Hazard recognition and evaluation		x	
Site safety and security procedures		x	
Personnel management, as applicable to designated job responsibilities		x	
Procedures for directing the deployment and use of spill response equipment, as applicable to designated job responsibilities		x	x
Specific procedures to shut down effected operations			x
Procedures to follow in the event of discharge, potential discharge, or emergency involving the following equipment or scenarios: · Tank overfill · Tank rupture · Piping or pipeline rupture · Piping or pipeline leak, both under pressure or not under pressure, if applicable · Explosion or fire · Equipment failure · Failure of secondary containment system			x
QI's name and how to contact him or her			x

PERSONNEL RESPONSE TRAINING LOG

Training records are maintained at the Company office.

Name / position	work address	emergency phone number	response time	responsibility	response training
Tom Hedegaard, Area Operations Manager	14689 Brigham Drive, Williston, ND 58801	Office: 701-875-3501 Mobile: 701-339-0251	<1 hour	Incident Commander/ Emergency Response Team	SPCC Spill Training/ Annual Response and Tabletop Drills
Dusty Grosulak, EHS Manager	14689 Brigham Drive, Williston, ND 58801	Office: 701-875-3501 Mobile: 701-260-1138	<1 hour	Environmental Health and Safety/ Emergency Response Team	SPCC Spill Training/ Annual Response and Tabletop Drills

APPENDIX

B *CONTRACTOR RESPONSE EQUIPMENT*

MASTER SERVICE AGREEMENT

THIS MASTER SERVICE AGREEMENT (this "Agreement") is made and entered into this **3rd** day of **August, 2021**, by and between **GRAYSON MILL OPERATING, LLC**, a Delaware limited liability company ("Company") with its principal office located at 1160 Dairy Ashford, Suite 140, Houston, Texas 77079 and **SWAT Consulting Inc.**, a Michigan Corporation ("Contractor"), with its principal office located at 12 Sunrise Estates Rd, Watford City, ND 58854 Company and Contractor are each sometimes referred to herein individually as a "Party" and collectively as the "Parties."

WHEREAS, Company is engaged in certain oil and gas operations and activities and from time to time desires goods and services (the "Services") in connection therewith;

WHEREAS, Contractor desires to provide Company and/or its Affiliates (as defined below) with certain Services for and in connection with Company's operations; and

WHEREAS, this Agreement will govern all Services provided by Contractor to Company.

NOW THEREFORE, in consideration of the terms and conditions contained in this Agreement, and for other good and valuable consideration, the receipt and sufficiency of which are acknowledged, the Parties agree as follows:

1. Definitions.

In addition to terms that are defined elsewhere in this Agreement, the following terms shall have the following meaning when used in this Agreement:

a. "Affiliate" or "Affiliates" of a Party shall mean a current or future person or entity directly or indirectly controlling, controlled by, or under common control with such Party. "Control" (including the terms "controlling," "controlled by" and "under common control with") shall mean the possession directly or indirectly, through one or more intermediaries, of the following: (i) in the case of a corporation, the power or authority to vote or dispose of 50% or more of the outstanding voting securities entitled to elect directors or individuals who perform similar management functions thereof; and (ii) in the case of any other entity, the power or authority to cause the direction of the management and policies of such entity, whether through the ownership of voting securities, by contract or otherwise.

b. "Claims" shall mean all claims, losses, damages, suits, liabilities, judgments, causes of action, fines, penalties, interest and expenses (including reasonable attorneys' fees), whether in law or equity and whether in tort or otherwise.

c. "Company Group" shall mean the following entities and persons individually and collectively: Company and its Affiliates, its and their joint venturers, partners, joint owners, co-owners, co-lessees, members, managers, lessor(s), and contractors and subcontractors of every tier (excluding Contractor and its Subcontractors) and the respective Affiliates, officers, directors, employees, agents, and representatives of all those entities.

d. "Contractor Group" shall mean the following entities and persons individually and collectively: Contractor and its Affiliates, its Subcontractors and their Affiliates, and the officers, directors, employees, agents, and representatives of all those entities.

e. "Group" shall mean, individually or collectively, Company Group or Contractor Group as the context may require, and as may be applicable.

f. "Subcontractor" shall mean any subcontractor of any tier of Contractor hired by Contractor to perform any part of the Services to be performed by Contractor hereunder.

g. "Worksite" shall mean the well site at which Services are performed or, if no Services are being performed on or in connection with a well, the site to which Contractor has been requested to deliver equipment or materials.

2. Services. It is contemplated that Company may, from time to time, request Contractor to perform certain Services for Company. This Agreement shall constitute the entire agreement with reference to the subject matter and shall govern and control all Services provided by Contractor to Company (including provision of equipment or materials). This Agreement, however, does not obligate Company to request Services from Contractor, nor does it obligate Contractor to accept such requests, but together with any mutually agreed applicable work order, it shall control and govern all Services accepted by Contractor and shall define the rights and obligations of the Parties during the term thereof. Terms and conditions contained in any acknowledgment, work order, change order, purchase order, or other document or instruction whether written or oral, that are different from or in addition to the terms and conditions of this Agreement shall not be binding on Company, whether or not they would materially alter this Agreement, and whether or not Company objects thereto, unless expressly made the subject of a written amendment to this Agreement. The terms and conditions of this Agreement shall not be altered, amended, supplemented or canceled without the Parties' prior written approval and an express written amendment. No waiver by either Party of any of the terms, provisions, or conditions of this Agreement shall be effective unless said waiver shall be in writing and signed by an authorized representative of such Party.

3. Payments.

a. General: Company shall pay Contractor the rates, expenses and prices in accordance with the provisions of the applicable work order, change order or other statement of services and payment that is agreed upon in writing between Company and Contractor; provided Contractor shall have satisfied Company that there are no liens or lienable claims on or against Company or its property by reason of the performance of the Services hereunder as further described in Section 6. Company shall pay Contractor for the Service(s) performed pursuant to this Agreement within sixty (60) days of Company's receipt from Contractor of an invoice, provided that each invoice paid within thirty (30) days shall be discounted by 1% and each invoice paid within fifteen (15) days shall be discounted by 2%. Each invoice shall provide the invoice total for payment within sixty (60) days, thirty (30) days and fifteen (15) days and shall be accompanied by supporting documents in form and substance as may be required by Company. Company shall have the right to withhold or pay any disputed amounts in its sole discretion. No payment of any amount, disputed or undisputed shall act as a waiver of any rights of Company, including the right to later contest such payments and obtain reimbursement. Notwithstanding anything to the contrary in this

Agreement, Contractor must invoice Company within thirty (30) days after completion (or delivery) of the applicable Services. Company shall not be liable for any invoices that are not submitted by Contractor within ninety (90) days of the applicable Services.

b. Application of Payments: Company shall have the right (but not the duty) to withhold any monies payable by it hereunder and apply the same to the payment of any obligations of Contractor to Company or any of its Affiliates, howsoever arising.

4. Records.

a. Contractor shall maintain complete and accurate records of all costs chargeable to Company under this Agreement and shall retain records of labor, materials and service provided hereunder, and invoices and other supporting documents pertaining to the Services for a period of not less than three (3) years following the year in which the final invoice for the Services was sent to Company ("Retention Period"). Throughout the term of this Agreement, and for the Retention Period or longer if required by law, authorized Company representatives shall be afforded access to: (i) Contractor's offices during normal business hours after reasonable notice to inspect and audit all such records of Contractor; provided, however, Company shall not have the right to examine trade secrets, proprietary information, confidential data or profit margins; and (ii) interview any of Contractor's employees involved in providing the Services. Upon completion of any such audit, Company shall pay Contractor any compensation due hereunder as shown by the audit. Any amount by which total payment by Company to Contractor exceeds the amount due Contractor as shown by the audit shall be returned to Company.

b. Contractor shall require all of its Subcontractors, agents, and suppliers ("payees") to comply with this Section 4 and shall include these requirements in any contractual agreement between Contractor and payees.

5. Taxes, Licenses, and Fees. Unless otherwise provided herein or required by applicable law, Contractor assumes exclusive liability for, and shall pay before delinquency, all excise and other taxes, licenses, fees, charges, or contributions of any kind now or hereafter levied, assessed, or imposed by any governmental agency or authority on, or with respect to, or measured by the Items sold or material or Services furnished incident to the performance of this Agreement including taxes, levies, fees, or withholding for the wages, salaries, or other remuneration paid to persons employed in connection with the performance of this Agreement, including social security, retirement, pension, unemployment, and compensation contributions. Contractor agrees to require the aforementioned payments and compliance with the provisions of this Section 5 from all its Subcontractors and agrees to be liable to Company for any breach of such agreement by any Subcontractor. Contractor shall issue detailed invoices to show taxable and non-taxable items. At its election, Company is authorized to deduct all sums paid by Company for such taxes and governmental charges from such amounts as may be or become due to Contractor hereunder.

6. Liens. Contractor shall promptly pay any and all amounts owed to its Subcontractors or third parties incident to Contractor's provision of Services under this Agreement, so that no liens shall ever attach, or be permitted to attach, to Company's property, whether real or personal. Contractor hereby indemnifies Company for any and all such claims and liens, and Company shall be entitled to withhold final payment and satisfaction until Contractor shall furnish satisfactory evidence of the full payment of

any such indebtedness. Notwithstanding anything to the contrary in this Agreement, Contractor shall retain any and all rights to collect any undisputed amounts owed Contractor by Company, including the right to file, perfect or continue a lien for Services performed by Contractor under this Agreement.

7. Independent Contractor. This Agreement does not create, and Company and Contractor stipulate and agree that this Agreement shall not be construed to create any agency relationship or employer/employee relationship by or between any of the agents and/or employees of Contractor and the agents and/or employees of Company. To the contrary, it is expressly understood that Contractor, in the performance of the Services herein contemplated, is an independent contractor for all purposes, with the authority to control, direct, manage and supervise in its sole discretion the performance and details of the Services herein provided. Company is interested only in the results obtained. Labor and materials shall comply with the specifications set forth herein or in any purchase, work or change order, or any other agreement in writing between Company and Contractor. Contractor specifically agrees that all persons employed by Contractor in performing Services covered by this Agreement, or by its Subcontractors, are not employees of Company for any purpose whatsoever. Contractor will be solely responsible for the payment of federal income tax, social security tax, worker's compensation insurance, unemployment tax and other similar payments, if any and Company will not withhold any amounts for such purposes from payments made to Contractor. As an independent contractor, neither Contractor or its Subcontractors, nor anyone employed by Contractor or its Subcontractors, will be eligible for the benefits provided to regular employees of Company, including, health and disability insurance.

8. Warranty.

a. Contractor warrants that it shall perform the Services in a good and workmanlike manner in accordance with good industry practices. Contractor further warrants that its personnel are properly trained to perform their jobs safely and efficiently. Contractor warrants that equipment sold and the Services provided shall be free of defects in material and workmanship for a period of one (1) year after the date such equipment is delivered or Services are completed irrespective of whether the equipment or Services are attributable to Contractor or any of its Subcontractors or vendors. Contractor expressly represents that it has adequate equipment, in good and safe working order, and has fully trained and experienced personnel, capable of safely and efficiently operating said equipment and performing the Services in accordance with Company's specifications and technical standards in a safe, proper, and workmanlike manner. Nothing contained herein shall be construed to exclude or limit any warranties implied by law.

b. Contractor agrees to correct, at its own cost, all defects or other deficiencies in the Services, including, costs of repair, removal, reinstallation, new material, labor and equipment, attributable to the negligence of Contractor or any of its Subcontractors or vendors or failure by Contractor to comply with any obligation expressed or implied herein ("Re-work"). In the event of any delay by Contractor to commence Re-work and such delay would cause monetary damages to Company, Company may, at its sole option, immediately proceed to perform such Re-work itself or with others pursuant to Section 8.c.

c. If Contractor fails to perform any Re-work as required by Company, Company shall be entitled to conduct such work itself or through other contractors or subcontractors and recover from Contractor the total cost to Company therefor or deduct the same from any monies due or which become due to Contractor. If no sums or if insufficient sums are available for full set-off by Company, then Contractor, upon receipt of

Company's written notice of Contractor's obligations hereunder, shall promptly remit to Company all sums due and owing pursuant to the terms of this Section 8.

d. Contractor agrees, on behalf of its Affiliates, that this Agreement shall be binding on any Affiliate if Company requests such Affiliate to perform any Services and such Affiliate agrees, and Contractor agrees to be jointly and severally liable with such Affiliate for the performance of such Services. In addition, if Contractor hires any Subcontractors, Contractor agrees that it will be responsible for proper performance of this Agreement by such Subcontractors.

9. Indemnity.

a. Contractor shall release, protect, defend, indemnify and hold Company Group harmless from and against any and all Claims arising out of any personal or bodily injury to, or illness or death of, or property loss or damage to any property of, Contractor Group without limit and without regard to the cause or causes thereof or the negligence or fault (active or passive) of any person or entity (including the sole, joint, or concurrent negligence, strict liability or other legal fault of Company Group except to the extent resulting from the gross negligence or willful misconduct of the person or entity seeking indemnity), or any defect of premises (whether or not pre-existing), arising out of, resulting from, or relating to, either directly or indirectly, the Services performed or provided by Contractor. In the event Contractor fails to defend and protect Company Group pursuant to this Agreement, then Company Group shall be entitled to defend and protect its interests and Contractor shall be liable for all reasonable attorneys' fees, costs, judgments and settlements, including attorneys' fees incurred in enforcing this Agreement.

b. Company shall release, protect, defend, indemnify and hold Contractor harmless from and against all Claims arising out of any personal or bodily injury to, or illness or death of employees of Company, or property loss or damage to any property of, Company at the Worksite, without limit and without regard to the cause thereof or the negligence or fault (active or passive) of any person or entity (including the sole, joint or concurrent negligence, strict liability, or other legal fault of Contractor or its Subcontractors except to the extent resulting from (i) the gross negligence or willful misconduct of the person or entity seeking indemnity or (ii) a breach by Contractor Group of Sections 8 or 18), or any defect of premises (whether or not pre-existing), arising out of, resulting from, or relating to, either directly or indirectly, the Services performed or provided by Contractor.

c. The indemnity obligations in this Agreement shall survive the termination of this Agreement or any request for Services.

d. Contractor or Company as the case may be shall promptly give to the other Party notice in writing of any Claim made or proceedings commenced for which Contractor or Company claims to be entitled to indemnification under this Agreement. Such notice shall state with as much detail as is reasonably practicable the facts and circumstances giving rise to the Claim and shall be given promptly after the Party seeking indemnity hereunder (referred to in this Section 9.d as the "Indemnitee") becomes aware of such Claim or proceeding. The Party against whom such indemnity is sought (referred to in this Section 9.d as the "Indemnitor") shall confer with the Indemnitee concerning the defense of any such claim or proceedings but, subject to the remainder

of this Section 9.d, the Indemnitor or its insurer shall retain control of the conduct of such defense, including the selection and management of counsel. Notwithstanding the foregoing, however, neither Party shall effect settlement of or compromise any such Claim or proceedings without having obtained the prior written consent of the other Party, but if Indemnitee does not consent to a settlement which the Indemnitor is willing to accept, then Indemnitor's liability shall be limited to the amount for which the lawsuit could have been settled. The Indemnitee may, upon written notice to the Indemnitor and at the Indemnitee's sole cost and expense, select its own counsel to participate in and be present for the defense of any such Claim or proceeding, provided such counsel shall not take any action in the course of such Claim or proceeding to prejudice the defense of such Claim or proceeding.

e. Contractor shall assume responsibility for the control and removal of, and shall protect, defend, indemnify, and hold Company Group harmless from and against any and all Claims arising from pollution or contamination: (i) which originates or emanates from spills of fuels, lubricants, motor oils, pipe dope, paint, solvents, ballast, bilge and garbage, debris or any other substances, in its possession or control or originating from Contractor Group's equipment, materials or transport; or (ii) which otherwise results from performance of the Services hereunder by Contractor and is caused by the negligence (whether sole, joint, or concurrent) of Contractor Group. Notwithstanding the foregoing, the assumptions of liability by Contractor under this Section 9.e. apply only to the cost of, and liability for, control and removal of such pollution and contamination and do not apply to loss or damage to property or injuries to or death of persons caused by such pollution or contamination and shall, in no event, alter, lessen or affect the liabilities or responsibilities of Contractor specified elsewhere in this Agreement, and Contractor agrees to assume responsibility for and to protect, defend, indemnify, and hold Company Group harmless from and against any Claims resulting from pollution or contamination caused by the negligence (whether sole, joint, or concurrent) or other fault of Contractor Group.

f. Contractor and Company agree to support their mutual indemnity obligations in this Section 9 with liability insurance or self-insurance with minimum limits of Six Million U. S. Dollars (US $6,000,000). Except as otherwise mandated by applicable law, the indemnity obligations of Contractor and Company as set out above shall be without monetary limit. Moreover, the indemnity obligations of Contractor as set out in this Section 9 are independent of any insurance requirements as set out in Section 10 and Exhibit A, and such indemnity obligations shall not be lessened or extinguished by reason of Contractor's failure to obtain the required insurance coverage or by any defenses asserted by Contractor's insurers.

10. Insurance.

a. At all times while performing Services hereunder, Contractor (and any Subcontractor) shall carry and maintain, at its sole expense, with insurers, having an A.M. Best Rating of "A- VII" or higher or alternatively shall be issued by Underwriter at Lloyds of London, the minimum insurance coverage as set forth on Exhibit A attached hereto (and by this reference made a part hereof). Contractor agrees to provide Company with certificates (in form and substance acceptable to Company) evidencing that said coverages are in force and effect. Such policies shall be endorsed to provide Company thirty (30) days written notice of any cancellation and if any of such policies are so cancelled or the available insurance policy limits are potentially eroded below the minimum insurance requirements as a result of a significant,

related or unrelated incident or claim, upon receipt of such notice of cancellation or upon the occurrence of such incident or claim, Company shall have the right to immediately terminate this Agreement.

b. All insurance policies of Contractor, whether or not required by this Agreement, shall, as respects liabilities assumed by Contractor, waive subrogation against Company Group, name Company Group as additional insured (except for Workers Compensation coverage) on a broad form basis with such additional insured coverage including coverage for the sole or concurrent negligence of the additional insured and not being restricted to (a) "ongoing operations," (b) coverage for vicarious liability, or (c) circumstances in which the named insured is partially negligent, include a cross liability clause, and be primary as respects any other coverage in favor of any member of Company Group.

11. Termination.

a. Either Party shall have the right to terminate this Agreement at any time by giving ten (10) days written notice to the other Party. Upon termination, any Services previously ordered and accepted by Contractor shall continue to be performed until completed or terminated in the sole discretion of Company. Upon termination of Services hereunder, the Parties shall not be relieved of any obligations that have accrued hereunder, and Company shall pay Contractor for all Services properly performed prior to such termination.

b. Company may terminate any request for Services at any time, in its sole discretion, without penalty. In such event, Contractor shall be paid for Services properly performed prior to such termination.

c. If Contractor shall be in default of any of the provisions of this Agreement at the time of notice of termination, Contractor shall be liable to Company for all costs incurred by Company in completing or procuring the completion of performance of the Services which are in excess of the amounts that would otherwise have been owed by Company to Contractor for proper completion of the Services.

12. Insolvency/Default.

a. If any Party hereto becomes insolvent or admits in writing its inability to pay its debts as they mature, or is adjudicated as bankrupt or insolvent; or it applies for, consents to, or acquiesces in the appointment of a trustee or receiver for such party or any property thereof, or makes a general assignment for the benefit of creditors; or, in the absence of such application, consent or acquiescence, a trustee or receiver is appointed for such party, for all or any part of its property, and is not discharged within sixty (60) days, or any bankruptcy, reorganization, debt arrangement, or other proceeding under any bankruptcy or insolvency law, or any dissolution or liquidation proceeding instituted by or against such Party is consented to or acquiesced in by such Party (hereinafter "Insolvent Party") or remains for sixty (60) days undismissed, this Agreement shall, at the election of the other Party, terminate as to such Insolvent Party.

b. If Contractor breaches any material provision hereof and Contractor fails to commence to correct such breach within ten (10) days of written notice thereof by Company to Contractor and Contractor fails to diligently proceed to fully correct such breach, Company shall have the right (in addition to any other rights it may have hereunder or by law) to terminate this Agreement, whereupon: (i) Company shall be relieved of all further obligations hereunder except for payment to Contractor of the amounts owed for Services properly performed prior to such termination, less any damages incurred by

Company as a result of such default; and (ii) Company may, at its option, complete performance of the Services in which event title to any product(s) of the Contractor's Services, whether completed or partially completed, as well as all materials, prepared, procured or set aside by Contractor for use in the Services, shall, at Company's option, vest in Company and Company may upon reasonable notice to Contractor enter Contractor's premises and remove the same therefrom. Contractor shall be liable to Company for all costs incurred by Company in completing such performance in excess of the amount that would otherwise have been owed by Company to Contractor for proper completion of the Services, whether or not Company exercises its option under this Section 12.b.

13. Applicable Law. This Agreement, and the rights of the Parties hereunder shall be construed in accordance with the laws of the State of Texas and all rights and remedies shall be governed by such laws without regard to principles of conflict of laws.

14. Compliance With Laws.

a. Contractor expressly guarantees that for all tools, materials, and equipment to be furnished and used, and for all Services to be performed under the terms of this Agreement and in every activity connected therewith, Contractor shall comply fully with all applicable Federal, State, and Local laws, ordinances, rules, and regulations, and shall furnish Company evidence of such compliance as Company may require at any time. Contractor shall also obtain all permits, licenses, and approvals necessary for the performance of this Agreement. If Services to be rendered under this Agreement are licensed by the State in which such Services are to be performed, Contractor must obtain and maintain the State license.

b. Contractor shall give all required notices and otherwise fully comply with all laws, statutes, regulations, ordinances, rules, standards, orders, or determinations of any Local, State, or Federal governmental authority (including related determinations, interpretations, orders, or opinions by any judicial or administrative authority) which has jurisdiction over Contractor, the Services, or the Worksite pertaining to protection or conservation of the air, land, water, human health, industrial hygiene, or other aspects of the environment, including, the following statutes, as supplemented and amended at the time Contractor starts its performance of the Services or performs a work or change order: the Clean Air Act, the Comprehensive Environmental Response, Compensation and Liability Act, the Federal Water Pollution Control Act, the Solid Waste Disposal Act, the Resources Conservation and Recovery Act, the Safe Drinking Water Act, the Toxic Substances Control Act, the Hazardous Materials Transportation Act, the Federal Oil Pollution Act of 1990 and comparable state and local statutes and implementing rules or regulations.

15. Conspicuous and Fair Notice.

a. Both Parties agree that this statement and the indemnity provisions throughout this Agreement comply with the requirement known as the "express negligence rule," to expressly state in a conspicuous manner to afford fair and adequate notice that this Agreement has provisions requiring one Party (the indemnitor) to be responsible for the negligence, strict liability, or other fault of another Party (the indemnitee) or any member of such Party's Group.

b. Both Parties represent to each other: (i) that they have consulted an attorney concerning this Agreement or, if they have not consulted an attorney, that they were provided the opportunity and had the ability to so consult, but made an informed decision not to do so; and (ii) that they fully understand their rights and obligations under this Agreement.

16. Patent Infringement. In addition to all other indemnity provisions contained in this Agreement or in any other document entered into by the Parties in connection with this Agreement, Contractor agrees to indemnify and hold Company harmless from any and all actual or alleged Claims by reason of any patent infringement or claim of infringement of patent, copyright, or other proprietary right of a third party arising out of any Services performed by Contractor, or any of its Subcontractors hereunder, or arising out of the use, manufacture, or sale of any article, tool, equipment, method, or process ("Item") for any purpose for which it is intended, when said Item was supplied by or used by Contractor or its Subcontractors.

17. Access. Prior to entry upon Company's premises for provision of the Services, Contractor shall give reasonable notice and obtain prior approval before accessing Company's premises.

18. Safety.

a. Contractor shall perform all Services in such a manner as to cause a minimum of interference with Company's operations and shall take all steps necessary to maintain adequate protection of persons and property during Contractor's performance hereunder. Contractor shall perform its duties in a safe manner and shall have in effect, and will enforce, a set of safety and loss prevention standards, which comply with all laws. Prior to commencement of each job, Contractor shall inspect the premises and facilities on which said Services are to be performed in order to be apprised of any and all risk incident thereto. In connection with Contractor's performance of the Services, Contractor undertakes and agrees to act consistently with, and adhere to, Company's EHS requirements, and any updated or amended version of Company's EHS requirements. The Company's EHS requirements are the minimum requirements, and are in addition to all other federal, state, county and municipal laws, rules and regulations applicable to Contractor or its Subcontractors, the Services, and any Items or personnel used in the performance of the Services. Contractor shall ensure that all Subcontractors and all of its and their personnel are made aware of Company's EHS requirements.

b. Upon completion of the Services, Contractor shall leave the premises clean and free of all waste materials and rubbish. Contractor agrees to limit smoking and the use of heat and/or fire implements, including welding and torch cutting tools, to such locations and occasions as are specifically authorized in writing by Company.

19. Accident Reports. All accidents must be reported. In the event an accident involving the property, equipment, or personnel of Contractor, Company, or any third party occurs on Company's premises, or which arises out of, results from, or is in any way connected with the Services or Contractor's presence upon Company's premises or other activities pursuant to this Agreement, Contractor shall immediately report such accident to Company. In addition, a written report of such accident must be prepared by Contractor and delivered to Company within twenty-four (24) hours of each such accident. This report should contain factual information only and should not contain opinion, speculation, or supposition as to fault, liability, or prevention. Contractor shall also provide Company with a copy of

each and every non-privileged report of each such accident, including statements or other investigative material or documents which Contractor completes or is required to submit, or does submit, to any entity other than Company, including any governmental agency or body, Contractor's insurers, or others.

20. Alcohol and Drug Abuse Polices.

a. General. Contractor acknowledges that it has been advised and agrees to advise all its employees, Subcontractors, agents, and business invitees of any Subcontractor, agent, or business invitee, of the following safety regulations or policies concerning alcoholic beverages and controlled substances:

i. Possession or consumption of alcoholic beverages and/or controlled substances is expressly prohibited at any work sites or on Company premises. Use of alcoholic beverages and/or controlled substances is cause of immediate dismissal from any work site or on Company premises;

ii. Entry onto Company premises constitutes consent to an inspection of the person (including, the taking of a urine sample) and personal effects when entering or leaving Company premises; and

iii. Any person who is found in violation of the policy, or has a positive drug test, or who refuses to permit an inspection may be removed and barred from Company premises, at the sole discretion of Company.

b. DOT Program. If any Services to be rendered under this Agreement are regulated by the U.S. Department of Transportation ("DOT"), Contractor acknowledges and agrees that at all times while performing Services under this Agreement, it (i) has and shall maintain, and shall ensure that its Subcontractors have and maintain, a drug and alcohol testing program compliant with the applicable DOT regulations and (ii) shall furnish Company evidence of such compliance as Company may require at any time. Failure by Contractor or any of its Subcontractors to have, maintain and/or comply with a required DOT compliant program shall constitute a material breach of Contractor's obligations under this Agreement. **Contractor shall release, protect, defend, indemnify and hold Company Group harmless from and against any and all Claims arising out of any violations by Contractor Group of the drug and alcohol requirements contained herein.** Upon, execution of this Agreement, any such DOT-regulated Contractor shall contemporaneously provide Company an Acknowledgment Agreement in the form of Exhibit B attached hereto (and by this reference made a part hereof) signed by a duly authorized representative of Contractor.

21. Nondiscrimination.

a. Contractor will not discriminate against any employee or applicant for employment because of race, creed, color, or national origin. Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated fairly during employment, without regard to their race, creed, color, or national origin. Such affirmative action shall apply to, but not be limited to the following: employment, upgrading, demotion, transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship. Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.

b. Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, creed, color, or national origin.

c. Contractor shall comply, to the extent applicable, with the following parts of the Code of Federal Regulations: Title 48:22:804 Affirmative Action Programs; 52:219-9 Small Business and Small Disadvantaged Business Subcontracting Plan; 52:220-4 Labor Surplus Area Concerns Subcontracting Program; 52:222-4 Contractor Work Hours and Safety Standards Act – Overtime Compensation; 52:222-21 Certification of Non-segregated Facilities; 52:222-26 Equal Opportunity; 42:222-35 Affirmative Action for Special Disabled and Vietnam Era Veterans; 52:222-36 Affirmative Action for Handicapped Workers; 52:223-2 Clean Air and Water; 52:223-3 Hazardous Material Identification and Material Safety Data; and the Immigration Reform and Control Act of 1986 and all regulations thereunder.

22. Force Majeure. Neither Party shall be liable for any delay occasioned by, or caused as a result of laws, orders, ordinances, rules, or regulations of any governmental or public authorities having or asserting jurisdiction over the premises of either or both Parties, or by strikes, explosion, war, acts of God, fire, labor disputes, or other similar causes, in each case that were beyond the reasonable control of such Party when such delay could not have been overcome by the exercise of reasonable efforts by the delayed Party (each, an "Event of Force Majeure"). Any delay due to an Event of Force Majeure (other than failure to provide defense, indemnity, or insurance as required by this Agreement) shall not be deemed to be a breach of or failure to perform this Agreement, or any part hereof; provided, however, the Party hereunder that is rendered unable, wholly or in part, to carry out its obligations under this Agreement due to an Event of Force Majeure shall give notice and full particulars of the cause of said Event of Force Majeure in writing to the other Party promptly after the occurrence of the cause relied upon, and the cause of said delay so far as possible shall be remedied with all reasonable dispatch.

23. Successors and Assigns; Assignment. This Agreement shall not be assignable by Contractor, nor shall Contractor subcontract any obligations hereunder, without the prior written consent of Company. Company shall have the right to assign this Agreement to any Affiliate or co-lessee without Contractor's consent. In addition, Company may assign this Agreement to any other entity with the prior written consent of Contractor, which consent shall not be unreasonably withheld, conditioned or delayed. This Agreement shall inure to the benefit of and be binding upon the Parties and the successors and permitted assigns of the Parties.

24. Confidentiality and Intellectual Property.

a. Any and all information, including all drawings, designs, images, specifications and technical data ("Confidential Information") furnished by Company to Contractor or Contractor's Subcontractors, agents, employees, principals, and consultants in the performance of duties under this Agreement shall be considered confidential and shall not be divulged to any person, except to Contractor's authorized representatives. Company retains all title to Company's Confidential Information and Company's Confidential Information shall be used by Contractor only in connection with the performance of the Services, and shall be returned upon completion or termination of the Services or any work order (and/or deleted if stored electronically), along with all copies, extracts, syntheses, compilations or reproductions thereof, provided copies or reproductions shall be made only with Company's prior written consent.

b. Contractor may neither quote nor supply parts made with Company's tools or materials or made to Company's patterns, drawings, specifications, or designs to any third party without Company's prior written consent. Any inventions, patents, copyrights, design rights and other intellectual property rights arising from the execution of any Services by Contractor or its Subcontractors (whether or not paid for by Contractor) are the property of Company, and Contractor must not disclose the same to any third person. Contractor must do all things and execute any documents necessary to assign such intellectual property rights to Company.

c. Contractor shall protect all Confidential Information, intellectual property rights, copyrights and other proprietary rights (including know-how) supplied by Company in connection with the Services which are in the possession of its direct or indirect suppliers, Subcontractors and/or agents, including, taking all necessary steps and actions to ensure that any such supplier, Subcontractor and/or agent complies with all confidentiality provisions herein. Furthermore, Contractor shall notify Company immediately on becoming aware of a breach or a potential breach and shall inform Company of what actions it is taking to prevent or remedy such breach or potential breach to ensure risks to Company are mitigated. Company reserves the right to take its own action against any such supplier, Subcontractor, and/or agent and to direct Contractor to take certain actions.

d. All materials, including tools, special dies and patterns, furnished or specifically paid for by the Company, shall be the property of Company, shall be returned to Company when no longer required hereunder, shall be utilized only to complete the Services, and shall be segregated and clearly identified as property of Company. Contractor assumes all risk and liability for loss or damage thereto, except for normal wear, and agrees to permit inspection and supply detailed statements of inventory upon request of Company.

25. Notices. All notices to be given with respect to this Agreement and applicable work orders hereunder shall be given to Company and Contractor at:

COMPANY:

All Notices
Grayson Mill Operating, LLC
ADDRESS: 1160 Dairy Ashford, Suite 140, Houston, Texas 77079
ATTN: Supply Chain
matkinson@gmellc.com

CONTRACTOR:

SWAT Consulting Inc.
ADDRESS: 12 Sunrise Estates Rd, Watford City, ND 58854
PHONE: 1-866-610-7928
FAX: N/A
EMAIL: dsahara@swat-ab.ca

All notices or other communications (excluding payments by Company of invoices) that may be given hereunder shall be in writing and shall be delivered either: (a) by facsimile with sender confirmation of receipt; or (b) by U.S. mail, certified, return receipt requested, postage prepaid, and addressed as provided in this Article 25 or as otherwise provided by the receiving Party upon proper notice. Notices delivered by facsimile shall be effective immediately upon transmittal to the other Party, provided that, sender confirmation of receipt is preserved showing the date and time of transmission; and notices delivered by mail shall be effective upon their receipt or refusal by the Party to whom they are addressed.

26. Services Requested by Affiliates of Company. In the event that any Affiliate of Company requests Contractor or any of its Affiliates to perform any Services (including provision of any Items), and Contractor accepts such request, then Contractor agrees that the obligations of Contractor under this Agreement, including all protections afforded Company Group, shall apply to any such Services. In addition, Contractor agrees that such other Company Affiliate may, if it wishes, adopt this Agreement, as if this Agreement had been entered into between said other Company Affiliate and Contractor, in which event, all provisions of this Agreement shall be applicable to such Services except that (a) said Affiliate shall be substituted throughout this Agreement and the attached Exhibits as "Company"; and (b) Grayson Mill Operating, LLC shall be included in the definition of "Company Group" as an Affiliate of Company.

27. Consequential Damages. In addition to all other indemnity provisions contained in this Agreement or in any other document entered into by the Parties in connection with this Agreement, except for liquidated damages, if any, expressly agreed to by the Parties in this Agreement, each Party (as the "Releasing Party") hereby releases the other Party and its Group from any claim by the Releasing Party for punitive damages and from any claim by the Releasing Party for the Releasing Party's own indirect, incidental or consequential damages, including, facility downtime, loss of profit, loss of or inability to use property and equipment or business interruption, without regard to the cause or causes thereof or the negligence or fault (active or passive) of any person or entity (including the sole, joint, or concurrent negligence, strict liability or other legal fault of the released Party or any member of its Group (except to the extent resulting from the gross negligence or willful misconduct of the person or entity seeking release)), or any defect of premises (whether or not pre-existing), arising out of, resulting from, or relating to, either directly or indirectly, the Services or this Agreement.

28. Miscellaneous.

a. Severability. In the event one or more of the provisions contained in this Agreement shall be held, for any reason, to be invalid, void, illegal, contrary to law and/or unenforceable in any respect, this Agreement shall be deemed to be amended to partially or completely modify such provision or portion thereof to the extent necessary to make it enforceable. If necessary, this Agreement shall be deemed to be amended to delete the unenforceable provision or portion thereof, in which event such invalidity, voidness, illegality or unenforceability shall not affect the remaining provisions hereof, and this Agreement shall remain unaffected and shall be construed as if such invalid, void, illegal or unenforceable provision never had been contained herein.

b. Entirety/Conflict. This Agreement, together with the attached Exhibits, constitutes the entire agreement of the Parties with respect to the subject matter herein and supersedes any prior or contemporaneous agreements, understandings or representations relating thereto. There are no agreements, understandings, conditions or representations, express or implied, with reference to the

subject hereof that are not merged herein or superseded hereby. In the event of a conflict between this Agreement and any subsequent writing between the Parties, including any purchase order, requisition, or other agreement, this Agreement shall control except as respects a specific amendment to this Agreement meeting the requirements of Section 2. In the event of a conflict between the provisions of this Agreement and one of the attached Exhibits or any work request, the provisions of this Agreement shall control.

c. No Partnership. No partnership, commercial partnership or joint venture is intended or shall result or be construed to exist as a result of execution or performance of any of the obligations or exercise or any rights or remedies by the Parties of or pursuant to this Agreement, and no act by either Party, or the officers, agents or employees of either Party, shall create such a relationship, nor shall any of the provisions hereof be construed or implied as creating such relationship for any purpose whatsoever. Neither shall the employees, agents or contractors of one Party hereto in any way be the agents, servants, employees or contractors of any other Party for any purpose whatsoever.

d. Third Party Beneficiary. Except as set forth in Sections 9 and 10 and any other provision in this Agreement extending a benefit to one or the other Party's Group, nothing in this Agreement shall be construed to give any rights or benefits in the Agreement to anyone other than Company and Contractor, and all duties and responsibilities undertaken pursuant to this Agreement will be for the sole and exclusive benefit of Company and Contractor and not for the benefit of any other person.

e. Waiver. Company's right to require strict performance of Contractor's obligations shall not be affected in any way by any previous waiver, forbearance, or course of dealing. Any waiver in one instance shall not be effective in any other instances.

f. Headings; References. Any headings or numbering of sections or paragraphs of this Agreement are for convenience only and all terms and conditions of this Agreement are intended to take precedence over any such heading or numbering. All references to Sections refer to Sections in this Agreement, and all references to Exhibits refer to Exhibits made a part of this Agreement. When the term "herein," "hereof" or words of similar import are used in this Agreement, reference is made to the entire Agreement and not to any particular Section or subparagraph of a Section. The word "including" shall mean including without limitation.

g. Counterparts. This Agreement may be executed in multiple counterparts, each of which shall be considered an original once Company and Contractor have executed a counterpart of this Agreement, and all of which taken together shall constitute one and the same agreement.

[*Signature Page Follows.*]

IN WITNESS WHEREOF, the Parties have executed this Agreement, in duplicate, as of the day and year first above written.

SWAT Consulting Inc.
("Contractor")

Printed Name: Dean Sahara
Title: Director

Contractor's License No.: _____
Expiration Date: _____

GRAYSON MILL OPERATING, LLC
("Company")

Mary Atkinson 8/4/2021

Printed Name: Mary Atkinson
Title: Director, Supply Chain

EXHIBIT A

MINIMUM INSURANCE REQUIREMENTS FOR CONTRACTORS AND SUBCONTRACTORS

All capitalized terms used but not otherwise defined in this Exhibit A shall have the meaning ascribed to such terms in that certain Master Service Agreement (the "Agreement") to which this Exhibit A is attached (and by reference made a part thereof).

The minimum insurance coverage to be maintained by Contractor pursuant to the Agreement shall include:

1. Workers Compensation and Employers Liability Insurance:

   a. Coverage A – Workers Compensation with a minimum limit of the statutory limits in accordance with the laws of the States in which operations are covered under the Agreement and statutory workers compensation coverage.

   Coverage B – Employers Liability Insurance with a minimum limit of

Bodily Injury by Accident	$1,000,000 each accident
Bodily Injury by Disease	$1,000,000 policy limit
Bodily Injury by Disease	$1,000,000 each employee

2. Commercial General Liability Insurance (ISO Occurrence Form CG00011207) or the Equivalent:

   With a minimum limit of liability of $1,000,000 per occurrence-$2,000,000 general aggregate and $2,000,000 products/completed operations aggregate, including the following coverages:

   a. Products-Completed Operations Hazard Coverage;
   b. Contractual Liability specifically insuring any Services performed by Contractor for Company and including coverage for the sole negligence of Company Group
   c. Coverage for explosion, collapse and underground hazards for Services performed by Contractor involving equipment or materials of a volatile, incendiary or explosive nature or involving excavation, drilling or subsurface activity;
   d. Independent Contractor's Contingent coverage;
   e. Personal Injury Liability;
   f. Premises Liability;
   g. Policy territory adequate to cover the Worksite under the Agreement;
   h. Seepage and Pollution Liability, including, cleanup on a sudden and accidental basis with no less than 7 days for discovery and 30 days for incident reporting (Pollution liability may be provided under a separate pollution liability); and
   i. Endorsement providing that a claim "in rem" against any vessel or real or personal property shall be treated as a claim against Contractor.

3. Automobile Liability Insurance:

   With a minimum limit of liability of $1,000,000, combined single limit for any one accident or loss, including:

   a. Coverage for: owned, non-owned, and hired automobiles;
   b. Coverage for sudden and accidental pollution with the use of the "Pollution Liability – Broadened Coverage for Covered Autos – Business Auto, Motor Carrier and Truckers Coverage Forms (CA 99 48)" for automobiles transporting pollutants as defined in the Business Auto, Motor Carrier and Trucker coverage forms; and
   c. Contractual liability.

4. Umbrella (or Excess Liability) Insurance:

Providing coverage excess of insurance requirements set forth in numbered paragraphs 1, 2 and 3 of this Exhibit A (except for statutory Workers Compensation coverage), with a minimum limit of liability of $5,000,000 per occurrence and a policy aggregate of $5,000,000, with following form coverage or coverages at least as broad as underlying. Umbrella (or Excess Liability) policies may have a self-insured retention no greater than $10,000.

Maintenance of said umbrella or excess liability insurance limit shall be a condition precedent to the payment to Contractor of the compensation for the Services herein provided.

5. Property Insurance: on an all risk form (including transit) covering Contractor's machinery and equipment for its replacement cost value and including removal of wreck and debris coverage.

No deductible amount above $10,000 shall be used by Contractor to meet these minimum insurance requirements without the express prior written approval of Company. The insurance to be carried and the minimum amounts as set forth herein shall in no way be construed to limit Contractor's obligation pursuant to the Agreement. No "Self Insured Retentions" or "Self Insurance" are permitted on Workers Compensation/Employers Liability and Commercial General Liability policies. Any deductible amounts or self-insured retention are the sole responsibility of the Contractor.

All insurance policies of Contractor, whether or not required by the Agreement, shall, as respects liabilities assumed by Contractor, waive subrogation against Company Group, name Company Group as additional insured (except for Workers Compensation coverage) with such additional insured coverage including coverage for the sole or concurrent negligence of the additional insured and not being restricted to (a) "ongoing operations," (b) coverage for vicarious liability, or (c) circumstances in which the named insured is partially negligent, include a cross liability clause, and be primary as respects any other insurance coverage in favor of any member of Company Group.

If Contractor employs Subcontractors to perform any Services under the Agreement, then Contractor agrees to require such Subcontractors to obtain, carry, maintain, and keep in force during the time in which they are engaged in performing any Services under the Agreement, policies of insurance which comply with the requirements as set forth above and, upon request, to furnish copies of said policies thereof to Company. To the extent of liabilities assumed by the Contractor in the Agreement, all of Subcontractors' policies, whether or not required by the Agreement, must be primary to any other insurance policies providing coverage to any member of Company Group, must have waivers of subrogation from their insurers in favor of Company Group, and must name Company Group as additional insured.

At all times while performing Services under the Agreement, Contractor (and any Subcontractor) shall carry and maintain, at its sole expense, with insurers having an A.M. Best Rating of "A- VII" or higher or alternatively shall be issued by Underwriter at Lloyds of London, the minimum insurance coverages as set forth on this Exhibit A. Prior to Contractor's or its Subcontractors' entry upon the premises or property of Company or the performance by Contractor of the Services covered by the Agreement, Contractor agrees to provide Company with insurance certificates on an Acord 25 Form (as may be amended or updated by Acord from time to time) evidencing minimum insurance requirements described herein are in force and effect. Such policies shall provide Company thirty (30) days written notice of any cancellation or non-renewal. If Contractor's or its Subcontractor's available insurance policy limits are potentially eroded below the minimum insurance requirements as a result of a significant, related or unrelated incident or claim, Company shall have the right to immediately terminate the Agreement. **FAILURE TO MAINTAIN SAID INSURANCE BY CONTRACTOR OR ITS SUBCONTRACTORS, AS REQUIRED HEREIN, SHALL CONSTITUTE A MATERIAL BREACH AND SHALL BE SUFFICIENT GROUNDS FOR THE IMMEDIATE CANCELLATION OR SUSPENSION OF THE AGREEMENT BY COMPANY.** Any failure on the part of Company to insist upon strict adherence by Contractor to the insurance requirements hereunder shall in no event be construed to be a waiver of any of said requirements.

EXHIBIT B

FORM OF DOT CERTIFICATE

CERTIFICATE OF DOT COMPLIANCE

This Certificate of U.S. Department of Transportation ("DOT") compliance (this "Certificate") is made this 3rd day of August, 2021 by SWAT Consulting Inc. ("Contractor") for reliance by Grayson Mill Operating, LLC ("Company"). All capitalized terms used but not otherwise defined in this Certificate shall have the meaning ascribed to such terms in that certain Master Service Agreement (the "Agreement") between Contractor and Company.

Contractor hereby certifies that at all times while performing Services under the Agreement that it has and shall maintain, and shall ensure that its Subcontractors have and maintain, where required for the type and nature of the Services performed, a drug and alcohol testing program compliant with the applicable DOT regulations (such program, "DOT Program"), and that it shall, and shall reasonably endeavor to ensure that its Subcontractors, have and abide by such DOT Program. Contractor and its Subcontractors shall allow access to their property and records by Company, the applicable DOT Administrator, any DOT agency with regulatory authority over Company or any covered employee, and, if Company is subject to the jurisdiction of a state agency, a representative of the state agency, for the purposes of monitoring Company's compliance with the requirements of the applicable DOT Program.

Failure by Contractor or its Subcontractors to have, maintain and/or comply with a required DOT compliant program shall constitute a material breach of Contractor's obligations under the Agreement.

IN WITNESS WHEREOF, a duly authorized representative has executed this Certificate effective as of the date set forth above.

SWAT Consulting Inc.
("Contractor")

Printed Name: Dean Sahara
Title: Director

SWAT Inventory-North Dakota Response Equipment

USTRL06 28' Response Trailer

Quantity	UoM	Item Description
		Containment Boom & Hardware
1,000'	Each	Elastec 12" x 50' Optimax Containment Boom (20 sections)
250'	Each	Elastec 10" x 25' Creek Boom
1	Each	Elastec 0.5m Boom Vane
20	Each	Boom Bridles
		Skimming Equipment
1	Each	Elastec Skimmer TDS 118 Groovy w/Hydraulic Power Pack, Pump, 3" Hoses, 3" Hose Floats
1	Each	2" Pedco Weir Skimmer
		Absorbents
6	Bags	Absorbent Boom
9	Bundles	Absorbent Pad
		Anchors & Buoys
4	Each	Danforth Anchors, 40lbs
12	Each	Pin Anchors (6' T-Posts)
1	Each	T-Post Driver
		Rope & Chain
8	Rolls	1/2" MFP Double Braided Nylon Rope x 600'
2	Each	Boom Pulley Setup
6	Each	Locking Carabiners
1	Each	4 Ton Come-A-Long
		Inverted Weir Materials
2	Each	6" x 10' PVC Pipe (Weir Dams)
50	Each	Sandbags (Empty)
		Pumps/Generators/Compressor
1	Each	Honda Trash/Water Pump 3"
1	Each	Generac 3,250 Watt Generator
1	Each	Portable Air Compressor w/hose
2	Each	50' Outdoor Extension Cords
2	Each	100' Outdoor Extension Cords
		Hoses & Hardware

1	Each	3"x 20' Suction Hose and Fittings
2	Each	3"x 50' Layflat Discharge Hose
Tools/Hand Tools		
1	Each	Sledge Hammer
2	Each	21" Bow Saw
1	Each	21" Replacement Blades For Bow Saw
4	Each	Shovels
1	Each	Pick Axe
3	Each	Pitch Forks
2	Each	Loppers
1	Each	Broom
1	Each	Water Velocity Meter (Global FP-111)
Personal Protective Equipment		
24	Each	Tyvek Suits
3	Boxes	12 Safety Glasses
3	Packs	12 Leather Gloves
3	Boxes	XL Nitrile Gloves (100/box)
6	Each	Hi Vis Vest
1	Box	Earplugs
7	Pairs	Waders
7	Pairs	Steel Toe Rubber Boots
8	Each	Hard Hats
15	Each	Adjustable Life Vest
3	Each	Safety Harness
2	Each	100' Safety Rope
1	Each	50' Safety Rope
Safety Items		
1	Each	First Aid Kit
1	Each	32 oz Eye Wash Station
6	Each	Flashlights
6	Each	Spare Batteries for Flashlights
1	Each	20 # ABC Fire Extinguisher
1	Each	Emergency Reflective Triangles
1	Each	Air Horn
1	Each	Life Ring
1	Each	Throw Bag
6	Rolls	Barricade Tape
2	Rolls	Orange Construction Fence 4' x 100'
2	Each	1,000 Watt Light Stand

4	Each	500 Watt Light Bulbs For Light Stands
2	Bags	21" Zip Ties, 120#
4	Rolls	50 Drum Liners
24	Rolls	Duct Tape
		Fuel
1	Each	5 Gallon Safety Fuel Can
2	Each	2 Gallon Safety Fuel Can
1	Each	5 Gallon Safety Can For Diesel Fuel (skimmer power pack fuel)

USTRL05 12' Response Trailer		
Quantity	***UoM***	***Item Description***
		Hand Tools
2	Each	Scoop Shovel
2	Each	Pick Axe
1	Each	Trench Shovel
1	Each	Spade Head Shovel
1	Each	Snow Shovel
3	Each	Squeegee
2	Each	Ice Pick
4	Each	Aluminum Pole (1"x10')
1	Each	Post Pounder
		Personal Protective Equipment
4	Box	2x Tyvek Suits
10	Pair	Boot Covers-2XL
4	Each	Survivair Full Face Respirator
2	Set	Respirator Filters
1	Box	Safety Glasses (clear)
1	Box	Safety Glasses (tinted)
4	Each	Rainsuit
2	Each	Hi Vis Safety Vest
7	Pair	PVC Gloves
1	Each	Hard Hat
1	Each	Chain Saw Hard Hat
1	Each	Face Shield
3	Pair	Waders
1	Box	Rags
		Absorbents
1	Box	Spill Pads

1	Bag	Peat Moss
1	Bag	Snare
		Safety Equipment
1	Kit	First Aid
1	Each	ABC Fire Extinguisher (20lb)
1	Each	Spot Light
1	Pair	Wheel Chocks
2	Each	Ratchet Strap (1")
1	Roll	Barrier Fence (50')
2	Each	Grounding Rod
2	Each	Throw Ring
3	Bundle	1/2" Double Braided Nylon Rope (100')
2	Each	Safety Harness Lanyard (50')
1	Each	Dry Bag
2	Each	Safety Harness
1	Each	Boat Hook
1	Each	Throw Bag
		Machinery Fluids/Miscellaneous
3	Gallon	Antifreeze
1	Gallon	Chainsaw Bar Oil
2	Each	Coolers
2	Each	5 Gallon Buckets
1	Each	Squirrel Cage Fan
40' Conex Container		**TTNU 5949261**
Quantity	***UoM***	***Item Description***
9,000'	Each	Lamor 18" x 100' Containment Boom (90 sections)
Containment/Recovery		
Quantity	***UoM***	***Item Description***
1,000'	Each	Elastec 12" x 50' Containment Boom
1,800'	Each	Lamor 18" x 100' Containment Boom
275'	Each	Elastec 10" x 25' Creek Boom
120	Each	Danforth Anchors (40lb)
78	Bags	Snare
2	Rolls	Absorbent Pads
9	Bags	Soft Boom (2 each)
8	Bundle	Spill Pads
2	Rolls	Poly Sheeting

12	Rolls	Drum Liners (50 per roll)
35	Spool	1/2" Double Braided Nylon Rope (600')
1	Each	Honda Capstan Winch (GCAFK-1106859)
6	Bags	Bio Matrix (2.2 cubic ft.)
5	Bags	Perlite (20lbs)
4	Kit	Truck Spill/Safety Kits in Contico Boxes (for Rental Vehicles)
127	Each	SWAT Hand Bridles
100	Feet	1/2" Chain
200	Feet	1/4" Chain
6	Each	Ice Anchors
20	Each	Walsh 13" Rope Buoy (W1300BO)
6	Each	Taylor Inflatable Buoy/Bumpers
3	Each	55 Gallon Open Top Drums
1	Each	3" Honda Trash Pump (GCBKT-1556990)
3	Each	3" Honda Trash Pump (GX270)
1	Each	4" Honda Trash Pump
4	Each	Plastic Drip Trays for Pumps/Generators
1	Each	3" x 25 'Hose
487	Feet	3" Lay Flat Hose (no ends)
2	Each	3" x 50' Lay Flat Hose (with ends)
2	Each	3" Plastic Strainer
6	Each	3" Metal Strainer
9	Each	3" Camlock Fitting
2	Each	2" Camlock Fitting
4	Each	Garden Hose (100')
Sampling Materials/Tools		
Quantity	***UoM***	***Item Description***
7	Each	ALS Soil Sample Kits
22	Liter	Liquid Test Vials
1	Each	Portable Multi Gas Detector in Pelican Case (71-0028RK)
2	Bottle	High Range Chloride Tabs (40ct)
6	Bottle	Low Range Chloride Tabs (40ct)
3	16oz	Test Container
70	Each	Sample Vials
13	Kit	Sample Kits 8620
1	Each	EC Test Kit-TDS Tester Kit in Pelican Case
1	Each	Soil Probe (2265F5T24P)
8	Each	Coolers
1	Each	AMS Edelman Clay Auger w/two 3' extensions
Personal Air Monitoring		

ntity	UoM	Item Description
1	Each	Honeywell Multi Gas Clip (KA415-10277791, KA414-1110955, KA414-1110954, KA415-1027808)
1	Each	GCT Multi Gas Clip (M4SF061028)
1	Each	Honeywell Gas Cylinder-Bump Test Gas

Communication

Quantity	UoM	Item Description
4	Each	Motorola VHF Radios (442TQQ0079, 442TQQ0167, 442TQQ0086, 442TQQ0087)

Boats

Unit #	Year	Manufacturer	Hull ID#	Engine Make	Motor Type	Engine S/N
Propeller Boats						
USB10	1991	Riviera Pontoon	RCD18385I091	Mercury	40HP EFI ELPT BF	C214128
USB22	2012	Tracker Topper 1542	BUJ19209A212	Mercury	Mercury 8hp	OR450762
USB33	2017	Hewes Craft	HEW80212K617	Yamaha 2016	150 HP F 150 XB/25"	63PX1178227
Jet Boats						
USB03	2012	Alweld 1856 Custom Jon	AWLC0795I112	Mercury	115 ProXS w/Jet Model 115P73HY	1B808072
USB 11	2013	Alweld 1856J	AWLC0826B212	Mercury	90HP Optimax Model 1090D73HY	1B962730
USB30	2014	Alweld 2270	AWLC0116B414	Mercury	150 Optimax w/Jet Model 1150P73EY	2B016756
Airboats						
USAB01	2007	American Airboat	AMA00394F707	Levitator	8100HO Model 08-811-01	475271
USAB03	2011	American Airboat	AMA00585F111	Levitator	6000 Model 08-602-02	502655

Boats

Unit #	Year	Manufacturer	Hull ID#	Engine Make	Motor Type	Engine S/N
[illegible]23	1997	Gencraft 24 "Transformer"	UNV01033H597	Mercury 60HP Model 1A60453BZ	60ELPT BF 4 stroke	1C232162

APPENDIX

C HAZARD EVALUATION AND RISK ANALYSIS

SPILL DETECTION

SPILL DETECTION
Detection
Detection of a discharge from GME system may occur in a number of ways including:
· Automated detection by the Emergency Notification Center.
· Visual detection by GME personnel.
· Visual detection by the public.
Automated detection
The pipelines are equipped with pressure and flow monitors, which exercise local control and transmit to Pipeline Control. These systems are set to alarm or shut down on preset deviations of pressure or flow. In case of an alarm, Pipeline Control personnel will take the appropriate actions in accordance with operating procedures. A summary of the operating procedures is provided below.
Trained personnel in the Emergency Notification Center will monitor the system for the following parameters:
· Flow rates
· Pressure
· Valve positions
Operating procedures for the automated system
Pipeline Control Center
· Pipeline operations are monitored controlled from the Emergency Notification Center. The ultimate decision on leak detection lies with the Emergency Notification Center.
Communications Flexibility/Redundancy
· GME's communications system allows large volumes of data to be transmitted both to and from all field locations rapidly. Network configuration and transmission protocols provide the flexibility to establish guaranteed delivery transmissions as required. Communication system redundancy provides accurate and reliable data to pipeline operators. · The current communications system is cellular based; however, a fiber optic system is planned for the future.
Parameter Alarms
· A parameter alarm is a data value limit (high or low) which can be set by the operator to alert upset conditions regardless of whether the Operator is actively monitoring the data point in question. · Operators are required to establish parameter alarm settings on mainline pressures and flow rates for all operating line segments. In combination with ten-second data acquisition rates, parameter alarms provide near instantaneous notification of potential upset conditions on all operation mainlines.

SPILL DETECTION

SPILL DETECTION
Operating procedures for the automated system
Trending
• The Emergency Notification Center includes a trending facility which graphically displays pressures, temperature, and flow rate data for each mainline pump and oil receiving location on the system. This system can provide valuable insight into operations history and can help the operator proactively address potential upset conditions.
Tank Gauging with Parameter Alarms
• Tank gauge data is available for use by pipeline operators. GME systems are gauged automatically and the data is made available to the operator on demand. Parameter alarms (see above) are also available for tank levels to ensure no potential tank discharge.
Training
• All operators are compliant with DOT 195 Operator Qualification Requirements.
Visual detection by GME personnel
Aerial patrol flights will be made 26 times a year not to exceed 21 days apart. If unable to fly over the area, personnel will walk or drive the right-of-way. The intent of the patrol is to observe the area directly over the pipeline right-of-way for leaks, exposed pipes, washes, missing markers and other unusual conditions. Construction on either side of the pipeline right-of-way is also monitored.
Discharges to the land or surface waters may also be detected by GME personnel during regular operations and inspections. Should a leak be detected, the appropriate actions are taken including but not limited to:
• Notifications as per **SECTION 3.**
• A preliminary assessment of the incident area.
• If appropriate, initiate initial response actions per **SECTION 2.**
Visual detection by the public
Right-of-way marker signs are installed and maintained at road crossings and other noticeable points and provide a 24-hour Emergency Notification Center number for reporting emergency situations. GME also participates in the "call before you dig" or "One Call" utility notification services which can be contacted to report a leak and determine the owner/operator of the pipeline. If the notification is made to a local office or pump station, GME representative receiving the call generally will implement the following actions:

SPILL DETECTION

SPILL DETECTION
Visual detection by the public
• Notify the Emergency Notification Center and region/designated office.
• Dispatch GME field personnel to the site to confirm discharge and conduct preliminary assessment.
• Notify their immediate area supervisor and provide assessment results.
Pipeline shutdown
If any of these situations are outside the expected values, abnormal conditions are considered to exist. If abnormal conditions exist, the Emergency Notification Center will take the appropriate actions to ensure that a release does not occur. If a discharge has occurred, the Emergency Notification Center will take actions to limit the magnitude. In either case, appropriate actions taken by GME personnel could include, but are not limited to:
• Shut down effected line segment if there is an indication of a leak.
• Isolate line segment.
• Depressurize line.
• Start internal and external notifications.
• Mobilize additional personnel as required.

WORST CASE DISCHARGE (WCD) SCENARIO

The equipment and personnel to respond to a spill are available from several sources and are provided with the equipment and contractors in **SECTION 7** and **APPENDIX B**. The following sections are discussions of these scenarios.

APPENDIX C.4 provides worst case discharge calculations. Discussion of this scenario is as follows:
Upon discovery of a spill, the following procedures would be followed:

1. The First Responder would notify Supervisory Personnel and notifications would be initiated in accordance with **FIGURE 2-1**.
2. The Area Supervisor/Manager of Operations would assume the role of Incident Commander until relieved and would initiate response actions and notifications in accordance with **SECTION 2** and **SECTION 3**. If this were a small spill, the local/company personnel may handle all aspects of the response. Among those actions would be to:

- Conduct safety assessment and evacuate personnel as needed in accordance with **SECTION 2.2**.
- Direct facility responders to shut down ignition sources.
- Direct facility personnel to position resources in accordance with **SECTION 6** and **SECTION 7**.
- Complete spill report form.
- Ensure regulatory agencies are notified.

3. If this were a small or medium spill, the Qualified Individual/Incident Commander may elect for the First Responder to remain the Incident Commander or to activate selected portions of the Incident Management Team. However, for a large spill, the Qualified Individual would assume the role of Incident Commander and would activate the entire Incident Management Team in accordance with activation procedures described in **SECTION 4.2**.
4. The Incident Commander would then initiate spill assessment procedures including surveillance operations, trajectory calculations, and spill volume estimating in accordance with **SECTION 2.1.2** through **SECTION 2.1.4**.
5. The Incident Commander would then utilize checklists in **SECTION 4.6** as a reminder of ICS position responsibilities. The primary focus would be to establish incident priorities and objectives and to brief staff accordingly.
6. The Incident Management Team would develop the following plans, as appropriate (some of these plans may not be required during a small or medium spill):

- Site Safety and Health (**SECTION 5.4**)
- Incident Action (**SECTION 5.3.2**)
- Disposal (**SECTION 5.6**)
- Site Security (**SECTION 5.7**)
- Decontamination (**SECTION 5.5**)
- Demobilization (**SECTION 5.8**)

7. The response would continue until an appropriate level of cleanup is obtained.

PLANNING VOLUME CALCULATIONS

Once the worst case discharge volume has been calculated, response resources must be identified to meet the requirements of 49 CFR 194.105(b). Calculations to determine sufficient amount of response equipment necessary to respond to a worst case discharge is described below. A demonstration of the planning volume calculations is provided below.

SPILL VOLUME CALCULATIONS

DOT/PHMSA portion of pipeline/facilities

The worst case discharge (WCD) for the DOT portion of the pipeline and facilities, as defined in 49 CFR 194.105(b), is the largest volume of the following:

1. The pipeline's maximum shut-down response time in hours (based on historic discharge data or in the absence of such data, the operators best estimate), multiplied by the maximum flow rate expressed in barrels per hour (based on the maximum daily capacity of the pipeline), plus the largest drainage volume after shutdown of the line section(s) in the response zone expressed in barrels; or
2. The largest foreseeable discharge for the line section(s) within a response zone, expressed in barrels (cubic meters), based on the maximum historic discharge, if one exists, adjusted for any subsequent corrective or preventative action taken; or
3. If the response zone contains one or more breakout tanks, the capacity of the single largest tank or battery of tanks within a single secondary containment system, adjusted for the capacity or size of the secondary containment system, expressed in barrels.

Under PHMSA's current policy, operators are allowed to reduce the worst case discharge volume derived from 49 CFR 194.105(b)(3) by no more than 75% if an operator is taking certain spill prevention measures for their breakout tanks and presents supporting information in the response plan. An operator can reduce the worst case discharge volume based on breakout tanks in the response zones as follows:

The worst case discharge for the response zone was based on the largest volume of the three criteria given

GME has determined the worst case discharge volume is the greater of, 1) a catastrophic line failure of the largest line section with the greatest drainage capacity in the response zone or 2) 30 percent of the volume of the largest tank in each zone.

Per 49 CFR 194.115(b), and as presented in APPENDIX B, GME has retained an OSRO that is capable of meeting the Tier 1 (12 hours) , Tier 2 (36 hours), and Tier 3 (60 hours) response times.

SPILL PREVENTION MEASURES	PERCENT REDUCTION ALLOWED
Secondary containment capacity greater than 100% capacity of tank and designed according to NFPA 30	50%
Tank built, rebuilt, and repaired according to API Std 620/650/653	10%
Automatic high-level alarms/shutdowns designed according to NFPA/API RP 2350	5%
Testing/cathodic protection designed according to API Std 650/651/653	5%
Tertiary containment/drainage/treatment per NFPA 30	5%*
Maximum allowable credit or reduction	75%

The worst case discharge for the response zone was based on the largest volume of the three criteria given above

GME has determined the worst case discharge volume is the greater of, 1) a catastrophic line failure of the largest line section with the greatest drainage capacity in the response zone or 2) 30 percent of the volume of the largest tank in each zone.

Per 49 CFR 194.115(b), and as presented in APPENDIX B, GME has retained an OSRO that is capable of meeting the Tier 1 (12 hours) , Tier 2 (36 hours), and Tier 3 (60 hours) response times.

The line sections with the highest throughput and largest drainage volume between block valves on pump stations were chosen to calculate the pipeline worst case discharge. Although the entire discharge volume of each line was used for the worst case discharge, in an actual spill event, it would take days to drain the line completely. The line would be sealed early in the response effort.

All of the breakout tanks in the pipeline system are within adequate secondary containment, therefore, the discharge volumes for the largest tank was determined by adjusting the total tank volume downward by 70% per guidelines.

Considering the volume of release from a line break compared to that of historic discharge in the zone and to the volumes released from a tank failure, the tank failure was found to represent the worst case scenario.

The maximum historic discharge is not applicable for WCD covered by this plan. Given below are the tank and pipeline WCD calculations for this plan.

The worst case discharge for each pipeline segment is the largest breakout tank. These tank volumes are as follows:

LOCATION	VOLUME (BBLS)
Alexander Oil Facility	40,000
Aune Multi-Use Facility	40,000
Ross Oil Facility	40,000
Trenton Oil Facility	80,000

The worst case tank volume is calculated as follows:

Largest tank x Credit for containment tank standards = Tank standards credit

GME has implemented all of the spill prevention measures, listed on the previous page, except tertiary containment. Therefore, the percent reduction allowed for credit equals 70% and the worst case discharge volume is 30% of the total volume.

Alexander Oil Facility (40,000.00) x 0.3 = 12,000.00 bbls.
Aune Multi-Use Facility (40,000.00) x 0.3 = 12,000.00 bbls.
Ross Oil Facility (40,000.00) x 0.3 = 12,000.00 bbls.
Trenton Oil Facility (80,000.03) x 0.3 = 24,000.00 bbls.

The worst case discharge for the pipeline segment is calculated at the Missouri and Missouri River Bore (8" Steel). Drain down volume is the maximum between both sides of the East Missouri River ESD. The maximum drain down is that section of the pipeline west of the ESD valve, between the East Missouri River ESD and Aune Multi-Use Facility.

WCD = [(DT + ST) x MF] + DD

Where:

WCD = worst case discharge (bbl)

DT + ST = maximum detection time + maximum shut down time in adverse weather (generally five minutes except where noted)

MF = maximum flow rate (bph) (using 1667 bph)

DD = drain down volume (bbl) (internal diameter)

WCD = 0.083 hours x 1667 bph + 2544 bbls = 2,682 bbls

As detailed above, the discharges for tanks are larger than discharges for the pipeline; therefore, the DOT/PHMSA WCD volume for this plan is: Trenton Oil Facility 24,000 bbl

PIPELINE - ABNORMAL CONDITIONS

Because PHMSA considers the "substantial threat" term in 49 CFR Part 194.115(a) equivalent to the "abnormal conditions" term under 49 CFR Part 195.402(d), procedures to identify events and conditions that can pose a threat of worst case discharge, and actions to take for preventing and mitigating such events and conditions are described in the System Integrity Plan.

PRODUCT CHARACTERISTICS AND HAZARDS

Pipeline systems described in this plan may transport various types of commodities including but not limited to:

- Bakken Crude Oil
- Bakken Natural Gas Condensate
- Bakken Natural Gas Vapor
- Bakken Salt Water

The key chemical and physical characteristics of each of these oils and/or other small quantity products/ chemicals are identified in SDS. SDS can be obtained by the facility via GME intranet.

SUMMARY OF COMMODITY CHARACTERISTICS

COMMON NAME	SDS NAME	HEALTH HAZARD	FLASH POINT	SPECIAL HAZARD	REACTIVITY	HEALTH HAZARD WARNING STATEMENT
Bakken Crude Oil	Crude Oil, Crude Petroleum, Hydrocarbons of Petroleum	3	4	C, H2S	0	May contain benzene, a carcinogen, or hydrogen sulfide, which is harmful if inhaled; may cause damage to organs (liver, kidneys, blood, nervous system, and skin) through prolonged or repeated exposure; flash point can vary. See SDS.
Bakken Natural Gas Condensate	Natural Gas Condensate	3	2	C	0	Contains benzene, a carcinogen; skin irritation; eye damage; genetic defects and may damage unborn child; organ damage; harmful to fatal if swallowed. See SDS.
Bakken Natural Gas Vapor	Natural Gas Vapor	3	4	C, P	0	May cause cancer; toxic if inhaled; avoid breathing; potential of birth defects and damaged fertility.
Bakken Salt Water	Brine Water	3	2	C	0	May cause cancer; genetic defects; suspected of damaging unborn child; damage to organs (liver, kidneys, blood, nervous system, and skin) through prolonged or repeated exposure; skin and eye irritant; harmful to fatal if swallowed. See SDS.

Health Hazard	**4 = Extremely Hazardous** **3 = Hazardous** **2 = Warning** **1 = Slightly Hazardous** **0 = No Unusual Hazard**	**Fire Hazard (Flash Point)**	**4 = Below 73° F, 22° C** **3 = Below 100° F, 37° C** **2 = Below 200° F, 93° C** **1 = Above 200° F, 93° C** **0 = Will not burn**
Special Hazard	**A = Asphyxiant** **C = Contains Carcinogen** **W = Reacts with Water** **Y = Radiation Hazard** **COR = Corrosive** **OX = Oxidizer** **H_2S = Hydrogen Sulfide** **P = Contents under Pressure** **T = Hot Material**	**Reactivity Hazard**	**4 = May Detonate at Room Temperature** **3 = May Detonate with Heat or Shock** **2 = Violent Chemical Change with High Temperature and Pressure** **1 = Not Stable if Heated** **0 = Stable**

GRAYSON MILL ENERGY

Bakken Crude Oil

Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations

Revision Date: 02/10/2015 Date of issue: 02/10/2015 Version: 1.0

SECTION 1: IDENTIFICATION

Product Identifier

Product Form: Mixture

Product Name: Bakken Crude Oil

Synonyms: Crude petroleum, hydrocarbons of petroleum

Intended Use of the Product

Used in the production of refined fuel products.

Name, Address, and Telephone of the Responsible Party Company

Grayson Mill Energy
14649 Brigham Drive
Williston, ND 58801 701.875.3501

Manufacturer
Grayson Mill Energy
14649 Brigham Drive
Williston, ND 58801
701.875.3501

SECTION 2: HAZARDS IDENTIFICATION

Classification of the Substance or Mixture

Classification (GHS-US)

Simple Asphy

Flam. Liq. 2	H225
Skin Irrit. 2	H315
Resp. Sens. 1	H334
Skin Sens. 1	H317
Muta. 1B	H340
Carc. 1A	H350
Repr. 2	H361
STOT RE 2	H373
Asp. Tox. 1	H304
Aquatic Acute 2	H401
Aquatic Chronic 2	H411

Full text of H-phrases: see section 16

Label Elements

GHS-US Labeling

Hazard Pictograms (GHS-US) :



GHS02 GHS08 GHS09

Signal Word (GHS-US) : Danger

Hazard Statements (GHS-US) : H225 - Highly flammable liquid and vapor.
H304 - May be fatal if swallowed and enters airways.
H315 - Causes skin irritation.
H317 - May cause an allergic skin reaction.
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H340 - May cause genetic defects.
H350 - May cause cancer.
H361 - Suspected of damaging fertility or the unborn child.
H373 - May cause damage to organs through prolonged or repeated exposure.

May displace oxygen and cause rapid suffocation.
H401 - Toxic to aquatic life.
H411 - Toxic to aquatic life with long lasting effects.

Precautionary Statements (GHS-US) : P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P210 - Keep away from sparks, open flames, heat, hot surfaces. - No smoking.
P233 - Keep container tightly closed.
P240 - Ground/bond container and receiving equipment.
P241 - Use explosion-proof lighting, ventilating, electrical equipment.
P242 - Use only non-sparking tools.
P243 - Take precautionary measures against static discharge.
P260 - Do not breathe vapors, mist, spray.
P264 - Wash hands, forearms, and exposed areas thoroughly after handling.
P272 - Contaminated work clothing must not be allowed out of the workplace.
P273 - Avoid release to the environment.
P280 - Wear protective clothing, protective gloves, face protection.
P284 - [In case of inadequate ventilation] wear respiratory protection.
P301+P310 - If swallowed: Immediately call POISON CENTER/doctor.
P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340 - IF INHALED: Remove person to fresh air and keep at rest in a position comfortable for breathing.
P308+P313 - If exposed or concerned: Get medical advice/attention.
P321 - Specific treatment (see Section 4 on this SDS).
P331 - Do NOT induce vomiting.
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.
P342+P311 - If experiencing respiratory symptoms: Call a poison center or doctor.
P362+P364 - Take off contaminated clothing and wash it before reuse.
P370+P378 - In case of fire: Use dry extinguishing powder, foam, carbon dioxide to extinguish.
P391 - Collect spillage.
P403+P235 - Store in a well-ventilated place. Keep cool.
P405 - Store locked up.
P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations.

Other Hazards

Product may release Hydrogen Sulfide: a specific assessment of inhalation risks from the presence of hydrogen sulfide in tank headspaces, confined spaces, product residue, tank waste and waste water, and unintentional releases should be made to help determine controls appropriate to local circumstances.

Unknown Acute Toxicity (GHS-US) Not available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

Name	Product Identifier	% (w/w)	Classification (GHS-US)
Alkanes, C17 and higher	(CAS No) Not available	56.43	Asp. Tox. 1, H304
Octane	(CAS No) 111-65-9	4.666	Flam. Liq. 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
n-Heptane	(CAS No) 142-82-5	4.268	Flam. Liq. 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336

			Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Pentadecane	(CAS No) 629-62-9	2.91	Asp. Tox. 1, H304
Hexadecane	(CAS No) 544-76-3	2.89	Asp. Tox. 1, H304
Tridecane	(CAS No) 629-50-5	2.8	Flam. Liq. 4, H227 Asp. Tox. 1, H304
Decane	(CAS No) 124-18-5	2.71	Flam. Liq. 3, H226 Asp. Tox. 1, H304
Tetradecane	(CAS No) 629-59-4	2.58	Asp. Tox. 1, H304
Dodecane	(CAS No) 112-40-3	2.36	Flam. Liq. 4, H227 Asp. Tox. 1, H304
Butane	(CAS No) 106-97-8	2.013	Simple Asphy Flam. Gas 1, H220 Liquefied gas, H280
Nonane	(CAS No) 111-84-2	2.01	Flam. Liq. 3, H226 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Pentane	(CAS No) 109-66-0	1.914	Flam. Liq. 1, H224 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 2, H401 Aquatic Chronic 2, H411
Undecane	(CAS No) 1120-21-4	1.82	Flam. Liq. 4, H227 Asp. Tox. 1, H304
p-Xylene	(CAS No) 106-42-3	1.708	Flam. Liq. 3, H226 Acute Tox. 4 (Dermal), H312 Acute Tox. 4 (Inhalation:vapor), H332 Skin Irrit. 2, H315 Asp. Tox. 1, H304 Aquatic Acute 2, H401 Aquatic Chronic 3, H412
Propane	(CAS No) 74-98-6	1.462	Simple Asphy Flam. Gas 1, H220 Liquefied gas, H280
Hexane	(CAS No) 110-54-3	1.34	Flam. Liq. 2, H225 Skin Irrit. 2, H315 Repr. 2, H361 STOT SE 3, H336 STOT RE 2, H373 Asp. Tox. 1, H304 Aquatic Acute 2, H401 Aquatic Chronic 2, H411
2-Methylpentane	(CAS No) 107-83-5	1.06	Flam. Liq. 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 2, H411
Isopentane	(CAS No) 78-78-4	0.967	Flam. Liq. 1, H224 STOT SE 3, H336

			Asp. Tox. 1, H304 Aquatic Acute 2, H401 Aquatic Chronic 2, H411
2,2,4-Trimethylpentane	(CAS No) 540-84-1	0.925	Flam. Liq. 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Toluene-2,4-diisocyanate	(CAS No) 584-84-9	0.828	Acute Tox. 1 (Inhalation:dust,mist), H330 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 Resp. Sens. 1A, H334 Skin Sens. 1, H317 Carc. 2, H351 STOT SE 3, H335 Aquatic Chronic 3, H412
Isobutane	(CAS No) 75-28-5	0.464	Simple Asphy Flam. Gas 1, H220 Liquefied gas, H280
3-Methylpentane	(CAS No) 96-14-0	0.423	Flam. Liq. 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 2, H411
Ethane	(CAS No) 74-84-0	0.414	Simple Asphy Flam. Gas 1, H220 Liquefied gas, H280
o-Xylene	(CAS No) 95-47-6	0.406	Flam. Liq. 3, H226 Acute Tox. 4 (Dermal), H312 Acute Tox. 4 (Inhalation:vapor), H332 Skin Irrit. 2, H315 STOT SE 3, H335 Asp. Tox. 1, H304 Aquatic Acute 2, H401 Aquatic Chronic 3, H412
m-Xylene	(CAS No) 108-38-3	0.275	Flam. Liq. 3, H226 Acute Tox. 4 (Dermal), H312 Acute Tox. 4 (Inhalation:vapor), H332 Skin Irrit. 2, H315 STOT SE 3, H335 Asp. Tox. 1, H304 Aquatic Acute 2, H401 Aquatic Chronic 3, H412
Ethylbenzene	(CAS No) 100-41-4	0.178	Flam. Liq. 2, H225 Acute Tox. 4 (Inhalation:vapor), H332 Carc. 2, H351 STOT RE 2, H373 Asp. Tox. 1, H304 Aquatic Acute 2, H401 Aquatic Chronic 3, H412
Benzene	(CAS No) 71-43-2	0.11	Flam. Liq. 2, H225 Skin Irrit. 2, H315

			Eye Irrit. 2A, H319 Muta. 1B, H340 Carc. 1A, H350 STOT RE 1, H372 Asp. Tox. 1, H304 Aquatic Acute 2, H401 Aquatic Chronic 2, H411
Methane	(CAS No) 74-82-8	0.05	Simple Asphy Flam. Gas 1, H220 Compressed gas, H280
Nitrogen	(CAS No) 7727-37-9	0.007	Simple Asphy Compressed gas, H280

Full text of H-phrases: see section 16

SECTION 4: FIRST AID MEASURES

Description of First Aid Measures

General: Never give anything by mouth to an unconscious person. IF exposed or concerned: Get medical advice/attention.

Inhalation: When symptoms occur: go into open air and ventilate suspected area. Remove to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER/doctor/physician if you feel unwell.

Skin Contact: Remove contaminated clothing. Rinse immediately with plenty of water (for at least 15 minutes). If skin irritation occurs: Get medical advice/attention. Wash contaminated clothing before reuse.

Eye Contact: Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do so. Continue rinsing. Obtain medical attention if irritation persists.

Ingestion: Rinse mouth. Do NOT induce vomiting. Call a POISON CENTER/doctor/physician if you feel unwell.

Most Important Symptoms and Effects Both Acute and Delayed

General: Causes irritation. Aspiration hazard. Exposure may produce an allergic reaction. There are potential chronic health effects to consider

Inhalation: May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause cancer by inhalation. In elevated concentrations may cause asphyxiation, central nervous system effects, and increased breathing rate. Symptoms of asphyxiation include headache, dizziness, rapid breathing, increased pulse, mood changes, tremors, cyanosis, muscular weakness, narcosis, numbness of the extremities, unconsciousness and death.

Skin Contact: Causes skin irritation. Redness, pain, swelling, itching, burning, dryness, and dermatitis. May cause an allergic skin reaction.

Eye Contact: Causes eye irritation. Redness, pain, swelling, itching, burning, tearing, and blurred vision.

Ingestion: The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

Chronic Symptoms: May cause damage to organs through prolonged or repeated exposure. May cause cancer. May cause genetic defects. Suspected of damaging fertility or the unborn child.

Indication of Any Immediate Medical Attention and Special Treatment Needed

If exposed or concerned, get medical advice and attention.

SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media: Carbon dioxide, dry chemical, alcohol foam.

Unsuitable Extinguishing Media: Do not use extinguishing media containing water.

Special Hazards Arising From the Substance or Mixture

Fire Hazard: Highly flammable liquid and vapor. Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. Flowing product may be ignited by self-generated static electricity. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

Explosion Hazard: May form flammable/explosive vapor-air mixture.

Reactivity: Reacts violently with (strong) oxidizers: (increased) risk of fire/explosion.

Advice for Firefighters

Precautionary Measures Fire: Under fire conditions, hazardous fumes will be present. Exercise caution when fighting any chemical fire.

Firefighting Instructions: Use water spray or fog for cooling exposed containers. In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion. Do not allow run-off from firefighting to enter drains or water courses.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.

Hazardous Combustion Products: Carbon oxides (CO, CO_2). Aldehydes. Hydrocarbons. Hydrogen sulfide. Smoke.

Other Information: Use water spray to disperse vapors.

Reference to Other Sections

Refer to section 9 for flammability properties.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Do not get in eyes, on skin, or on clothing. Do NOT breathe (vapor, mist, gas). Keep away from heat/sparks/open flames/hot surfaces. – No smoking. Use special care to avoid static electric charges. Do not allow product to spread into the environment.

For Non-Emergency Personnel

Protective Equipment: Use appropriate personal protection equipment (PPE). **Emergency Procedures:** Evacuate unnecessary personnel.

For Emergency Personnel

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit.

Environmental Precautions Prevent entry to sewers and public waters. Contact competent authorities after a spill.

Methods and Material for Containment and Cleaning Up

For Containment: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Use only non-sparking tools.

Methods for Cleaning Up: Clear up spills immediately and dispose of waste safely. Eliminate all ignition sources. Collect spillage. Keep in suitable, closed containers for disposal.

Reference to Other Sections

See Section 8, Exposure Controls and Personal Protection. See Section 13, Disposal Considerations.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling

Additional Hazards When Processed: Do NOT enter (storage areas, confined spaces) unless adequately ventilated. May release poisonous hydrogen sulfide. Handle empty containers with care because residual vapors are flammable.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures. Use good housekeeping practices during storage, transfer and handling. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work. Wash contaminated clothing before reuse.

Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Proper grounding procedures to avoid static electricity should be followed. Do not pressurize, cut, or weld containers.

Storage Conditions: Store in a dry, cool and well-ventilated place. Keep container tightly closed.

Incompatible Materials: Strong oxidizers. Reducing agents.

Specific End Use(s) Used in the production of refined fuel products.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

For substances listed in section 3 that are not listed here, there are no established Exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), NIOSH (REL), OSHA (PEL), Canadian provincial governments, or the Mexican government

Propane (74-98-6)		
USA NIOSH	NIOSH REL (TWA) (mg/m^3)	1800 mg/m^3
USA NIOSH	NIOSH REL (TWA) (ppm)	1000 ppm

USA IDLH	US IDLH (ppm)	2100 ppm (10% LEL)
USA OSHA	OSHA PEL (TWA) (mg/m³)	1800 mg/m³
USA OSHA	OSHA PEL (TWA) (ppm)	1000 ppm
Isobutane (75-28-5)		
USA ACGIH	ACGIH STEL (ppm)	1000 ppm
USA NIOSH	NIOSH REL (TWA) (mg/m³)	1900 mg/m³
USA NIOSH	NIOSH REL (TWA) (ppm)	800 ppm
Butane (106-97-8)		
USA ACGIH	ACGIH STEL (ppm)	1000 ppm
USA NIOSH	NIOSH REL (TWA) (mg/m³)	1900 mg/m³
USA NIOSH	NIOSH REL (TWA) (ppm)	800 ppm
Isopentane (78-78-4)		
USA ACGIH	ACGIH TWA (ppm)	1000 ppm
Pentane (109-66-0)		
USA ACGIH	ACGIH TWA (ppm)	1000 ppm
USA NIOSH	NIOSH REL (TWA) (mg/m³)	350 mg/m³
USA NIOSH	NIOSH REL (TWA) (ppm)	120 ppm
USA NIOSH	NIOSH REL (ceiling) (mg/m³)	1800 mg/m³
USA NIOSH	NIOSH REL (ceiling) (ppm)	610 ppm
USA IDLH	US IDLH (ppm)	1500 ppm (10% LEL)
USA OSHA	OSHA PEL (TWA) (mg/m³)	2950 mg/m³
USA OSHA	OSHA PEL (TWA) (ppm)	1000 ppm
n-Heptane (142-82-5)		
USA ACGIH	ACGIH TWA (ppm)	400 ppm
USA ACGIH	ACGIH STEL (ppm)	500 ppm
USA NIOSH	NIOSH REL (TWA) (mg/m³)	350 mg/m³
USA NIOSH	NIOSH REL (TWA) (ppm)	85 ppm
USA NIOSH	NIOSH REL (ceiling) (mg/m³)	1800 mg/m³
USA NIOSH	NIOSH REL (ceiling) (ppm)	440 ppm
USA IDLH	US IDLH (ppm)	750 ppm
USA OSHA	OSHA PEL (TWA) (mg/m³)	2000 mg/m³
USA OSHA	OSHA PEL (TWA) (ppm)	500 ppm
Octane (111-65-9)		
USA ACGIH	ACGIH TWA (ppm)	300 ppm
USA NIOSH	NIOSH REL (TWA) (mg/m³)	350 mg/m³
USA NIOSH	NIOSH REL (TWA) (ppm)	75 ppm
USA NIOSH	NIOSH REL (ceiling) (mg/m³)	1800 mg/m³
USA NIOSH	NIOSH REL (ceiling) (ppm)	385 ppm
USA IDLH	US IDLH (ppm)	1000 ppm (10% LEL)
USA OSHA	OSHA PEL (TWA) (mg/m³)	2350 mg/m³
USA OSHA	OSHA PEL (TWA) (ppm)	500 ppm
Nonane (111-84-2)		
USA ACGIH	ACGIH TWA (ppm)	200 ppm
USA NIOSH	NIOSH REL (TWA) (mg/m³)	1050 mg/m³
USA NIOSH	NIOSH REL (TWA) (ppm)	200 ppm
Benzene (71-43-2)		
USA ACGIH	ACGIH TWA (ppm)	0.5 ppm
USA ACGIH	ACGIH STEL (ppm)	2.5 ppm
USA ACGIH	ACGIH chemical category	Skin - potential significant contribution to overall exposure by the cutaneous route,Confirmed Human Carcinogen

USA ACGIH	Biological Exposure Indices (BEI)	25 µg/g Kreatinin (Medium: urine - Time: end of shift - Parameter: S-Phenylmercapturic acid (background) 500 µg/g Kreatinin (Medium: urine - Time: end of shift - Parameter: t,t-Muconic acid (background)
USA NIOSH	NIOSH REL (TWA) (ppm)	0.1 ppm
USA NIOSH	NIOSH REL (STEL) (ppm)	1 ppm
USA IDLH	US IDLH (ppm)	500 ppm
USA OSHA	OSHA PEL (TWA) (ppm)	10 ppm 1 ppm
USA OSHA	OSHA PEL (STEL) (ppm)	5 ppm (see 29 CFR 1910.1028)
USA OSHA	OSHA PEL (Ceiling) (ppm)	25 ppm

Toluene (108-88-3)		
USA ACGIH	ACGIH TWA (ppm)	20 ppm
USA ACGIH	ACGIH chemical category	Not Classifiable as a Human Carcinogen
USA ACGIH	Biological Exposure Indices (BEI)	0.02 mg/l (Medium: blood - Time: prior to last shift of workweek - Parameter: Toluene) 0.03 mg/l (Medium: urine - Time: end of shift - Parameter: Toluene) 0.3 mg/g Kreatinin (Medium: urine - Time: end of shift - Parameter: o-Cresol with hydrolysis (background)
USA NIOSH	NIOSH REL (TWA) (mg/m³)	375 mg/m³
USA NIOSH	NIOSH REL (TWA) (ppm)	100 ppm
USA NIOSH	NIOSH REL (STEL) (mg/m³)	560 mg/m³
USA NIOSH	NIOSH REL (STEL) (ppm)	150 ppm
USA IDLH	US IDLH (ppm)	500 ppm
USA OSHA	OSHA PEL (TWA) (ppm)	200 ppm
USA OSHA	OSHA PEL (Ceiling) (ppm)	300 ppm

Ethylbenzene (100-41-4)		
USA ACGIH	ACGIH TWA (ppm)	20 ppm
USA ACGIH	ACGIH chemical category	Confirmed Animal Carcinogen with Unknown Relevance to Humans
USA ACGIH	Biological Exposure Indices (BEI)	0.15 g/g Kreatinin (Medium: urine - Time: end of shift - Parameter: Sum of mandelic acid and phenylglyoxylic acid (nonspecific)
USA NIOSH	NIOSH REL (TWA) (mg/m³)	435 mg/m³
USA NIOSH	NIOSH REL (TWA) (ppm)	100 ppm
USA NIOSH	NIOSH REL (STEL) (mg/m³)	545 mg/m³
USA NIOSH	NIOSH REL (STEL) (ppm)	125 ppm
USA IDLH	US IDLH (ppm)	800 ppm (10% LEL)
USA OSHA	OSHA PEL (TWA) (mg/m³)	435 mg/m³
USA OSHA	OSHA PEL (TWA) (ppm)	100 ppm

m-Xylene (108-38-3)		
USA ACGIH	ACGIH TWA (ppm)	100 ppm
USA ACGIH	ACGIH STEL (ppm)	150 ppm
USA ACGIH	ACGIH chemical category	Not Classifiable as a Human Carcinogen
USA ACGIH	Biological Exposure Indices (BEI)	1.5 g/g Kreatinin (Medium: urine - Time: end of shift - Parameter: Methylhippuric acids)
USA NIOSH	NIOSH REL (TWA) (mg/m³)	435 mg/m³
USA NIOSH	NIOSH REL (TWA) (ppm)	100 ppm
USA NIOSH	NIOSH REL (STEL) (mg/m³)	655 mg/m³
USA NIOSH	NIOSH REL (STEL) (ppm)	150 ppm
USA IDLH	US IDLH (ppm)	900 ppm

p-Xylene (106-42-3)		
USA ACGIH	ACGIH TWA (ppm)	100 ppm

USA ACGIH	ACGIH STEL (ppm)	150 ppm
USA ACGIH	ACGIH chemical category	Not Classifiable as a Human Carcinogen
USA ACGIH	Biological Exposure Indices (BEI)	1.5 g/g Kreatinin (Medium: urine - Time: end of shift - Parameter: Methylhippuric acids)
USA NIOSH	NIOSH REL (TWA) (mg/m³)	435 mg/m³
USA NIOSH	NIOSH REL (TWA) (ppm)	100 ppm
USA NIOSH	NIOSH REL (STEL) (mg/m³)	655 mg/m³
USA NIOSH	NIOSH REL (STEL) (ppm)	150 ppm
USA IDLH	US IDLH (ppm)	900 ppm

o-Xylene (95-47-6)		
USA ACGIH	ACGIH TWA (ppm)	100 ppm
USA ACGIH	ACGIH STEL (ppm)	150 ppm
USA ACGIH	ACGIH chemical category	Not Classifiable as a Human Carcinogen
USA ACGIH	Biological Exposure Indices (BEI)	1.5 g/g Kreatinin (Medium: urine - Time: end of shift - Parameter: Methylhippuric acids)
USA NIOSH	NIOSH REL (TWA) (mg/m³)	435 mg/m³
USA NIOSH	NIOSH REL (TWA) (ppm)	100 ppm
USA NIOSH	NIOSH REL (STEL) (mg/m³)	655 mg/m³
USA NIOSH	NIOSH REL (STEL) (ppm)	150 ppm
USA IDLH	US IDLH (ppm)	900 ppm

2-Methylpentane (107-83-5)		
USA ACGIH	ACGIH TWA (ppm)	500 ppm
USA ACGIH	ACGIH STEL (ppm)	1000 ppm

3-Methylpentane (96-14-0)		
USA ACGIH	ACGIH TWA (ppm)	500 ppm
USA ACGIH	ACGIH STEL (ppm)	1000 ppm

Nitrogen (7727-37-9)		
USA ACGIH	ACGIH chemical category	Simple asphyxiant See Appendix F: Minimal Oxygen Content

Hexane (110-54-3)		
USA ACGIH	ACGIH TWA (ppm)	50 ppm
USA ACGIH	ACGIH chemical category	Skin - potential significant contribution to overall exposure by the cutaneous route
USA ACGIH	Biological Exposure Indices (BEI)	0.4 mg/l (Medium: urine - Time: end of shift at end of workweek - Parameter: 2,5-Hexanedione without hydrolysis)
USA NIOSH	NIOSH REL (TWA) (mg/m³)	180 mg/m³
USA NIOSH	NIOSH REL (TWA) (ppm)	50 ppm
USA IDLH	US IDLH (ppm)	1100 ppm (10% LEL)
USA OSHA	OSHA PEL (TWA) (mg/m³)	1800 mg/m³
USA OSHA	OSHA PEL (TWA) (ppm)	500 ppm

Toluene-2,4-diisocyanate (584-84-9)		
USA ACGIH	ACGIH TWA (ppm)	0.005 ppm
USA ACGIH	ACGIH STEL (ppm)	0.02 ppm
USA ACGIH	ACGIH chemical category	Sensitizer,Not Classifiable as a Human Carcinogen
USA IDLH	US IDLH (ppm)	2.5 ppm
USA OSHA	OSHA PEL (Ceiling) (mg/m³)	0.14 mg/m³
USA OSHA	OSHA PEL (Ceiling) (ppm)	0.02 ppm

Exposure Controls

Appropriate Engineering Controls: Gas detectors should be used when toxic gases may be released. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Gas detectors should be used when flammable gases/vapors may be released. Proper grounding procedures to avoid static electricity should be followed. Use explosion-proof equipment. Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed.

Personal Protective Equipment: Safety glasses. Gloves. Protective clothing. Insufficient ventilation: wear respiratory protection.



Materials for Protective Clothing: Chemically resistant materials and fabrics. Wear fire/flame resistant/retardant clothing.

Hand Protection: Wear chemically resistant protective gloves.

Eye Protection: Chemical safety goggles.

Skin and Body Protection: Wash contaminated clothing before reuse.

Respiratory Protection: If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn.

Other Information: When using, do not eat, drink or smoke.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on Basic Physical and Chemical Properties

Physical State	:	Liquid
Appearance	:	Black, Thick tar-like
Odor	:	Sweet gas
Odor Threshold	:	Not available
pH	:	6
Evaporation Rate	:	Not available
Melting Point	:	Not available
Freezing Point	:	Not available
Initial Boiling Point	:	130 °C (417.2 °F), ASTM D86
Boiling Point	:	214 °C (417 °F)
Flash Point	:	< 4 °C (39 °F), PMCC
Auto-ignition Temperature	:	Not available
Decomposition Temperature	:	Not available
Flammability (solid, gas)	:	Not available
Lower Flammable Limit	:	Not available
Upper Flammable Limit	:	Not available
Ture Vapor Pressure	:	62.94 psia @ 100 °F (37.8 °C)
Reid Vapor Pressure	:	8.0 psia @ 100 °F (37.8 °C)
Relative Vapor Density at 20 °C	:	Not available
Relative Density	:	Not available
Specific Gravity	:	0.8098
Solubility	:	Not soluble in water
Partition Coefficient: N-Octanol/Water	:	2.0 - > 8.0
Viscosity	:	2.59 cSt
Api Gravity (60/60 °F)	:	43.25

SECTION 10: STABILITY AND REACTIVITY

Reactivity: Reacts violently with (strong) oxidizers: (increased) risk of fire/explosion.

Chemical Stability: Highly flammable liquid and vapor. May form flammable/explosive vapor-air mixture.

Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

Conditions to Avoid: Vapor accumulation. Sparks, heat, open flame and other sources of ignition.

Incompatible Materials: Strong oxidizers. Reducing agents.

Hazardous Decomposition Products: May release flammable gases. May release poisonous hydrogen sulfide.

SECTION 11: TOXICOLOGICAL INFORMATION

Information on Toxicological Effects - Product

Acute Toxicity: Not classified

LD50 and LC50 Data: Not available

Skin Corrosion/Irritation: Causes skin irritation. (**pH:** 6)

Serious Eye Damage/Irritation: Not classified (**pH:** 6)

Respiratory or Skin Sensitization: May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.

Germ Cell Mutagenicity: May cause genetic defects.

Carcinogenicity: May cause cancer.

Specific Target Organ Toxicity (Repeated Exposure): May cause damage to organs through prolonged or repeated exposure.

Reproductive Toxicity: Suspected of damaging fertility or the unborn child.

Specific Target Organ Toxicity (Single Exposure): Not classified

Aspiration Hazard: May be fatal if swallowed and enters airways.

Symptoms/Injuries After Inhalation: May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause cancer by inhalation. In elevated concentrations may cause asphyxiation, central nervous system effects, and increased breathing rate. Symptoms of asphyxiation include headache, dizziness, rapid breathing, increased pulse, mood changes, tremors, cyanosis, muscular weakness, narcosis, numbness of the extremities, unconsciousness and death.

Symptoms/Injuries After Skin Contact: Causes skin irritation. Redness, pain, swelling, itching, burning, dryness, and dermatitis. May cause an allergic skin reaction.

Symptoms/Injuries After Eye Contact: Causes eye irritation. Redness, pain, swelling, itching, burning, tearing, and blurred vision.

Symptoms/Injuries After Ingestion: The major health threat of ingestion occurs from the danger of aspiration(breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

Chronic Symptoms: May cause damage to organs through prolonged or repeated exposure. May cause cancer. May cause genetic defects. Suspected of damaging fertility or the unborn child.

Information on Toxicological Effects - Ingredient(s)

LD50 and LC50 Data:

Ethane (74-84-0)	
LC50 Inhalation Rat	658 mg/l/4h
Propane (74-98-6)	
LC50 Inhalation Rat	658 mg/l/4h
Isobutane (75-28-5)	
LC50 Inhalation Rat	658 mg/l/4h
Butane (106-97-8)	
LC50 Inhalation Rat	30957 mg/m³ (Exposure time: 4 h)
Pentane (109-66-0)	
LD50 Dermal Rabbit	3000 mg/kg
LC50 Inhalation Rat	364 g/m³ (Exposure time: 4 h)
n-Heptane (142-82-5)	
LD50 Oral Rat	> 5000 mg/kg
LD50 Dermal Rabbit	3000 mg/kg
LC50 Inhalation Rat	103 g/m³ (Exposure time: 4 h)
Octane (111-65-9)	
LC50 Inhalation Rat	118 g/m³ (Exposure time: 4 h)
Nonane (111-84-2)	
Decane (124-18-5)	
LD50 Oral Rat	> 5000 mg/kg
LD50 Dermal Rat	> 2000 mg/kg
LC50 Inhalation Rat	> 1369 ppm (Exposure time: 8 h)
Benzene (71-43-2)	
LD50 Oral Rat	3306 mg/kg
LD50 Dermal Rabbit	> 8200 mg/kg
LC50 Inhalation Rat	44.66 mg/l/4h

Ethylbenzene (100-41-4)	
LD50 Oral Rat	3500 mg/kg
LD50 Dermal Rabbit	15400 mg/kg
LC50 Inhalation Rat	17.2 mg/l/4h (Exposure time: 4 h)
m-Xylene (108-38-3)	
LD50 Oral Rat	5000 mg/kg
ATE US (dermal)	1,100.00 mg/kg body weight
ATE US (vapors)	11.00 mg/l/4h
p-Xylene (106-42-3)	
LD50 Oral Rat	4029 mg/kg
LC50 Inhalation Rat	4740 ppm/4h
ATE US (dermal)	1,100.00 mg/kg body weight
o-Xylene (95-47-6)	
LD50 Oral Rat	3608 mg/kg
LD50 Dermal Rabbit	14100 mg/kg
LC50 Inhalation Rat	4330 ppm (Exposure time: 6 h)
2,2,4-Trimethylpentane (540-84-1)	
LD50 Oral Rat	> 2500 mg/kg
LC50 Inhalation Rat	47.4 mg/l (Exposure time: 1 h)
Hexane (110-54-3)	
LD50 Dermal Rabbit	3000 mg/kg
LC50 Inhalation Rat	48000 ppm/4h
Toluene-2,4-diisocyanate (584-84-9)	
LD50 Oral Rat	5800 mg/kg
LC50 Inhalation Rat	14 ppm/4h
Undecane (1120-21-4)	
LC50 Inhalation Rat	> 442 ppm (Exposure time: 8 h)
Dodecane (112-40-3)	
LC50 Inhalation Rat	> 142 ppm (Exposure time: 8 h)
Tridecane (629-50-5)	
LD50 Oral Rat	> 5000 mg/kg
LD50 Dermal Rat	> 2000 mg/kg
LC50 Inhalation Rat	> 41 ppm (Exposure time: 8 h)
Tetradecane (629-59-4)	
LD50 Oral Rat	> 5000 mg/kg
LD50 Dermal Rat	> 5000 mg/kg
Benzene (71-43-2)	
IARC Group	1
National Toxicology Program (NTP) Status	Evidence of Carcinogenicity, Known Human Carcinogens.
Ethylbenzene (100-41-4)	
IARC Group	2B
National Toxicology Program (NTP) Status	Evidence of Carcinogenicity.
m-Xylene (108-38-3)	
IARC Group	3
p-Xylene (106-42-3)	
IARC Group	3
o-Xylene (95-47-6)	
IARC Group	3

Toluene-2,4-diisocyanate (584-84-9)	
IARC Group	2B

SECTION 12: ECOLOGICAL INFORMATION

Toxicity

Ecology - General: Very toxic to aquatic life with long lasting effects.

Isopentane (78-78-4)	
EC50 Daphnia 1	2.3 mg/l (Exposure time: 48 h - Species: Daphnia magna)

Pentane (109-66-0)	
LC50 Fish 1	9.87 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss)
EC50 Daphnia 1	9.74 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC 50 Fish 2	11.59 mg/l (Exposure time: 96 h - Species: Pimephales promelas)

n-Heptane (142-82-5)	
LC50 Fish 1	375.0 mg/l (Exposure time: 96 h - Species: Cichlid fish)

Octane (111-65-9)	
EC50 Daphnia 1	0.38 mg/l (Exposure time: 48 h - Species: water flea)

Decane (124-18-5)	
LC50 Fish 1	> 1000 mg/l

Benzene (71-43-2)	
LC50 Fish 1	10.7 - 14.7 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
EC50 Daphnia 1	8.76 - 15.6 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
LC 50 Fish 2	5.3 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [flow-through])
EC50 Daphnia 2	10 mg/l (Exposure time: 48 h - Species: Daphnia magna)

Ethylbenzene (100-41-4)	
LC50 Fish 1	11.0 - 18.0 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [static])
EC50 Daphnia 1	1.8 - 2.4 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC 50 Fish 2	4.2 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [semi-static])

m-Xylene (108-38-3)	
LC50 Fish 1	14.3 - 18 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
EC50 Daphnia 1	2.81 - 5.0 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
LC 50 Fish 2	8.4 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [semi-static])

p-Xylene (106-42-3)	
LC50 Fish 1	7.2 - 9.9 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])
EC50 Daphnia 1	3.55 - 6.31 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
LC 50 Fish 2	2.6 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss)

o-Xylene (95-47-6)	
LC50 Fish 1	11.6 - 22.4 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
EC50 Daphnia 1	3.2 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC 50 Fish 2	11.6 - 22.4 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [flow-through])
EC50 Daphnia 2	2.61 - 5.59 mg/l (Exposure time: 48 h - Species: Daphnia magna [Flow through])

Hexane (110-54-3)	
LC50 Fish 1	2.1 - 2.98 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])

Persistence and Degradability

Bakken Crude Oil	
Persistence and Degradability	Not established. May cause long-term adverse effects in the environment.

Bioaccumulative Potential

Bakken Crude Oil	
Bioaccumulative Potential	Not established.

Ethane (74-84-0)	
Log Pow	<= 2.8

Propane (74-98-6)	
Log Pow	2.3
Isobutane (75-28-5)	
BCF Fish 1	1.57 - 1.97
Log Pow	2.88 (at 20 °C)
Butane (106-97-8)	
Log Pow	2.89
Isopentane (78-78-4)	
Log Pow	3.2 - 3.3
Pentane (109-66-0)	
Log Pow	3.39
n-Heptane (142-82-5)	
Log Pow	4.66
Octane (111-65-9)	
Log Pow	5.18
Decane (124-18-5)	
Log Pow	5.1 (at 20 °C)
Benzene (71-43-2)	
BCF Fish 1	3.5 - 4.4
Log Pow	1.83
Ethylbenzene (100-41-4)	
BCF Fish 1	15
Log Pow	3.118
m-Xylene (108-38-3)	
Log Pow	3.2 (at 25 °C)
p-Xylene (106-42-3)	
BCF Fish 1	2.2
Log Pow	3.15
o-Xylene (95-47-6)	
BCF Fish 1	21.4 (xylene from crude oil)
Log Pow	3.12
Tetradecane (629-59-4)	
Log Pow	7.2 (at 20 °C)

Mobility in Soil Not available

Other Adverse Effects

Other Information: Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Recommendations: Dispose of waste material in accordance with all local, regional, national, provincial, territorial and international regulations.

Additional Information: Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

Ecology – Waste Materials: This material is hazardous to the aquatic environment. Keep out of sewers and waterways.

SECTION 14: TRANSPORT INFORMATION

In Accordance with DOT

Proper Shipping Name : PETROLEUM CRUDE OIL
Hazard Class : 3
Identification Number : UN1267
Label Codes : 3
Packing Group : I
Marine Pollutant : Marine pollutant
ERG Number : 128



SECTION 15: REGULATORY INFORMATION

US Federal Regulations

Bakken Crude Oil	
SARA Section 311/312 Hazard Classes	Fire hazard Immediate (acute) health hazard Delayed (chronic) health hazard

Methane (74-82-8)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Ethane (74-84-0)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Propane (74-98-6)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Isobutane (75-28-5)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Butane (106-97-8)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Isopentane (78-78-4)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Pentane (109-66-0)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
EPA TSCA Regulatory Flag	T - T - indicates a substance that is the subject of a Section 4 test rule under TSCA.

n-Heptane (142-82-5)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
EPA TSCA Regulatory Flag	T - T - indicates a substance that is the subject of a Section 4 test rule under TSCA.

Octane (111-65-9)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Nonane (111-84-2)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
EPA TSCA Regulatory Flag	T - T - indicates a substance that is the subject of a Section 4 test rule under TSCA.

Decane (124-18-5)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Benzene (71-43-2)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on United States SARA Section 313	
RQ (Reportable Quantity, Section 304 of EPA's List of Lists):	10 lb
SARA Section 313 - Emission Reporting	0.1 %

Ethylbenzene (100-41-4)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on United States SARA Section 313	
RQ (Reportable Quantity, Section 304 of EPA's List of Lists):	1000 lb

SARA Section 313 - Emission Reporting	0.1 %

m-Xylene (108-38-3)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on United States SARA Section 313	
SARA Section 313 - Emission Reporting	1.0 %

p-Xylene (106-42-3)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on United States SARA Section 313	
EPA TSCA Regulatory Flag	T - T - indicates a substance that is the subject of a Section 4 test rule under TSCA.
SARA Section 313 - Emission Reporting	1.0 %

o-Xylene (95-47-6)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on United States SARA Section 313	
SARA Section 313 - Emission Reporting	1.0 %

2,2,4-Trimethylpentane (540-84-1)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

2-Methylpentane (107-83-5)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

3-Methylpentane (96-14-0)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Nitrogen (7727-37-9)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Hexane (110-54-3)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on United States SARA Section 313	
SARA Section 313 - Emission Reporting	1.0 %

Toluene-2,4-diisocyanate (584-84-9)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on the United States SARA Section 302 Listed on United States SARA Section 313	
SARA Section 302 Threshold Planning Quantity (TPQ)	500
SARA Section 313 - Emission Reporting	0.1 %

Undecane (1120-21-4)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Dodecane (112-40-3)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Tridecane (629-50-5)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Tetradecane (629-59-4)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Pentadecane (629-62-9)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Hexadecane (544-76-3)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

US State Regulations

Benzene (71-43-2)	
U.S. - California - Proposition 65 - Carcinogens List	WARNING: This product contains chemicals known to the State of California to cause cancer.
U.S. - California - Proposition 65 - Developmental Toxicity	WARNING: This product contains chemicals known to the State of California to cause birth defects.

U.S. - California - Proposition 65 - Reproductive Toxicity - Male	WARNING: This product contains chemicals known to the State of California to cause (Male) reproductive harm.

Ethylbenzene (100-41-4)	
U.S. - California - Proposition 65 - Carcinogens List	WARNING: This product contains chemicals known to the State of California to cause cancer.

Methane (74-82-8)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Ethane (74-84-0)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Propane (74-98-6)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Isobutane (75-28-5)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Butane (106-97-8)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Isopentane (78-78-4)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Pentane (109-66-0)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

n-Heptane (142-82-5)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Octane (111-65-9)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Nonane (111-84-2)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Decane (124-18-5)
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Benzene (71-43-2)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List

U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances
U.S. - Pennsylvania - RTK (Right to Know) List

Ethylbenzene (100-41-4)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List

m-Xylene (108-38-3)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List

p-Xylene (106-42-3)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List

o-Xylene (95-47-6)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List

2,2,4-Trimethylpentane (540-84-1)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

2-Methylpentane (107-83-5)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

3-Methylpentane (96-14-0)

U.S. - Massachusetts - Right To Know List
U.S. - Pennsylvania - RTK (Right to Know) List

Nitrogen (7727-37-9)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Hexane (110-54-3)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Toluene-2,4-diisocyanate (584-84-9)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances
U.S. - Pennsylvania - RTK (Right to Know) List

Undecane (1120-21-4)

U.S. - New Jersey - Right to Know Hazardous Substance List

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Revision Date : 02/10/2015

Other Information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

GHS Full Text Phrases:

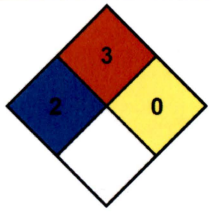
Acute Tox. 1 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 1
Acute Tox. 4 (Dermal)	Acute toxicity (dermal) Category 4
Acute Tox. 4 (Inhalation:vapor)	Acute toxicity (inhalation:vapor) Category 4
Aquatic Acute 1	Hazardous to the aquatic environment - Acute Hazard Category 1
Aquatic Acute 2	Hazardous to the aquatic environment - Acute Hazard Category 2
Aquatic Chronic 1	Hazardous to the aquatic environment - Chronic Hazard Category 1
Aquatic Chronic 2	Hazardous to the aquatic environment - Chronic Hazard Category 2
Aquatic Chronic 3	Hazardous to the aquatic environment - Chronic Hazard Category 3
Asp. Tox. 1	Aspiration hazard Category 1
Carc. 1A	Carcinogenicity Category 1A
Carc. 2	Carcinogenicity Category 2
Compressed gas	Gases under pressure Compressed gas
Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
Flam. Gas 1	Flammable gases Category 1
Flam. Liq. 1	Flammable liquids Category 1
Flam. Liq. 2	Flammable liquids Category 2
Flam. Liq. 3	Flammable liquids Category 3
Flam. Liq. 4	Flammable liquids Category 4
Liquefied gas	Gases under pressure Liquefied gas
Muta. 1B	Germ cell mutagenicity Category 1B
Repr. 2	Reproductive toxicity Category 2
Resp. Sens. 1	Respiratory sensitisation Category 1
Resp. Sens. 1A	Respiratory sensitisation Category 1A
Simple Asphy	Simple Asphyxiant
Skin Irrit. 2	Skin corrosion/irritation Category 2
Skin Sens. 1	Skin sensitization Category 1
STOT RE 1	Specific target organ toxicity (repeated exposure) Category 1
STOT RE 2	Specific target organ toxicity (repeated exposure) Category 2
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H220	Extremely flammable gas
H224	Extremely flammable liquid and vapor
H225	Highly flammable liquid and vapor
H226	Flammable liquid and vapor
H227	Combustible liquid
H280	Contains gas under pressure; may explode if heated
H304	May be fatal if swallowed and enters airways
H312	Harmful in contact with skin
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H319	Causes serious eye irritation
H330	Fatal if inhaled
H332	Harmful if inhaled
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled

H335	May cause respiratory irritation
H336	May cause drowsiness or dizziness
H340	May cause genetic defects
H350	May cause cancer
H351	Suspected of causing cancer
H361	Suspected of damaging fertility or the unborn child
H372	Causes damage to organs through prolonged or repeated exposure
H373	May cause damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life
H401	Toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects
H411	Toxic to aquatic life with long lasting effects
H412	Harmful to aquatic life with long lasting effects

NFPA Health Hazard : 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.

NFPA Fire Hazard : 3 - Liquids and solids that can be ignited under almost all ambient conditions.

NFPA Reactivity Hazard : 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

North America GHS US 2012 & WHMIS 2

GRAYSON MILL
ENERGY

Safety Data Sheet

Material Name: Natural Gas Condensate

* * * Section 1 - Product and Company Identification * * *

Manufacturer Information

Grayson Mill Energy
14689 Brigham Drive
Williston, ND 58801

* * * Section 2 - Hazards Identification * * *

GHS Classification:

Flammable Liquids - Category 4
Acute Toxicity Oral - Category 4
Skin Corrosion/Irritation - Category 2
Eye Damage/Irritation - Category 1
Germ Cell Mutagenicity - Category 1B
Carcinogenicity - Category 1A
Reproductive Toxicity - Category 2
Specific Target Organ Toxicity Repeat Exposure - Category 1
Aspiration Toxicity - Category 1
Hazardous to the Aquatic Environment - Acute Category 1

GHS LABEL ELEMENTS

Symbol(s)



Signal Word

Danger

Hazard Statements

Combustible liquid.
Harmful if swallowed.
Causes skin irritation.
Causes serious eye damage.
May cause genetic defects.

May cause cancer.
Suspected of damaging the unborn child.
Causes damage to organs (liver, kidneys, blood, nervous system, and skin) through prolonged or repeated exposure.
May be fatal if swallowed and enters airways.
Very toxic to aquatic life.

Precautionary Statements

Prevention

Keep away from flames and hot surfaces. No smoking
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Do not breathe dust/fume/gas/mist/vapors/spray
Wear protective gloves/protective clothing/eye protection/face protection.
Avoid release to the environment.

Response

IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: get medical advice/attention. Take off contaminated clothing and wash before reuse.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center or doctor/physician.
IF SWALLOWED: Immediately call a poison center or doctor/physician. Do not induce vomiting.
In case of fire: Use water spray, fog or fire fighting foam.
Collect spillage.

Storage

Store in a well-ventilated place. Keep cool.

Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

* * * Section 3 - Composition / Information on Ingredients * * *

CAS #	Component	Percent
21372-83-8	Orthoformic acid tri-secbutyl ester	32.1
71-43-2	Benzene	20
Not Available	Glycol ethers	15.7
108-88-3	Toluene	10.7
Not Available	Unidentified organic esters/acid esters	3.2
120-92-3	Cyclopentanone	3
1330-20-7	Xylenes (o-, m-, p- isomers)	2.4
95-48-7	o-Cresol	2.3
95-87-4	2,5-Xylenol	2.1
78-93-3	Methyl ethyl ketone	1.8
1120-73-6	2-Methyl-2-cyclopenten-1-one	1.6

106-44-5	p-Cresol	1.5
526-85-2	Phenol, 2,3,4-trimethyl-	1.1
576-26-1	2,6-Dimethylphenol	0.9
928-68-7	2-Heptanone, 6-methyl-	0.6
100-41-4	Ethylbenzene	0.3
1120-72-5	Cyclopentanone, 2-methyl-	0.3
1757-42-2	DL-3-Methylcyclopentanone	0.1

* * * Section 4 - First Aid Measures * * *

First Aid: Eyes

In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

First Aid: Skin

Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or waterless hand cleanser. Obtain medical attention if irritation or redness develops.

First Aid: Ingestion

DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Monitor for breathing difficulties. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

First Aid: Inhalation

Remove person to fresh air. If person is not breathing, ensure an open airway and provide artificial respiration. if breathing and heart beat have stopped, administer CPR. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

* * * Section 5 - Fire Fighting Measures * * *

General Fire Hazards

See Section 9 for Flammability Properties.
Combustible liquid.

Hazardous Combustion Products

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

Extinguishing Media

SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO2, water spray, fire fighting foam, or Halon.

LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

Unsuitable Extinguishing Media

None

Fire Fighting Equipment/Instructions

Firefighters should wear full protective gear.

* * * Section 6 - Accidental Release Measures * * *

Recovery and Neutralization

Carefully contain and stop the source of the spill, if safe to do so.

Materials and Methods for Clean-Up

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal.

Emergency Measures

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas.

Personal Precautions and Protective Equipment

Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

Environmental Precautions

Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material.

Prevention of Secondary Hazards

None

* * * Section 7 - Handling and Storage * * *

Handling Procedures

Handle as a combustible liquid. Keep away from heat, sparks, and open flame!

Storage Procedures

Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers. Keep containers closed and clearly labeled.

Incompatibilities

Keep away from strong oxidizers.

* * * Section 8 - Exposure Controls / Personal Protection * * *

Component Exposure Limits

Benzene (71-43-2)

ACGIH: 0.5 ppm TWA
2.5 ppm STEL
Skin - potential significant contribution to overall exposure by the cutaneous route

OSHA: 5 ppm STEL (Cancer hazard, Flammable, See 29 CFR 1910.1028, 15 min); 0.5 ppm Action Level; 1 ppm TWA
10 ppm TWA (applies to industry segments exempt from the benzene standard at 29 CFR 1910.1028); 1 ppm TWA
5 ppm STEL (see 29 CFR 1910.1028)
25 ppm Ceiling

NIOSH: 0.1 ppm TWA
1 ppm STEL

Toluene (108-88-3)

ACGIH: 20 ppm TWA

OSHA: 200 ppm TWA
300 ppm Ceiling

NIOSH: 100 ppm TWA; 375 mg/m3 TWA
150 ppm STEL; 560 mg/m3 STEL

Xylenes (o-, m-, p- isomers) (1330-20-7)

ACGIH: 100 ppm TWA
150 ppm STEL
OSHA: 100 ppm TWA; 435 mg/m3 TWA

o-Cresol (95-48-7)

ACGIH: 20 mg/m3 TWA (inhalable fraction and vapor)
Skin - potential significant contribution to overall exposure by the cutaneous route
NIOSH: 2.3 ppm TWA; 10 mg/m3 TWA

Methyl ethyl ketone (78-93-3)

ACGIH: 200 ppm TWA
300 ppm STEL
OSHA: 200 ppm TWA; 590 mg/m3 TWA
NIOSH: 200 ppm TWA; 590 mg/m3 TWA
300 ppm STEL; 885 mg/m3 STEL

p-Cresol (106-44-5)

ACGIH: 20 mg/m3 TWA (inhalable fraction and vapor)
Skin - potential significant contribution to overall exposure by the cutaneous route
NIOSH: 2.3 ppm TWA; 10 mg/m3 TWA

Ethylbenzene (100-41-4)

ACGIH: 20 ppm TWA
OSHA: 100 ppm TWA; 435 mg/m3 TWA
NIOSH: 100 ppm TWA; 435 mg/m3 TWA
125 ppm STEL; 545 mg/m3 STEL

Engineering Measures

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

Personal Protective Equipment: Respiratory

A NIOSH-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

Personal Protective Equipment: Hands

Gloves constructed of nitrile or neoprene are recommended.

Personal Protective Equipment: Eyes

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

Personal Protective Equipment: Skin and Body

Chemical protective clothing such as E.I. DuPont TyChem®, Saranex® or equivalent recommended based on degree of exposure. Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.

* * * Section 9 - Physical & Chemical Properties * * *

Appearance:	Colorless to straw-yellow, water-like.	**Odor:**	None
Physical State:	Liquid	**pH:**	7.5
Vapor Pressure:	Not Determined	**Vapor Density:**	Not Determined
Boiling Point:	213°F	**Melting Point:**	Not Determined
Solubility (H2O):	Negligible	**Specific Gravity:**	0.9987
Evaporation Rate:	Not Determined	**VOC:**	Present per speciated review
Octanol/H2O Coeff.:	Not Determined	**Flash Point:**	>180 °F
Flash Point Method:	PMCC	**Upper Flammability Limit (UFL):**	Not Determined
Lower Flammability Limit (LFL):	Not Determined	**Burning Rate:**	Not Determined
Auto Ignition:	Not Determined		

* * * Section 10 - Chemical Stability & Reactivity Information * * *

Chemical Stability

This is a stable material.

Hazardous Reaction Potential

Will not occur.

Conditions to Avoid

Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources.

Incompatible Products

Keep away from strong oxidizers.

Hazardous Decomposition Products

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

* * * Section 11 - Toxicological Information * * *

Acute Toxicity

Component Analysis - LD50/LC50

Benzene (71-43-2)

Inhalation LC50 Rat 13050-14380 ppm 4 h; Oral LD50 Rat 1800 mg/kg

Toluene (108-88-3)

Inhalation LC50 Rat 12.5 mg/L 4 h; Inhalation LC50 Rat >26700 ppm 1 h; Oral LD50 Rat 636 mg/kg; Dermal LD50 Rabbit 8390 mg/kg; Dermal LD50 Rat 12124 mg/kg

Cyclopentanone (120-92-3)

Oral LD50 Rat 1180 mg/kg; Dermal LD50 Rabbit >5000 mg/kg

Xylenes (o-, m-, p- isomers) (1330-20-7)

Inhalation LC50 Rat 5000 ppm 4 h; Inhalation LC50 Rat 47635 mg/L 4 h; Oral LD50 Rat 4300 mg/kg; Dermal LD50 Rabbit >1700 mg/kg

o-Cresol (95-48-7)
Inhalation LC50 Rat >1220 mg/m3 1 h; Oral LD50 Rat 121 mg/kg; Dermal LD50 Rat 620 mg/kg; Dermal LD50 Rabbit 890 mg/kg

2,5-Xylenol (95-87-4)
Oral LD50 Rat 444 mg/kg

Methyl ethyl ketone (78-93-3)
Inhalation LC50 Mouse 32 g/m3 4 h; Oral LD50 Rat 2737 mg/kg; Dermal LD50 Rabbit 6480 mg/kg

p-Cresol (106-44-5)
Inhalation LC50 Rat >710 mg/m3 1 h; Oral LD50 Rat 207 mg/kg; Dermal LD50 Rat 750 mg/kg; Dermal LD50 Rabbit 130 mg/kg

2,6-Dimethylphenol (576-26-1)
Oral LD50 Rat 296 mg/kg; Dermal LD50 Rat 2325 mg/kg; Dermal LD50 Rabbit 1000 mg/kg

2-Heptanone, 6-methyl- (928-68-7)
Oral LD50 Rat 6700 mg/kg

Ethylbenzene (100-41-4)
Inhalation LC50 Rat 17.2 mg/L 4 h; Oral LD50 Rat 3500 mg/kg; Dermal LD50 Rabbit 15354 mg/kg

Potential Health Effects: Skin Corrosion Property/Stimulativeness

May cause skin irritation with prolonged or repeated contact. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are exposed repeatedly.

Potential Health Effects: Eye Critical Damage/ Stimulativeness

Causes serious eye damage.

Potential Health Effects: Ingestion

Harmful if swallowed.

Potential Health Effects: Inhalation

Excessive exposure may cause irritation to the nose, throat, lungs and respiratory tract.

Respiratory Organs Sensitization/Skin Sensitization

This product is not reported to have any skin sensitization effects.

Generative Cell Mutagenicity

May cause genetic defects.

Carcinogenicity

A: General Product Information

May cause cancer.

B: Component Carcinogenicity

Benzene (71-43-2)

ACGIH: A1 - Confirmed Human Carcinogen
OSHA: 5 ppm STEL (Cancer hazard, Flammable, See 29 CFR 1910.1028, 15 min); 0.5 ppm Action Level; 1 ppm TWA
NIOSH: potential occupational carcinogen
NTP: Known Human Carcinogen (Select Carcinogen)
IARC: Monograph 100F [2012]; Supplement 7 [1987]; Monograph 29 [1982] (Group 1 (carcinogenic to humans))

Toluene (108-88-3)

ACGIH: A4 - Not Classifiable as a Human Carcinogen
IARC: Monograph 71 [1999]; Monograph 47 [1989] (Group 3 (not classifiable))

Xylenes (o-, m-, p- isomers) (1330-20-7)

ACGIH: A4 - Not Classifiable as a Human Carcinogen
IARC: Monograph 71 [1999]; Monograph 47 [1989] (Group 3 (not classifiable))

o-Cresol (95-48-7)

ACGIH: A4 - Not Classifiable as a Human Carcinogen

p-Cresol (106-44-5)

ACGIH: A4 - Not Classifiable as a Human Carcinogen

Ethylbenzene (100-41-4)

ACGIH: A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans
IARC: Monograph 77 [2000] (Group 2B (possibly carcinogenic to humans))

Reproductive Toxicity

Suspected of damaging the unborn child.

Specified Target Organ General Toxicity: Single Exposure

This product is not reported to have any specific target organ general toxicity single exposure effects.

Specified Target Organ General Toxicity: Repeated Exposure

Causes damage to organs (liver, kidneys, blood, nervous system and skin) through prolonged or repeated exposure.

Aspiration Respiratory Organs Hazard

The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

* * * Section 12 - Ecological Information * * *

Ecotoxicity

A: General Product Information

Keep out of sewers, drainage areas and waterways. Report spills and releases, as applicable, under Federal and State regulations.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Benzene (71-43-2)

Test & Species		Conditions
96 Hr LC50 Pimephales promelas	10.7-14.7 mg/L [flow-through]	
96 Hr LC50 Oncorhynchus mykiss	5.3 mg/L [flow-through]	
96 Hr LC50 Lepomis macrochirus	22.49 mg/L [static]	
96 Hr LC50 Poecilia reticulata	28.6 mg/L [static]	
96 Hr LC50 Pimephales promelas	22330-41160 µg/L [static]	
96 Hr LC50 Lepomis macrochirus	70000-142000 µg/L [static]	
72 Hr EC50 Pseudokirchneriella subcapitata	29 mg/L	
48 Hr EC50 Daphnia magna	8.76 - 15.6 mg/L [Static]	
48 Hr EC50 Daphnia magna	10 mg/L	

Toluene (108-88-3)

Test & Species		Conditions
96 Hr LC50 Pimephales promelas	15.22-19.05 mg/L [flow-through]	1 day old
96 Hr LC50 Pimephales promelas	12.6 mg/L [static]	
96 Hr LC50 Oncorhynchus mykiss	5.89-7.81 mg/L [flow-through]	
96 Hr LC50 Oncorhynchus mykiss	14.1-17.16 mg/L [static]	
96 Hr LC50 Oncorhynchus mykiss	5.8 mg/L [semi-static]	
96 Hr LC50 Lepomis macrochirus	11.0-15.0 mg/L [static]	
96 Hr LC50 Oryzias latipes	54 mg/L [static]	
96 Hr LC50 Poecilia reticulata	28.2 mg/L [semi-static]	
96 Hr LC50 Poecilia reticulata	50.87-70.34 mg/L [static]	
96 Hr EC50 Pseudokirchneriella subcapitata	>433 mg/L	
72 Hr EC50 Pseudokirchneriella subcapitata	12.5 mg/L [static]	
48 Hr EC50 Daphnia magna	5.46 - 9.83 mg/L [Static]	
48 Hr EC50 Daphnia magna	11.5 mg/L	

Cyclopentanone (120-92-3)

Test & Species		Conditions
48 Hr LC50 Leuciscus idus	2950 mg/L [static]	

24 Hr EC50 Daphnia magna	1435 mg/L

Xylenes (o-, m-, p- isomers) (1330-20-7)

Test & Species	Conditions
96 Hr LC50 Pimephales promelas	13.4 mg/L [flow-through]
96 Hr LC50 Oncorhynchus mykiss	2.661-4.093 mg/L [static]
96 Hr LC50 Oncorhynchus mykiss	13.5-17.3 mg/L
96 Hr LC50 Lepomis macrochirus	13.1-16.5 mg/L [flow-through]
96 Hr LC50 Lepomis macrochirus	19 mg/L
96 Hr LC50 Lepomis macrochirus	7.711-9.591 mg/L [static]
96 Hr LC50 Pimephales promelas	23.53-29.97 mg/L [static]
96 Hr LC50 Cyprinus carpio	780 mg/L [semi-static]
96 Hr LC50 Cyprinus carpio	>780 mg/L
96 Hr LC50 Poecilia reticulata	30.26-40.75 mg/L [static]
48 Hr EC50 water flea	3.82 mg/L
48 Hr LC50 Gammarus lacustris	0.6 mg/L

o-Cresol (95-48-7)

Test & Species	Conditions
96 Hr LC50 Pimephales promelas	9.72-15.92 mg/L [flow-through]
96 Hr LC50 Brachydanio rerio	24 mg/L
96 Hr LC50 Lepomis macrochirus	11.5 mg/L
96 Hr LC50 Lepomis macrochirus	18.37-24.21 mg/L [static]
96 Hr LC50 Oncorhynchus mykiss	8.4 mg/L [flow-through]
96 Hr LC50 Poecilia reticulata	14.07-23.61 mg/L [static]
96 Hr EC50 Pseudokirchneriella subcapitata	65 mg/L
48 Hr EC50 Daphnia magna	9.5 mg/L
48 Hr EC50 Daphnia magna	15.8 mg/L [Static]

Methyl ethyl ketone (78-93-3)

Test & Species	Conditions
96 Hr LC50 Pimephales promelas	3130-3320 mg/L [flow-through]
48 Hr EC50 Daphnia magna	>520 mg/L

48 Hr EC50 Daphnia magna	5091 mg/L
48 Hr EC50 Daphnia magna	4025 - 6440 mg/L [Static]

p-Cresol (106-44-5)

Test & Species	Conditions
96 Hr LC50 Pimephales promelas	15.9-17 mg/L [flow-through]
96 Hr LC50 Pimephales promelas	19 mg/L [static]
96 Hr LC50 Oncorhynchus mykiss	7.5 mg/L [flow-through]
48 Hr EC50 Daphnia magna	21.1 mg/L

2,6-Dimethylphenol (576-26-1)

Test & Species	Conditions
96 Hr LC50 Pimephales promelas	27 mg/L [flow-through]
48 Hr EC50 Daphnia magna	11.2 mg/L
48 Hr EC50 Daphnia magna	11.2 mg/L [Static]

2-Heptanone, 6-methyl- (928-68-7)

Test & Species	Conditions
96 Hr LC50 Leuciscus idus	46-100 mg/L [static]
72 Hr EC50 Desmodesmus subspicatus	110 mg/L
96 Hr EC50 Desmodesmus subspicatus	114 mg/L
48 Hr EC50 Daphnia magna	76 mg/L

Ethylbenzene (100-41-4)

Test & Species	Conditions
96 Hr LC50 Oncorhynchus mykiss	11.0-18.0 mg/L [static]
96 Hr LC50 Oncorhynchus mykiss	4.2 mg/L [semi-static]
96 Hr LC50 Pimephales promelas	7.55-11 mg/L [flow-through]
96 Hr LC50 Lepomis macrochirus	32 mg/L [static]
96 Hr LC50 Pimephales promelas	9.1-15.6 mg/L [static]
96 Hr LC50 Poecilia reticulata	9.6 mg/L [static]
72 Hr EC50 Pseudokirchneriella subcapitata	4.6 mg/L
96 Hr EC50 Pseudokirchneriella subcapitata	>438 mg/L
72 Hr EC50 Pseudokirchneriella subcapitata	2.6 - 11.3 mg/L [static]
96 Hr EC50 Pseudokirchneriella	1.7 - 7.6 mg/L [static]

subcapitata
48 Hr EC50 Daphnia magna 1.8 - 2.4 mg/L

Persistence/Degradability
No information available.

Bioaccumulation
No information available.

Mobility in Soil
No information available.

* * * Section 13 - Disposal Considerations * * *

Waste Disposal Instructions
See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

Disposal of Contaminated Containers or Packaging
Dispose of contents/container in accordance with local/regional/national/international regulations.

* * * Section 14 - Transportation Information * * *

DOT Information
Shipping Name: Petroleum Products, n.o.s. (condensate)
Hazard Class: 3 **UN #:** 1268

* * * Section 15 - Regulatory Information * * *

Regulatory Information

US Federal Regulations

Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Benzene (71-43-2)
SARA 313: 0.1 % de minimis concentration
CERCLA: 10 lb final RQ (received an adjusted RQ of 10 lbs based on potential carcinogenicity in an August 14, 1989 final rule); 4.54 kg final RQ (received an adjusted RQ of 10 lbs based on potential carcinogenicity in an August 14, 1989 final rule)

Toluene (108-88-3)
SARA 313: 1.0 % de minimis concentration
CERCLA: 1000 lb final RQ; 454 kg final RQ

Xylenes (o-, m-, p- isomers) (1330-20-7)
SARA 313: 1.0 % de minimis concentration
CERCLA: 100 lb final RQ; 45.4 kg final RQ

o-Cresol (95-48-7)

SARA 302: 1000 lb lower TPQ; 10000 lb upper TPQ
SARA 313: 1.0 % de minimis concentration
CERCLA: 100 lb final RQ; 45.4 kg final RQ

Methyl ethyl ketone (78-93-3)

CERCLA: 5000 lb final RQ; 2270 kg final RQ

p-Cresol (106-44-5)

SARA 313: 1.0 % de minimis concentration
CERCLA: 100 lb final RQ; 45.4 kg final RQ

Ethylbenzene (100-41-4)

SARA 313: 0.1 % de minimis concentration
CERCLA: 1000 lb final RQ; 454 kg final RQ

State Regulations

A: Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
Benzene	71-43-2	Yes	Yes	Yes	Yes	Yes	No
Toluene	108-88-3	Yes	Yes	Yes	Yes	Yes	No
Cyclopentanone	120-92-3	No	Yes	No	Yes	Yes	No
Xylenes (o-, m-, p- isomers)	1330-20-7	Yes	Yes	Yes	Yes	Yes	No
o-Cresol	95-48-7	Yes	Yes	No	Yes	Yes	No
Methyl ethyl ketone	78-93-3	Yes	Yes	Yes	Yes	Yes	No
p-Cresol	106-44-5	Yes	Yes	No	Yes	Yes	No
Ethylbenzene	100-41-4	Yes	Yes	Yes	Yes	Yes	No

WARNING! This product contains a chemical known to the state of California to cause cancer.
WARNING! This product contains a chemical known to the state of California to cause reproductive/developmental effects.

Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	Minimum Concentration
Benzene	71-43-2	0.1 %
Toluene	108-88-3	1 %
Cyclopentanone	120-92-3	1 %
o-Cresol	95-48-7	1 %
Methyl ethyl ketone	78-93-3	1 %
p-Cresol	106-44-5	1 %
Ethylbenzene	100-41-4	0.1 %

Material Name: Natural Gas Condensate

Additional Regulatory Information

Component Analysis - Inventory

Component	CAS #	TSCA	CAN	EEC
Orthoformic acid tri-secbutyl ester	21372-83-8	No	No	No
Benzene	71-43-2	Yes	DSL	EINECS
Toluene	108-88-3	Yes	DSL	EINECS
Cyclopentanone	120-92-3	Yes	DSL	EINECS
Xylenes (o-, m-, p- isomers)	1330-20-7	Yes	DSL	EINECS
o-Cresol	95-48-7	Yes	DSL	EINECS
2,5-Xylenol	95-87-4	Yes	DSL	EINECS
Methyl ethyl ketone	78-93-3	Yes	DSL	EINECS
2-Methyl-2-cyclopenten-1-one	1120-73-6	No	No	No
p-Cresol	106-44-5	Yes	DSL	EINECS
Phenol, 2,3,4-trimethyl-	526-85-2	Yes	NDSL	EINECS
2,6-Dimethylphenol	576-26-1	Yes	DSL	EINECS
2-Heptanone, 6-methyl-	928-68-7	Yes	NDSL	EINECS
Cyclopentanone, 2-methyl-	1120-72-5	Yes	NDSL	EINECS
Ethylbenzene	100-41-4	Yes	DSL	EINECS
DL-3-Methylcyclopentanone	1757-42-2	No	No	EINECS

* * * Section 16 - Other Information * * *

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration., NJTSR = New Jersey Trade Secret Registry.

Literature References

None

End of Sheet

GRAYSON MILL
ENERGY

Safety Data Sheet

Material Name: Natural Gas Vapor

* * * Section 1 - Product and Company Identification * * *

Manufacturer Information

Grayson Mill Energy
14689 Brigham Drive
Williston, ND 58801

* * * Section 2 - Hazards Identification * * *

GHS Classification:

Flammable Gas- Category 1
Acute Toxicity Inhalation - Category 3
Germ Cell Mutagenicity - Category 1B
Carcinogenicity - Category 1A
Reproductive Toxicity - Category 2
Hazardous to the Aquatic Environment - Acute Category 3

GHS LABEL ELEMENTS

Symbol(s)



Signal Word

Danger

Hazard Statements

Extremely flammable gas.
Toxic if inhaled.
May cause genetic defects.
May cause cancer.
Suspected of damaging fertility.
Harmful to aquatic life with long lasting effects.

Precautionary Statements

Prevention

Keep away from heat/sparks/open flames/hot surfaces. No smoking
Avoid breathing fume/gas/mist/vapors
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Wear protective gloves/protective clothing/eye protection/face protection.

Avoid release to the environment.

Response
Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
Eliminate all ignition sources if safe to do so.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
If exposed or concerned: Get medical advice/attention.

Storage
Store in a well-ventilated place.

Disposal
Dispose of contents/container in accordance with local/regional/national/international regulations.

* * * Section 3 - Composition / Information on Ingredients * * *

CAS #	Component	Percent
74-82-8	Methane	51.63
74-84-0	Ethane	22.615
74-98-6	Propane	14.317
109-66-0	Pentane	4.328
7727-37-9	Nitrogen	2.389
75-28-5	Isobutane	1.498
124-38-9	Carbon dioxide	0.665
107-83-5	2-Methylpentane	0.165
110-54-3	Hexane	0.144

* * * Section 4 - First Aid Measures * * *

First Aid: Eyes
None needed as this is not an anticipated route of exposure for this product.

First Aid: Skin
None needed as this is not an anticipated route of exposure for this product.

First Aid: Ingestion
None needed as this is not an anticipated route of exposure for this product.

First Aid: Inhalation
Remove person to fresh air. If person is not breathing, ensure an open airway and provide artificial respiration. If breathing and heart beat have stopped, administer CPR. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

* * * Section 5 - Fire Fighting Measures * * *

General Fire Hazards
See Section 9 for Flammability Properties.
Extremely flammable gas. Keep away from heat, sparks, flame and other ignition sources.

Hazardous Combustion Products
Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

Extinguishing Media

Stop the flow of gas and then use dry chemical, carbon dioxide, halon or water. The fire should not be extinguished unless flow of gas can be immediately stopped.

Unsuitable Extinguishing Media

None

Fire Fighting Equipment/Instructions

Firefighters should wear full protective gear.

* * * Section 6 - Accidental Release Measures * * *

Recovery and Neutralization

Stop the source of release if safe to do so.

Materials and Methods for Clean-Up

Released gas will disperse. Ventilate and test area before entering.

Emergency Measures

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas.

Personal Precautions and Protective Equipment

Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

Environmental Precautions

Avoid release to environment.

Prevention of Secondary Hazards

None

* * * Section 7 - Handling and Storage * * *

Handling Procedures

Avoid breathing fumes.

Storage Procedures

Keep away from flame, sparks, excessive temperatures and open flame.

Incompatibilities

Keep away from strong oxidizers.

* * * Section 8 - Exposure Controls / Personal Protection * * *

Component Exposure Limits

Methane (74-82-8)

ACGIH: 1000 ppm TWA (listed under Aliphatic hydrocarbon gases: Alkane C1-4)

Ethane (74-84-0)

ACGIH: 1000 ppm TWA (listed under Aliphatic hydrocarbon gases: Alkane C1-4)

Propane (74-98-6)

ACGIH: 1000 ppm TWA (listed under Aliphatic hydrocarbon gases: Alkane C1-4)
OSHA: 1000 ppm TWA; 1800 mg/m3 TWA
NIOSH: 1000 ppm TWA; 1800 mg/m3 TWA

Pentane (109-66-0)

ACGIH: 600 ppm TWA (listed under Pentane, all isomers)
OSHA: 1000 ppm TWA; 2950 mg/m3 TWA
NIOSH: 120 ppm TWA; 350 mg/m3 TWA
610 ppm Ceiling (15 min); 1800 mg/m3 Ceiling (15 min)

Isobutane (75-28-5)

ACGIH: 1000 ppm TWA (listed under Aliphatic hydrocarbon gases: Alkane C1-4)
NIOSH: 800 ppm TWA; 1900 mg/m3 TWA

Carbon dioxide (124-38-9)

ACGIH: 5000 ppm TWA
30000 ppm STEL
OSHA: 5000 ppm TWA; 9000 mg/m3 TWA
NIOSH: 5000 ppm TWA; 9000 mg/m3 TWA
30000 ppm STEL; 54000 mg/m3 STEL

Hexane (110-54-3)

ACGIH: 50 ppm TWA
Skin - potential significant contribution to overall exposure by the cutaneous route
OSHA: 500 ppm TWA; 1800 mg/m3 TWA
NIOSH: 50 ppm TWA; 180 mg/m3 TWA

Engineering Measures

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

Personal Protective Equipment: Respiratory

A NIOSH-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

Personal Protective Equipment: Hands

Where appropriate, wear proper personal protective equipment including flame retardant clothing to protect against burns.

Personal Protective Equipment: Eyes

None needed under normal product handling conditions.

Personal Protective Equipment: Skin and Body

Chemical protective clothing such as E.I. DuPont TyChem®, Saranex® or equivalent recommended based on degree of exposure. Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.

* * * Section 9 - Physical & Chemical Properties * * *

Appearance:	Colorless	**Odor:**	Mild hydrocarbon
Physical State:	Gas	**pH:**	6.8
Vapor Pressure:	Not Determined	**Density:**	0.0007
Boiling Point:	Not Determined	**Melting Point:**	Not Determined
Solubility (H2O):	Negligible	**Specific Gravity:**	Not Determined
Evaporation Rate:	Not Determined	**VOC:**	Present per speciated review
Octanol/H2O Coeff.:	Not Determined	**Flash Point:**	-233 °F
Flash Point Method:	Calculated	**Upper Flammability Limit (UFL):**	Not Determined
Lower Flammability Limit (LFL):	Not Determined	**Burning Rate:**	Not Determined
Auto Ignition:	Not Determined		

* * * Section 10 - Chemical Stability & Reactivity Information * * *

Chemical Stability

This is a stable material.

Hazardous Reaction Potential

Will not occur.

Conditions to Avoid

Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources.

Incompatible Products

Keep away from strong oxidizers.

Hazardous Decomposition Products

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

* * * Section 11 - Toxicological Information * * *

Acute Toxicity

Component Analysis - LD50/LC50

Methane (74-82-8)
Inhalation LC50 Mouse 326 g/m3 2 h

Ethane (74-84-0)
Inhalation LC50 Rat 658 mg/L 4 h

Propane (74-98-6)
Inhalation LC50 Rat 658 mg/L 4 h

Pentane (109-66-0)
Inhalation LC50 Rat 364 g/m3 4 h; Dermal LD50 Rabbit 3000 mg/kg; Oral LD50 Rat >2000 mg/kg

Isobutane (75-28-5)
Inhalation LC50 Rat 658 mg/L 4 h

Hexane (110-54-3)
Inhalation LC50 Rat 48000 ppm 4 h; Oral LD50 Rat 25 g/kg; Dermal LD50 Rabbit 3000 mg/kg

Potential Health Effects: Skin Corrosion Property/Stimulativeness
This product is not reported to have any skin irritation effects.

Potential Health Effects: Eye Critical Damage/ Stimulativeness
This product is not reported to have any eye irritation effects.

Potential Health Effects: Ingestion
This product is not reported to have any ingestion hazard effects.

Potential Health Effects: Inhalation
Toxic if inhaled.

Respiratory Organs Sensitization/Skin Sensitization
This product is not reported to have any skin sensitization effects.

Generative Cell Mutagenicity
May cause genetic defects.

Carcinogenicity
A: General Product Information
May cause cancer.

B: Component Carcinogenicity
None of this product's components are listed by ACGIH, IARC, OSHA, NIOSH, or NTP.

Reproductive Toxicity
Suspected of damaging fertility.

Specified Target Organ General Toxicity: Single Exposure
This product is not reported to have any specific target organ general toxicity single exposure effects.

Specified Target Organ General Toxicity: Repeated Exposure
This product is not reported to have any specific target organ general toxicity repeat exposure effects.

Aspiration Respiratory Organs Hazard
This product is not reported to have any aspiration hazard effects.

* * * Section 12 - Ecological Information * * *

Ecotoxicity
A: General Product Information
Avoid release to the environment.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity
Pentane (109-66-0)

Test & Species		Conditions
96 Hr LC50 Oncorhynchus mykiss	9.87 mg/L	
96 Hr LC50 Pimephales promelas	11.59 mg/L	
96 Hr LC50 Lepomis macrochirus	9.99 mg/L	
48 Hr EC50 Daphnia magna	9.74 mg/L	

Hexane (110-54-3)

Test & Species	Conditions

96 Hr LC50 Pimephales promelas	2.1-2.98 mg/L [flow-through]
24 Hr EC50 Daphnia magna	>1000 mg/L

Persistence/Degradability

No information available.

Bioaccumulation

No information available.

Mobility in Soil

No information available.

* * * Section 13 - Disposal Considerations * * *

Waste Disposal Instructions

See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

Disposal of Contaminated Containers or Packaging

Dispose of contents/container in accordance with local/regional/national/international regulations.

* * * Section 14 - Transportation Information * * *

DOT Information

Shipping Name: Natural Gas, compressed high methane content
UN #: 1971 **Hazard Class:** 2.1

* * * Section 15 - Regulatory Information * * *

Regulatory Information

US Federal Regulations

Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Hexane (110-54-3)

CERCLA: 5000 lb final RQ; 2270 kg final RQ

State Regulations

Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
Methane	74-82-8	No	Yes	Yes	Yes	Yes	No
Ethane	74-84-0	No	Yes	Yes	Yes	Yes	No
Propane	74-98-6	No	Yes	Yes	Yes	Yes	No
Pentane	109-66-0	Yes	Yes	Yes	Yes	Yes	No
Nitrogen	7727-37-9	No	Yes	Yes	Yes	Yes	No
Isobutane	75-28-5	No	Yes	No	Yes	Yes	No
Carbon dioxide	124-38-9	Yes	Yes	Yes	Yes	Yes	No

2-Methylpentane	107-83-5	No	Yes	Yes	Yes	Yes	No
Hexane	110-54-3	No	Yes	Yes	Yes	Yes	No

Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	Minimum Concentration
Pentane	109-66-0	1 %

Additional Regulatory Information

Component Analysis - Inventory

Component	CAS #	TSCA	CAN	EEC
Methane	74-82-8	Yes	DSL	EINECS
Ethane	74-84-0	Yes	DSL	EINECS
Propane	74-98-6	Yes	DSL	EINECS
Pentane	109-66-0	Yes	DSL	EINECS
Nitrogen	7727-37-9	Yes	DSL	EINECS
Isobutane	75-28-5	Yes	DSL	EINECS
Carbon dioxide	124-38-9	Yes	DSL	EINECS
2-Methylpentane	107-83-5	Yes	DSL	EINECS
Hexane	110-54-3	Yes	DSL	EINECS

* * * Section 16 - Other Information * * *

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration., NJTSR = New Jersey Trade Secret Registry.

Literature References

None

End of Sheet

GRAYSON MILL
ENERGY

Safety Data Sheet

Material Name: Salt Water
Product Synonym: Brine Water

* * * Section 1 - Product and Company Identification * * *

Manufacturer Information

Grayson Mill Energy
14689 Brigham Drive
Williston, ND 58801

* * * Section 2 - Hazards Identification * * *

GHS Classification:

Flammable Liquids - Category 4
Acute Toxicity Oral - Category 4
Skin Corrosion/Irritation - Category 2
Eye Damage/Irritation - Category 2B
Germ Cell Mutagenicity - Category 1B
Carcinogenicity - Category 1A
Reproductive Toxicity - Category 2
Specific Target Organ Toxicity Repeat Exposure - Category 1
Hazardous to the Aquatic Environment - Chronic Category 2

GHS LABEL ELEMENTS

Symbol(s)



Signal Word

Danger

Hazard Statements

Combustible liquid.
Harmful if swallowed.
Causes skin irritation.
Causes eye irritation.
May cause genetic defects.
May cause cancer.
Suspected of damaging the unborn child.
Causes damage to organs (liver, kidneys, blood, nervous system, and skin) through prolonged or repeated exposure.
May be fatal if swallowed and enters airways.

Toxic to aquatic life with long lasting effects.

Precautionary Statements

Prevention

Keep away from flames and hot surfaces. No smoking
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Do not breathe dust/fume/gas/mist/vapors/spray
Wear protective gloves/protective clothing/eye protection/face protection.
Avoid release to the environment.

Response

IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: get medical advice/attention. Take off contaminated clothing and wash before reuse.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. If eye irritation persists: Get medical advice/attention.
IF SWALLOWED: Immediately call a poison center or doctor/physician. Do not induce vomiting.
In case of fire: Use water spray, fog or fire fighting foam.
Collect spillage.

Storage

Store in a well-ventilated place. Keep cool.

Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

* * * Section 3 - Composition / Information on Ingredients * * *

CAS #	Component	Percent
Not Available	C10 to C23 isoparaffins	30.1
Not Available	C10 to C23 cyclic paraffins	23.1
Not Available	C10 to C23 n paraffins	12.5
111-84-2	Nonane	4
124-18-5	Decane	3.8
Not Available	Nonane isomers	3.2
Not Available	C8 cyclic paraffins	3
111-65-9	Octane	2.8
Not Available	C9 cyclic paraffins	2.6
Not Available	Other mono-aromatics	2.4
Not Available	C7 cyclic paraffins	2.4
592-27-8	2-Methylheptane	2.4
Not Available	Di-aromatics	1.8
142-82-5	n-Heptane	1.6
71-43-2	Benzene	1.2
108-88-3	Toluene	0.8
96-37-7	Methylcyclopentane	0.6
589-34-4	3-Methylhexane	0.6

106-42-3	p-Xylene	0.4
108-38-3	m-Xylene	0.4
591-76-4	2-Methylhexane	0.2
95-47-6	o-Xylene	0.2
100-41-4	Ethylbenzene	0.2

* * * Section 4 - First Aid Measures * * *

First Aid: Eyes

In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

First Aid: Skin

Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or waterless hand cleanser. Obtain medical attention if irritation or redness develops.

First Aid: Ingestion

DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Monitor for breathing difficulties. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

First Aid: Inhalation

Remove person to fresh air. If person is not breathing, ensure an open airway and provide artificial respiration. if breathing and heart beat have stopped, administer CPR. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

* * * Section 5 - Fire Fighting Measures * * *

General Fire Hazards

See Section 9 for Flammability Properties.
Combustible liquid.

Hazardous Combustion Products

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

Extinguishing Media

SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO2, water spray, fire fighting foam, or Halon.

LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

Unsuitable Extinguishing Media

None

Fire Fighting Equipment/Instructions

Firefighters should wear full protective gear.

* * * Section 6 - Accidental Release Measures * * *

Recovery and Neutralization

Carefully contain and stop the source of the spill, if safe to do so.

Materials and Methods for Clean-Up

Take up with sand or other absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal.

Emergency Measures

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas.

Personal Precautions and Protective Equipment

Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

Environmental Precautions

Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material.

Prevention of Secondary Hazards

None

* * * Section 7 - Handling and Storage * * *

Handling Procedures

Handle as a combustible liquid. Keep away from heat, sparks, and open flame!

Storage Procedures

Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers. Keep containers closed and clearly labeled.

Incompatibilities

Keep away from strong oxidizers.

* * * Section 8 - Exposure Controls / Personal Protection * * *

Component Exposure Limits

Nonane (111-84-2)

ACGIH: 200 ppm TWA
NIOSH: 200 ppm TWA; 1050 mg/m3 TWA

Octane (111-65-9)

ACGIH: 300 ppm TWA
OSHA: 500 ppm TWA; 2350 mg/m3 TWA
NIOSH: 75 ppm TWA; 350 mg/m3 TWA
385 ppm Ceiling (15 min); 1800 mg/m3 Ceiling (15 min)

n-Heptane (142-82-5)

ACGIH: 400 ppm TWA (listed under Heptane, all isomers)
500 ppm STEL (listed under Heptane, all isomers)
OSHA: 500 ppm TWA; 2000 mg/m3 TWA
NIOSH: 85 ppm TWA; 350 mg/m3 TWA
440 ppm Ceiling (15 min); 1800 mg/m3 Ceiling (15 min)

Benzene (71-43-2)

ACGIH: 0.5 ppm TWA
2.5 ppm STEL
Skin - potential significant contribution to overall exposure by the cutaneous route

OSHA: 5 ppm STEL (Cancer hazard, Flammable, See 29 CFR 1910.1028, 15 min); 0.5 ppm Action Level; 1 ppm TWA
10 ppm TWA (applies to industry segments exempt from the benzene standard at 29 CFR 1910.1028); 1 ppm TWA
5 ppm STEL (see 29 CFR 1910.1028)
25 ppm Ceiling

NIOSH: 0.1 ppm TWA
1 ppm STEL

Toluene (108-88-3)

ACGIH: 20 ppm TWA

OSHA: 200 ppm TWA
300 ppm Ceiling

NIOSH: 100 ppm TWA; 375 mg/m3 TWA
150 ppm STEL; 560 mg/m3 STEL

3-Methylhexane (589-34-4)

ACGIH: 400 ppm TWA (listed under Heptane, all isomers)
500 ppm STEL (listed under Heptane, all isomers)

p-Xylene (106-42-3)

ACGIH: 100 ppm TWA
150 ppm STEL

NIOSH: 100 ppm TWA; 435 mg/m3 TWA
150 ppm STEL; 655 mg/m3 STEL

m-Xylene (108-38-3)

ACGIH: 100 ppm TWA
150 ppm STEL

NIOSH: 100 ppm TWA; 435 mg/m3 TWA
150 ppm STEL; 655 mg/m3 STEL

2-Methylhexane (591-76-4)

ACGIH: 400 ppm TWA (listed under Heptane, all isomers)
500 ppm STEL (listed under Heptane, all isomers)

o-Xylene (95-47-6)

ACGIH: 100 ppm TWA
150 ppm STEL

NIOSH: 100 ppm TWA; 435 mg/m3 TWA
150 ppm STEL; 655 mg/m3 STEL

Ethylbenzene (100-41-4)

ACGIH: 20 ppm TWA
OSHA: 100 ppm TWA; 435 mg/m3 TWA
NIOSH: 100 ppm TWA; 435 mg/m3 TWA
125 ppm STEL; 545 mg/m3 STEL

Engineering Measures

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

Personal Protective Equipment: Respiratory

A NIOSH-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

Personal Protective Equipment: Hands

Gloves constructed of nitrile or neoprene are recommended.

Personal Protective Equipment: Eyes

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

Personal Protective Equipment: Skin and Body

Chemical protective clothing such as E.I. DuPont TyChem®, Saranex® or equivalent recommended based on degree of exposure. Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.

* * * Section 9 - Physical & Chemical Properties * * *

Appearance:	Colorless, water-like.	**Odor:**	Slight
Physical State:	Liquid	**pH:**	8.2
Vapor Pressure:	Not Determined	**Vapor Density:**	Not Determined
Boiling Point:	215°F	**Melting Point:**	Not Determined
Solubility (H2O):	Negligible	**Specific Gravity:**	1.1717
Evaporation Rate:	Not Determined	**VOC:**	Present per speciated review
Octanol/H2O Coeff.:	Not Determined	**Flash Point:**	>180 °F
Flash Point Method:	PMCC	**Upper Flammability Limit (UFL):**	Not Determined
Lower Flammability Limit (LFL):	Not Determined	**Burning Rate:**	Not Determined
Auto Ignition:	Not Determined		

* * * Section 10 - Chemical Stability & Reactivity Information * * *

Chemical Stability

This is a stable material.

Hazardous Reaction Potential

Will not occur.

Conditions to Avoid

Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources.

Incompatible Products

Keep away from strong oxidizers.

Hazardous Decomposition Products

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

* * * Section 11 - Toxicological Information * * *

Acute Toxicity

Component Analysis - LD50/LC50

Nonane (111-84-2)
Inhalation LC50 Rat 3200 ppm 4 h

Decane (124-18-5)
Inhalation LC50 Mouse 72300 mg/m3 2 h; Oral LD50 Rat >5000 mg/kg; Dermal LD50 Rat >2000 mg/kg

Octane (111-65-9)
Inhalation LC50 Rat 118 g/m3 4 h; Inhalation LC50 Rat 25260 ppm 4 h

n-Heptane (142-82-5)
Inhalation LC50 Rat 103 g/m3 4 h; Oral LD50 Mouse 5000 mg/kg; Dermal LD50 Rabbit 3000 mg/kg

Benzene (71-43-2)
Inhalation LC50 Rat 13050-14380 ppm 4 h; Oral LD50 Rat 1800 mg/kg

Toluene (108-88-3)
Inhalation LC50 Rat 12.5 mg/L 4 h; Inhalation LC50 Rat >26700 ppm 1 h; Oral LD50 Rat 636 mg/kg; Dermal LD50 Rabbit 8390 mg/kg; Dermal LD50 Rat 12124 mg/kg

p-Xylene (106-42-3)
Inhalation LC50 Rat 4550 ppm 4 h; Oral LD50 Rat >3392 mg/kg

m-Xylene (108-38-3)
Oral LD50 Rat 5000 mg/kg; Dermal LD50 Rabbit 14100 µL/kg

o-Xylene (95-47-6)
Inhalation LC50 Rat 2180 ppm 4 h; Oral LD50 Rat 3609 mg/kg

Ethylbenzene (100-41-4)
Inhalation LC50 Rat 17.2 mg/L 4 h; Oral LD50 Rat 3500 mg/kg; Dermal LD50 Rabbit 15354 mg/kg

Potential Health Effects: Skin Corrosion Property/Stimulativeness

May cause skin irritation with prolonged or repeated contact. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are exposed repeatedly.

Potential Health Effects: Eye Critical Damage/ Stimulativeness

Causes eye irritation.

Potential Health Effects: Ingestion

Harmful if swallowed.

Potential Health Effects: Inhalation

Excessive exposure may cause irritation to the nose, throat, lungs and respiratory tract.

Respiratory Organs Sensitization/Skin Sensitization

This product is not reported to have any skin sensitization effects.

Generative Cell Mutagenicity

May cause genetic defects.

Carcinogenicity

A: General Product Information

May cause cancer.

B: Component Carcinogenicity

Benzene (71-43-2)

ACGIH: A1 - Confirmed Human Carcinogen
OSHA: 5 ppm STEL (Cancer hazard, Flammable, See 29 CFR 1910.1028, 15 min); 0.5 ppm Action Level; 1 ppm TWA
NIOSH: potential occupational carcinogen
NTP: Known Human Carcinogen (Select Carcinogen)
IARC: Monograph 100F [2012]; Supplement 7 [1987]; Monograph 29 [1982] (Group 1 (carcinogenic to humans))

Toluene (108-88-3)

ACGIH: A4 - Not Classifiable as a Human Carcinogen
IARC: Monograph 71 [1999]; Monograph 47 [1989] (Group 3 (not classifiable))

p-Xylene (106-42-3)

ACGIH: A4 - Not Classifiable as a Human Carcinogen
IARC: Monograph 71 [1999] (listed under Xylenes) (Group 3 (not classifiable))

m-Xylene (108-38-3)

ACGIH: A4 - Not Classifiable as a Human Carcinogen
IARC: Monograph 71 [1999] (listed under Xylenes) (Group 3 (not classifiable))

o-Xylene (95-47-6)

ACGIH: A4 - Not Classifiable as a Human Carcinogen
IARC: Monograph 71 [1999] (listed under Xylenes) (Group 3 (not classifiable))

Ethylbenzene (100-41-4)

ACGIH: A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans
IARC: Monograph 77 [2000] (Group 2B (possibly carcinogenic to humans))

Reproductive Toxicity

Suspected of damaging the unborn child.

Specified Target Organ General Toxicity: Single Exposure

This product is not reported to have any specific target organ general toxicity single exposure effects.

Specified Target Organ General Toxicity: Repeated Exposure

Causes damage to organs (liver, kidneys, blood, nervous system and skin) through prolonged or repeated exposure.

Aspiration Respiratory Organs Hazard

This product is not reported to have any aspiration hazard effects.

* * * Section 12 - Ecological Information * * *

Ecotoxicity

A: General Product Information

Keep out of sewers, drainage areas and waterways. Report spills and releases, as applicable, under Federal and State regulations.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Decane (124-18-5)

Test & Species		Conditions
24 Hr EC50 Chlorella vulgaris	0.043 mg/L	
48 Hr EC50 Daphnia magna	0.029 mg/L	

Octane (111-65-9)

Test & Species		Conditions
48 Hr EC50 water flea	0.38 mg/L	

n-Heptane (142-82-5)

Test & Species		Conditions
96 Hr LC50 Cichlid fish	375.0 mg/L	
24 Hr EC50 Daphnia magna	>10 mg/L	

Benzene (71-43-2)

Test & Species		Conditions
96 Hr LC50 Pimephales promelas	10.7-14.7 mg/L [flow-through]	
96 Hr LC50 Oncorhynchus mykiss	5.3 mg/L [flow-through]	
96 Hr LC50 Lepomis macrochirus	22.49 mg/L [static]	
96 Hr LC50 Poecilia reticulata	28.6 mg/L [static]	
96 Hr LC50 Pimephales promelas	22330-41160 µg/L [static]	
96 Hr LC50 Lepomis macrochirus	70000-142000 µg/L [static]	
72 Hr EC50 Pseudokirchneriella subcapitata	29 mg/L	
48 Hr EC50 Daphnia magna	8.76 - 15.6 mg/L [Static]	
48 Hr EC50 Daphnia magna	10 mg/L	

Toluene (108-88-3)

Test & Species	Conditions

96 Hr LC50 Pimephales promelas	15.22-19.05 mg/L [flow-through]	1 day old
96 Hr LC50 Pimephales promelas	12.6 mg/L [static]	
96 Hr LC50 Oncorhynchus mykiss	5.89-7.81 mg/L [flow-through]	
96 Hr LC50 Oncorhynchus mykiss	14.1-17.16 mg/L [static]	
96 Hr LC50 Oncorhynchus mykiss	5.8 mg/L [semi-static]	
96 Hr LC50 Lepomis macrochirus	11.0-15.0 mg/L [static]	
96 Hr LC50 Oryzias latipes	54 mg/L [static]	
96 Hr LC50 Poecilia reticulata	28.2 mg/L [semi-static]	
96 Hr LC50 Poecilia reticulata	50.87-70.34 mg/L [static]	
96 Hr EC50 Pseudokirchneriella subcapitata	>433 mg/L	
72 Hr EC50 Pseudokirchneriella subcapitata	12.5 mg/L [static]	
48 Hr EC50 Daphnia magna	5.46 - 9.83 mg/L [Static]	
48 Hr EC50 Daphnia magna	11.5 mg/L	

p-Xylene (106-42-3)

Test & Species		Conditions
96 Hr LC50 Pimephales promelas	7.2-9.9 mg/L [static]	
96 Hr LC50 Oncorhynchus mykiss	2.6 mg/L	
96 Hr LC50 Oncorhynchus mykiss	2.6 mg/L [static]	
96 Hr LC50 Poecilia reticulata	8.8 mg/L [semi-static]	
3 Hr EC50 Chlorella vulgaris	105.1 mg/L	
72 Hr EC50 Pseudokirchneriella subcapitata	3.2 mg/L [static]	
48 Hr EC50 Daphnia magna	3.55 - 6.31 mg/L [Static]	

m-Xylene (108-38-3)

Test & Species		Conditions
96 Hr LC50 Pimephales promelas	14.3-18 mg/L [flow-through]	
96 Hr LC50 Oncorhynchus mykiss	8.4 mg/L [semi-static]	
96 Hr LC50 Poecilia reticulata	12.9 mg/L [semi-static]	
72 Hr EC50 Pseudokirchneriella subcapitata	4.9 mg/L [static]	
48 Hr EC50 Daphnia magna	2.81 - 5.0 mg/L [Static]	

o-Xylene (95-47-6)

Test & Species	Conditions
96 Hr LC50 Pimephales promelas	11.6-22.4 mg/L [flow-through]
96 Hr LC50 Lepomis macrochirus	11.6-22.4 mg/L [flow-through]
96 Hr LC50 Oncorhynchus mykiss	5.59-11.6 mg/L [flow-through]
96 Hr LC50 Poecilia reticulata	12 mg/L
192 Hr EC50 Pseudokirchneriella subcapitata	4.2 mg/L
72 Hr EC50 Pseudokirchneriella subcapitata	4.7 mg/L [static]
48 Hr EC50 Daphnia magna	3.2 mg/L
48 Hr EC50 Daphnia magna	2.61 - 5.59 mg/L [Flow through]
48 Hr EC50 Daphnia magna	0.78 - 2.51 mg/L [Static]

Ethylbenzene (100-41-4)

Test & Species	Conditions
96 Hr LC50 Oncorhynchus mykiss	11.0-18.0 mg/L [static]
96 Hr LC50 Oncorhynchus mykiss	4.2 mg/L [semi-static]
96 Hr LC50 Pimephales promelas	7.55-11 mg/L [flow-through]
96 Hr LC50 Lepomis macrochirus	32 mg/L [static]
96 Hr LC50 Pimephales promelas	9.1-15.6 mg/L [static]
96 Hr LC50 Poecilia reticulata	9.6 mg/L [static]
72 Hr EC50 Pseudokirchneriella subcapitata	4.6 mg/L
96 Hr EC50 Pseudokirchneriella subcapitata	>438 mg/L
72 Hr EC50 Pseudokirchneriella subcapitata	2.6 - 11.3 mg/L [static]
96 Hr EC50 Pseudokirchneriella subcapitata	1.7 - 7.6 mg/L [static]
48 Hr EC50 Daphnia magna	1.8 - 2.4 mg/L

Persistence/Degradability

No information available.

Bioaccumulation

No information available.

Mobility in Soil

No information available.

* * * Section 13 - Disposal Considerations * * *

Waste Disposal Instructions

See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

Disposal of Contaminated Containers or Packaging

Dispose of contents/container in accordance with local/regional/national/international regulations.

* * * Section 14 - Transportation Information * * *

DOT Information

Shipping Name: Not Regulated

* * * Section 15 - Regulatory Information * * *

Regulatory Information

US Federal Regulations

Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Benzene (71-43-2)

SARA 313: 0.1 % de minimis concentration

CERCLA: 10 lb final RQ (received an adjusted RQ of 10 lbs based on potential carcinogenicity in an August 14, 1989 final rule); 4.54 kg final RQ (received an adjusted RQ of 10 lbs based on potential carcinogenicity in an August 14, 1989 final rule)

Toluene (108-88-3)

CERCLA: 1000 lb final RQ; 454 kg final RQ

p-Xylene (106-42-3)

CERCLA: 100 lb final RQ; 45.4 kg final RQ

m-Xylene (108-38-3)

CERCLA: 1000 lb final RQ; 454 kg final RQ

o-Xylene (95-47-6)

CERCLA: 1000 lb final RQ; 454 kg final RQ

Ethylbenzene (100-41-4)

SARA 313: 0.1 % de minimis concentration

CERCLA: 1000 lb final RQ; 454 kg final RQ

State Regulations

Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI

Nonane	111-84-2	Yes	Yes	Yes	Yes	Yes	No
Decane	124-18-5	No	No	No	Yes	Yes	No
Octane	111-65-9	Yes	Yes	Yes	Yes	Yes	No
n-Heptane	142-82-5	Yes	Yes	Yes	Yes	Yes	No
Benzene	71-43-2	Yes	Yes	Yes	Yes	Yes	No
Toluene	108-88-3	Yes	Yes	Yes	Yes	Yes	No
Methylcyclopentane	96-37-7	No	Yes	No	Yes	Yes	No
3-Methylhexane	589-34-4	No	Yes	No	Yes	Yes	No
p-Xylene	106-42-3	Yes	Yes	No	Yes	Yes	No
m-Xylene	108-38-3	Yes	Yes	No	Yes	Yes	No
2-Methylhexane	591-76-4	No	Yes	No	No	Yes	No
o-Xylene	95-47-6	Yes	Yes	No	Yes	Yes	No
Ethylbenzene	100-41-4	Yes	Yes	Yes	Yes	Yes	No

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):

WARNING! This product contains a chemical known to the state of California to cause cancer.
WARNING! This product contains a chemical known to the state of California to cause reproductive/developmental effects.

Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	Minimum Concentration
Nonane	111-84-2	1 %
Octane	111-65-9	1 %
n-Heptane	142-82-5	1 %
Benzene	71-43-2	0.1 %
p-Xylene	106-42-3	0.1 %
Ethylbenzene	100-41-4	0.1 %

Additional Regulatory Information

Component Analysis - Inventory

Component	CAS #	TSCA	CAN	EEC
Nonane	111-84-2	Yes	DSL	EINECS
Decane	124-18-5	Yes	DSL	EINECS
Octane	111-65-9	Yes	DSL	EINECS
2-Methylheptane	592-27-8	No	No	EINECS
n-Heptane	142-82-5	Yes	DSL	EINECS
Benzene	71-43-2	Yes	DSL	EINECS
Toluene	108-88-3	Yes	DSL	EINECS
Methylcyclopentane	96-37-7	Yes	DSL	EINECS
3-Methylhexane	589-34-4	Yes	NDSL	EINECS
p-Xylene	106-42-3	Yes	DSL	EINECS
m-Xylene	108-38-3	Yes	DSL	EINECS
2-Methylhexane	591-76-4	Yes	DSL	EINECS
o-Xylene	95-47-6	Yes	DSL	EINECS
Ethylbenzene	100-41-4	Yes	DSL	EINECS

* * * Section 16 - Other Information * * *

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration., NJTSR = New Jersey Trade Secret Registry.

Literature References

None

End of Sheet

APPENDIX

D *CROSS-REFERENCES*

DOT / PHMSA CROSS-REFERENCE

OPA 90 REQUIREMENTS (49 CFR 194)	LOCATION
Information Summary	
· For the core plan:	
· Name and address of operator	Figure 1-2
· For each Response Zone which contains one or more line sections that meet the criteria for determining significant and substantial harm (§194.103), listing and description of Response Zones, including county(s) and state(s)	Figure 1-2
· For each Response Zone appendix:	
· Information summary for core plan	Section 1
· QI names and telephone numbers, available on 24-hr basis	Figure 1-2
· Description of Response Zone, including county(s) and state(s) in which a worst case discharge could cause substantial harm to the environment	Figure 1-2
· List of line sections contained in Response Zone, identified by milepost or survey station or other operator designation	Figure 1-2
· Basis for operator's determination of significant and substantial harm	Figure 1-2
· The type of oil and volume of the worst case discharge	Figure 1-2, Appendix C.4
· Certification that the operator has obtained, through contract or other approved means, the necessary private personnel and equipment to respond, to the maximum extent practicable, to a worst case discharge or threat of such discharge	Section 1.3, Appendix B
Notification Procedures	
· Notification requirements that apply in each area of operation of pipelines covered by the plan, including applicable state or local requirements	Figure 3.1-5
· Checklist of notifications the operator or Qualified Individual is required to make under the response plan, listed in the order of priority	Figure 3.1-5
· Name of persons (individuals or organizations) to be notified of discharge, indicating whether notification is to be performed by operating personnel or other personnel	Section 3.1, Figure 3.1- 1, Figure 3.1-4, Figure 3.1-5
· Procedures for notifying Qualified Individuals	Figure 3.1-1, Section 4.5, Figure 4.5-
· Primary and secondary communication methods by which notifications can be made	Section 7.1.6

DOT / PHMSA CROSS-REFERENCE

OPA 90 REQUIREMENTS (49 CFR 194)	LOCATION
Notification Procedures	
• Information to be provided in the initial and each follow-up notification, including the following: • Name of pipeline • Time of discharge • Location of discharge • Name of oil recovered • Reason for discharge (e.g. material failure, excavation damage, corrosion) • Estimated volume of oil discharged • Weather conditions on scene • Actions taken or planned by persons on scene	Figure 3.1-3
Spill Detection and On-Scene Spill Mitigation Procedures	
• Methods of initial discharge detection	Appendix C.1
• Procedures, listed in order of priority, that personnel are required to follow in responding to a pipeline emergency to mitigate or prevent any discharge from the pipeline	Section 2
• List of equipment that may be needed in response activities based on land and navigable waters including: • Transfer hoses and pumps • Portable pumps and ancillary equipment • Facilities available to transport and receive oil from a leaking pipeline	Section 7.1.1, Figure 7.1-1, Appendix B
• Identification of the availability, location, and contact phone numbers to obtain equipment for response activities on a 24-hour basis	Figure 3.1-4, Appendix B
• Identification of personnel and their location, telephone numbers, and responsibilities for use of equipment in response activities on a 24- hour basis	Figure 3.1-4, Appendix B
Response Activities	
• Responsibilities of, and actions to be taken by, operating personnel to initiate and supervise response actions pending the arrival of the Qualified Individual or other response resources identified in the response plan	Section 2, Section 4.6, Appendix B
• Qualified Individual's responsibilities and authority, including notification of the response resources identified in the response plan	Section 4.5
• Procedures for coordinating the actions of the operator or Qualified Individual with the action of the OSC responsible for monitoring or directing those actions	Section 4.4, Figure 4.5-2
• Oil spill response organizations (OSRO) available through contract or other approved means, to respond to a worst case discharge to the maximum extent practicable	Appendix B

DOT / PHMSA CROSS-REFERENCE

OPA 90 REQUIREMENTS (49 CFR 194)	LOCATION
Response Activities	
· For each organization identified under paragraph (d), a listing of: · Equipment and supplies available · Trained personnel necessary to continue operation of the equipment and staff the oil spill removal organization for the first seven days of the response	Appendix B
List of Contacts	
· List of persons the Plan requires the operator to contact	Figure 3.1-1, Figure 3.1- 4, Figure 3.1-5
· Qualified individuals for the operator's areas of operation	Figure 1-2, Figure 3.1-4
· Applicable insurance representatives or surveyors for the operator's areas of operation	Figure 3.1-1
· Persons or organizations to notify for activation of response resources	Figure 3.1-1
Training Procedures	
· Description of training procedures and programs of the operations	Appendix A.2
Drill Procedures	
· Announced and unannounced drills	Figure A.1-2
· Types of drills and their frequencies; for example: · Manned pipeline emergency procedures and qualified individual notification drills conducted quarterly · Drills involving emergency actions by assigned operating or maintenance personnel and notification of qualified individual on pipeline facilities which are normally unmanned, conducted quarterly · Shore-based spill management team (SMT) tabletop drills conducted yearly · Oil spill removal organization field equipment deployment drills conducted yearly · A drill that exercises entire response plan for each Response Zone, would be conducted at least once every three years	Figure A.1-2
Response Plan review and update procedures	
· Procedures to meet §194.121	Section 1.2
· Procedures to review plan after a worst case discharge and to evaluate and record the plan's effectiveness	Section 1.2, Section 8.3
Response zone appendices	
Each response zone appendix would provide the following information:	
· Name and telephone number of the qualified individual	Figure 1-2
· Notification procedures	Figure 3.1-1
· Spill detection and mitigation procedures	Section 2.1.1, Appendix C.1

DOT / PHMSA CROSS-REFERENCE

OPA 90 REQUIREMENTS (49 CFR 194)	LOCATION
Response zone appendices	
· Name, address, and telephone number of oil spill response organization	Figure 3.1-4, Appendix B
· Response activities and response resources including: · Equipment and supplies necessary to meet §194.115 · Trained personnel necessary to sustain operation of the equipment and to staff the oil spill response organization and spill management team for the first seven days of the response	Appendix A, Appendix B
· Names and telephone numbers of federal, state, and local agencies which the operator expects to assume pollution response responsibilities	Figure 3.1-5
· Worst case discharge volume	Appendix C.4
· Method used to determine the worst case discharge volume, with calculations	Appendix C.4
· A map that clearly shows: · Location of worst case discharge · Distance between each line section in the Response Zone: · Each potentially affected public drinking water intake, lake, river, and stream within a radius of five miles of the line section · Each potentially affected environmentally sensitive area within a radius of one mile of the line section	Figure 1-4, Section 6.8
· Piping diagram and plan-profile drawing of each line section; may be kept separate from the response plan if the location is identified	Figure 1-2
· For every oil transported by each pipeline in the response zone, emergency response data that: · Include name, description, physical and chemical characteristics, health and safety hazards, and initial spill- handling and firefighting methods · Meet 29 CFR 1910.1200 or 49 CFR 172.602	Figure C.6-1

PHMSA FACILITY RESPONSE PLAN REVIEW CROSS-REFERENCE

Office of Pipeline Safety (OPS)	LOCATION
National Contingency Plan and Area Contingency Plan Certifications (49 CFR 194.107(b))	
1.A. Has the operator reviewed the National Contingency Plan (NCP) and each applicable Area Contingency Plan (ACP)?	Section 1.1
1.B. Does the Facility Response Plan follow the Area Contingency Plans?	Section 1.1
1.C. Please list the names of the Area Contingency Plans and the pages in the Facility Response Plan that relate to the Area Contingency Plans.	Section 1.1, Entire Plan
Plan Information Summary (49 CFR 194.107(c)(1), (c)(1)(i) and (c)(2) and 49 CFR 194.113)	
2. Does the Plan Information Summary contain the following?	
· The Operator Name, Street Address, City, State, and Zip Code.	Figure 1-2
· A list of response zones that meet the criteria for significant and substantial harm (49 CFR 194.113(a)(2)) and a list of response zones in which a worst-case discharge could cause substantial harm.	Figure 1-2
· The basis for the operator's determination that the response zone meets the criteria for significant and substantial harm and a statement that a worse case discharge in the response zone can be expected to cause significant and substantial harm for each response zone.	Figure 1-2
· Description of each response zone, including the county(s) and State (s).	Figure 1-2
· Explanation for each response zone designation.	Figure 1-2
· Name(s), title(s), and office and cellular telephone number(s) for the Qualified Individual(s) twenty-four hours a day in each response zone.	Figure 1-2, Figure 3.1-4
· Name(s), title(s), and office and cellular telephone number(s) for the Alternate Qualified Individual(s) twenty-four hours a day in each response zone.	Figure 1-2, Figure 3.1-4
· List of line sections in each response zone by milepost, survey station number, or other operator designation.	Figure 1-2
· If any response zone contains multiple pipeline systems, all pipeline systems are described and the oils they transport are listed.	Figure 1-2
· The type of oil and the volume of the worst-case discharge in each response zone.	Figure 1-2
Notifications	
3.1. What person, position, or facility is responsible for starting immediate notification? (49 CFR 194.107(c)(1)(ii)) Please list the person's, position's, or facility's mailing and electronic mail addresses and office, fax, and cellular telephone information.	Figure 1-2
3.2. Is the person, position, or facility capable of starting immediate notification twenty-four hours a day, three hundred sixty-five days a year? (49 CFR 194.107(c)(1)(ii)) Please describe your immediate notification plan.	Section 3
3.3. Do the Facility Response Plan notification procedures include telephone numbers so that the qualified individual(s) and oil spill removal organization (s) can be reached twenty-four hours a day, three hundred sixty-five days a year? (49 CFR 194.107(b)(1) and (2), 194.107(c)(1)(ii) and 194.113(b)(2))	Section 3

PHMSA FACILITY RESPONSE PLAN REVIEW CROSS-REFERENCE

Office of Pipeline Safety (OPS)	LOCATION
Notifications	
• Qualified Individual(s)?	Figure 3.1-4
• Oil Spill Removal Organization(s)?	Figure 3.1-4, Figure 3.1- 5
• Are the National Response Center numbers correctly listed as 1-800-424-8802 and 202-267-2675 in the plan?	Figure 3.1-5
• Company personnel?	Figure 3.1-4
3.4. Does the notification section include the following information? (49 CFR 194.107(b)(1) and (2), and 194.107(c)(1)(ii))	
• Name of pipeline operator?	Figure 3.1-2, Figure 3.1- 3, Figure 3.1-4
• Time of discharge?	Figure 3.1-2, Figure 3.1- 3, Figure 3.1-4
• Location of discharge?	Figure 3.1-2, Figure 3.1- 3, Figure 3.1-4
• Name of oil involved?	Figure 3.1-2, Figure 3.1- 3, Figure 3.1-4
• Reason for discharge?	Figure 3.1-2, Figure 3.1- 3, Figure 3.1-4
• Estimated volume of oil discharged?	Figure 3.1-2, Figure 3.1- 3, Figure 3.1-4
• Weather conditions on scene?	Figure 3.1-2, Figure 3.1- 3, Figure 3.1-4
3.5. Does the Facility Response Plan name and give the address(es) and telephone number(s) for the operator's oil spill removal organization(s)? (49 CFR 194.107(c)(1)(iv) and 194.115)	
• Name(s)?	Appendix B.1.1
• Address(es)?	Appendix B.1.1
• Telephone Number(s)?	Figure 3.1-4, Figure 3.1- 5
Spill Detection and Mitigation Procedures	
4.1. Does the Facility Response Plan contain procedures to name and mitigate or prevent a substantial threat of a worst-case discharge? (49 CFR 194.107(a) and (b)(2)(i))	Appendix C.2
4.2. Does the Facility Response Plan name personnel, equipment, and procedures for detecting leaks and spills and locating spills throughout the response zone? (49 CFR 194.107(c)(1)(iii))	Figure 3.1-4, Section 7.1.1, Figure 7.1-1, Appendix B
4.3. Does the Facility Response Plan name the maximum time to detect the spill and shut down flow in affected pipeline(s) in bad weather? (49 CFR 194.105(b)(1))	Appendix C.4

PHMSA FACILITY RESPONSE PLAN REVIEW CROSS-REFERENCE

Office of Pipeline Safety (OPS)	LOCATION
Spill Detection and Mitigation Procedures	
4.4. Does the Facility Response Plan have procedures to mitigate spills appropriate for the response zone(s) and consistent with applicable Area Contingency Plan(s)? (49 CFR 194.107(b)(2)(i), and (c)(1)(iii) and (v))	Section 2.1
Spill Containment	
5.1. Does the Facility Response Plan name spill containment strategies appropriate for the response zone(s) and consistent with applicable Area Contingency Plans? (49 CFR 194.107(b)(1)(iii), (b)(2)(i), and (c)(1)(v))	Section 7.4
5.2. Can planned spill containment activities be accomplished within the appropriate tier times? (49 CFR 194.107(b)(2)(i) and (c)(1)(v), and 194.115)	Appendix C.4
5.3. Are containment equipment capacities described in sufficient detail and does the Facility Response Plan identify enough spill containment equipment to respond to a worst-case discharge to the maximum extent practicable? (49 CFR 194.107(b)(2)(i) and (c)(1)(v), and 194.115)	Section 7.1.1, Figure 7.1-1, Appendix B
Spill Recovery	
6.1. Does the Facility Response Plan identify the spill recovery strategies appropriate for the response zone(s) and consistent with applicable Area Contingency Plan(s)? (49 CFR 194.107(b)(1)(iii), (b)(2)(i) and (iv), and (c)(1) (v))	Section 2.1, Appendix C.2
6.2. Can planned spill recovery activities be accomplished within the appropriate tier times?(49 CFR 194.107(b)(2)(i) and(c)(1)(v), and 194.115)	Appendix C
6.3. Are recovery equipment capacities described in sufficient detail and does the Facility Response Plan identify sufficient spill recovery equipment to respond to a worst-case discharge to the maximum extent practicable? (49 CFR 194.107(b)(2)(i) and (c)(1)(v), and 194.115)	Section 7.1.1, Figure 7.1-1, Appendix B
Disposal	
7.1. Does the Facility Response Plan identify disposal procedures, including temporary storage equipment for recovered oil appropriate for the response zone and consistent with applicable Area Contingency Plans? (49 CFR 194.107(b)(1)(iii), (b)(2)(i), and (c)(1)(v))	Section 7.4, Section 7.1.1, Figure 7.1-1, Appendix B
7.2. Can planned temporary storage and waste disposal activities be accomplished within the appropriate tier times? (49 CFR 194.107(b)(2)(i) and (c)(1)(v), and 194.115)	Section 7.4, Appendix C.4
7.3. Does the Facility Response Plan identify sufficient temporary storage capabilities to respond to a worst-case discharge to the maximum extent practicable? (49 CFR 194.107(b)(2)(i) and (c)(1)(v), and 194.115)	Section 7.4, Section 7.1.1, Figure 7.1-1, Appendix B
Sensitive Area Protection	
8.1. Does the Facility Response Plan identify the protection strategies appropriate for the response zone and consistent with applicable Area Contingency Plans? (49 CFR 194.107(b)(1)(iii), (b)(2)(i) and (ii), and (c)(1) (v))	Section 6
8.2. Can planned protection activities be accomplished within the appropriate tier times?(49 CFR 194.107(b)(2)(i) and (c)(1)(v), and 194.115)	Section 6, Appendix C.4

PHMSA FACILITY RESPONSE PLAN REVIEW CROSS-REFERENCE

Office of Pipeline Safety (OPS)	LOCATION
Response Management	
9.1. Is the response management system described in the Facility Response Plan based on an Incident Command System? (49 CFR 194.107(b)(1)(i), (b) (2)(iii), and (c)(3))	Section 4
9.2. Does the operator's response organization describe roles and responsibilities for (49 CFR 194.107(b)(1)(i), (b)(2)(iii), and (c)(3))	
• Qualified Individual?	Section 4.5
• Other operator response personnel including the spill management team?	Section 4.5, Section 4.6
• Contracted Oil Spill Removal Organization(s)?	Section 7.1.3, Figure A.1-2
9.3. Does the operator's response organization describe how the operator works with the Unified Command and with responders including (49 CFR 194.107(b)(1)(i), (b)(2)(iii), and (c)(3))	Section 4.4
• Oil Spill Removal Organization(s)?	Figure 4.5-2, Section 4.6
• State and Local Responders?	Section 4.4
• Federal On-Scene Coordinator?	Section 4.4
Communications, Response Equipment and Transportation	
10.1. Does the Facility Response Plan describe appropriate communications procedures and system(s) adequate for notifications and response operations? (49 CFR 194.107(c)(1)(ii) and (v))	Section 7.1.6
10.2. Does the Facility Response Plan identify response equipment that the operator owns and maintains? (49 CFR 194.107(c)(1)(v) and 194.115(a))	Section 7.1.1
10.3. Does the Facility Response Plan describe procedures for maintaining response equipment the operator owns? (49 CFR 194.107(c)(1)(viii))	Section 7.1.2
10.4. Does the Facility Response Plan identify Oil Spill Removal Organization(s)' response equipment that the U.S. Coast Guard has not classified? (49 CFR 194.107(c)(1)(v) and 194.115(a))	Section 7.1.3, Appendix B
10.5. Does the Facility Response Plan describe procedures for maintaining Oil Spill Removal Organization(s)' response equipment that the U.S. Coast Guard has not classified? (49 CFR 194.107(c)(1)(viii))	Section 7.1.3, Appendix A.1
10.6. Does the Facility Response Plan identify location(s) for operator-owned and Oil Spill Removal Organization-owned response equipment? (49 CFR 194.115(b))	Section 7.1.1, Figure 7.1-1, Appendix B
10.7. Does the Facility Response Plan describe mobilizing and deploying response equipment within the appropriate tier times consistent with the plan's response activities? (49 CFR 194.107(c)(1)(v) and 194.115(b))	Appendix C.2, Appendix C.4
10.8. Does the size of the response zone permit planned response activities, including equipment mobilization and deployment, within the appropriate tier times? (49 CFR 194.115(b))	Appendix C.2, Appendix C.4

PHMSA FACILITY RESPONSE PLAN REVIEW CROSS-REFERENCE

Office of Pipeline Safety (OPS)	LOCATION
Response Personnel and Mobilization	
11.1. Does the Facility Response Plan identify enough trained personnel to respond to the worse case discharge consistent with the Plan's response activities? (49 CFR 194.107(a), (c)(1)(v), and (c)(3), 194.115, and 194.117)	Figure 3.1-4
11.2. Does the Facility Response Plan describe procedures for mobilizing and deploying response personnel throughout the response zone(s) consistent with the Plan's response activities? (49 CFR 194.107(b)(2)(i) and (c)(1)(v), and 194.115)	Section 2, Section 3, Section 4.2
Response Documentation and Worst Case Discharge	
12.1. Does the operator describe procedures the response management organization must use to document response decisions, activities, and costs? (49 CFR 194.107(c)(3))	Section 3, Section 5,Appendix C.2
12.2. Does the Facility Response Plan provide the calculations and methodology used for determining the worst-case discharge for the response zone(s)? (49 CFR 194.105)	Appendix C.4
12.3. Is the worst-case discharge volume calculated using the three specified methods in the Department of Transportation regulation? Are the calculations accurate and as prescribed?(49 CFR 194.105(b))	Appendix C.4
Training: Program and Procedures	
13.1. Does the Facility Response Plan describe a training program that teaches response personnel about the Plan and their responsibilities under the Plan? (49 CFR 194.107(b)(1)(ii), (c)(1)(vii) and (c)(3), and 194.117)	Appendix A.2
13.2. Does the Facility Response Plan describe a training program that teaches response personnel about matters including (49 CFR 194.117(a) (3))	Appendix A.2
· Oil characteristics and hazards?	Appendix A.2
· Conditions that are likely to worsen emergencies, including the consequences of facility malfunctions or failures and appropriate corrective actions?	Appendix A.2
· Steps necessary to control an accidental discharge of oil?	Appendix A.2
· Steps necessary to minimize the potential for fire, explosion, or environmental damage?	Appendix A.2
· Proper fire-fighting procedures and use of personal protective equipment?	Appendix A.2
13.3. Does the Facility Response Plan describe a response-training program that addresses the appropriate levels of training and the requirements in OSHA 29 CFR 1910.120? (49 CFR 194.107(b)(1)(ii) and 194.117(c))	Appendix A.2
13.4. Does the Facility Response Plan describe the operator's procedures for maintaining records for response personnel? (49 CFR 194.117(b))	Appendix A.2

PHMSA FACILITY RESPONSE PLAN REVIEW CROSS-REFERENCE

Office of Pipeline Safety (OPS)	LOCATION
Response Personnel and Mobilization	
14.1. Does the Facility Response Plan describe procedures for conducting internal and external drills that include (49 CFR 194.107(c)(1)(ix))	Appendix A.1
· Responsibility for planning, carrying out, and monitoring drills?	Appendix A.1
· Announced drills?	Appendix A.1
· At least one unannounced internal drill?	Appendix A.1
· Quarterly Qualified Individual notifications drills?	Appendix A.1
· Annual spill management team tabletop drills?	Appendix A.1
· Annual Oil Spill Removal Organization(s) equipment deployment drills of representative types and amounts of key equipment in the Facility Response Plan?	Appendix A.1
· At least one drill that tests the entire response plan for each response zone at least once every three years?	Appendix A.1
14.2. Does the Facility Response Plan describe a three-year drill and exercise cycle and the frequencies for each type of drill in that cycle? (49 CFR 194.107(c)(1)(ix))	Appendix A.1
14.3. Does the Facility Response Plan describe procedures for maintaining drill documentation for three years? (49 CFR 194.107(c)(1)(ix))	Appendix A.1
Response Plan Maintenance	
15.1. Does the Facility Response Plan describe the requirements and procedures for the operator to: (49 CFR 194.107(c)(1)(x) and 194.121(a))	
a. Review the Facility Response Plans at least once every five years from the date the Office of Pipeline Safety approves the plan,	Section 1.2
b. Modify the Facility Response Plan to address new or different operating conditions or information in the Facility Response Plan, and	Section 1.2
c. Submit the plan for the Office of Pipeline Safety to review, require changes, and approve?	Section 1.2
15.2. Does the Facility Response Plan identify key factors that may cause revisions to the response plan and require the operator to submit revisions to the Office of Pipeline Safety within 30 days of making the revisions for factors including: (49 CFR 194.121(b))	
· New pipeline construction or purchase?	Section 1.2
· Different worst-case discharge volume?	Section 1.2
· Change in commodities transported?	Section 1.2
· Change in Oil Spill Removal Organization(s)?	Section 1.2
· Change in Qualified Individual(s)?	Section 1.2
· Change in a National Contingency Plan or Area Contingency Plan that has a significant impact on the appropriateness of response equipment or response strategies?	Section 1.2
· Change in response procedures?	Section 1.2

PHMSA FACILITY RESPONSE PLAN REVIEW CROSS-REFERENCE

Office of Pipeline Safety (OPS)	LOCATION
Response Plan Maintenance	
15.3. Does the Facility Response Plan describe procedures for incorporating improvements in the following? (49 CFR 194.121(b)(8))	
• Post-drill evaluation results?	Section 8.3
• Post-incident evaluation results?	Section 8.3
National Contingency Plan and Area Contingency Plan Consistency and Concept of Operations	
16.1. Is the Plan consistent with the National Contingency Plan in effect at the time of submission? (49 CFR 194.107(b)(1)) Please answer yes or no.	Section 1.1
16.2. Is the Plan consistent with the Area Contingency Plans in effect for each response zone at the time of submission? (49 CFR 194.107(b)(2)) Please answer yes or no.	Section 1.1
16.3. Is the Plan's concept of operations adequate to carry out a response to the worse case discharge under 49 CFR 194? (49 CFR 194.107) Please answer yes or no.	Section 7.1, Appendix B, Appendix C.2, Entire Plan

DOT EMERGENCY PLANS FOR TRANSPORTATION OF NATURAL AND OTHER GAS BY PIPELINE
CROSS-REFERENCE

EMERGENCY PLAN REQUIREMENTS (49 CFR 192.615)	LOCATION
a. Written procedures to minimize hazards	
1. Receiving, identifying, and classifying notices of events which require immediate response by the operator	Section 2
2. Establishing and maintaining adequate means of communication with appropriate fire, police, and other public officials	Section 3, Section 4
3. Prompt and effective response to a notice of each type of emergency, including the following:	
i. Gas detect inside or near a building	Section 2
ii. Fire located near or directly involving a pipeline facility	Section 2
iii. Explosion occurring near or directly involving a pipeline facility	Section 2
iv. Natural disaster	Section 2
4. The availability of personnel, equipment, tools, and materials, as needed at the scene of an emergency	Section 7.1, Appendix B
5. Actions directed toward protecting people first and then property	Section 2
6. Emergency shutdown and pressure reduction in any section of the operator's pipeline system necessary to minimize hazards to life or property	Section 2
7. Making safe any actual or potential hazard to life or property	Section 2
8. Notifying appropriate fire, police, and other public officials of gas pipeline emergencies and coordinating with them both planned responses and actual responses during an emergency	Section 2, Section 4.4
9. Safely restoring any service outage	
10. Beginning action under §192.617, if applicable, as soon after the end of the emergency as possible	
b. Each operator shall:	
1. Furnish its supervisors who are responsible for emergency action a copy of that portion of the latest edition of the emergency procedures established under paragraph (a) of this section as necessary for compliance with those procedures	Figure 1-1
2. Train the appropriate operating personnel to assure that they are knowledgeable of the emergency procedures and verify that the training is effective	Appendix A
3. Review employee activities to determine whether the procedures were effectively followed in each emergency	Section 8.3

DOT EMERGENCY PLANS FOR TRANSPORTATION OF NATURAL AND OTHER GAS BY PIPELINE
CROSS-REFERENCE

EMERGENCY PLAN REQUIREMENTS (49 CFR 192.615)	LOCATION
c. Each operator shall establish and maintain liaison with appropriate fire, police, and other public officials to:	
1. Learn the responsibility and resources of each government organization that may respond to a gas pipeline emergency	Appendix A
2. Acquaint the officials with the operator's ability in responding to a gas pipeline emergency	Appendix A
3. Identify the types of gas pipeline emergencies of which the operator notifies the officials; and	Section 2
4. Plan how the operator and officials can engage in mutual assistance to minimize hazards to life or property	Section 4

APPENDIX

E ACRONYMS AND DEFINITIONS

ACRONYMS

ACGIH	American Conference of Governmental Industrial Hygienists
ACP	Area Contingency Plan
AFFF	Aqueous Film Forming Foam
ASTM	American Society of Testing Materials
BBL	Barrel(s)
BLM	Bureau of Land Management (USDOI)
BPD	Barrels Per Day
BPH	Barrels Per Hour
CDP	Central Delivery Point
CERCLA	Comprehensive Environmental Response, Compensation & Liability Act of 1980, as amended
CFR	Code of Federal Regulations
CO_2	Carbon Dioxide
COTP	Captain of the Port (USCG)
CRZ	Contamination Reduction Zone
CWA	Clean Water Act of 1977 (Federal)
DOT	Department of Transportation
EAP	Emergency Action Plan
EMS	Emergency Medical Services
EOC	Emergency Operations Center
EPA	U. S. Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
ERAP	Emergency Response Action Plan
ERG	Emergency Response Guidebook
ERP	Emergency Response Plan
ERT	Emergency Response Team
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FOSC	Federal On-Scene Coordinator
FRP	Facility Response Plan
FRT	Facility Response Team
FWPCA	Federal Water Pollution Control Act of 1972
GIS	Geographic Information System
GPM	Gallons Per Minute
HAZMAT	Hazardous Materials
HMIS	Hazardous Material Information System
HSE	Health, Safety, & Environment
HSSE	Health, Safety, Security, & Environmental

ACRONYMS

IAP	Incident Action Plan
IC	Incident Commander
ICP	National Response Center (NRC) Integrated Contingency Plan (ICP)
ICS	Incident Command System
IMT	Incident Management Team
JIC	Joint Information Center
LACT	Lease Automatic Custody Transfer
LEL	Lower Explosive Limit
LEPC	Local Emergency Planning Committee
LEPD	Local Emergency Planning District
LNG	Liquid Natural Gas
LPG	Liquefied Petroleum Gas
MTR	Marine Transportation Related
N/A	Not Applicable
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NIIMS	National Interagency Incident Management System
NM	Nautical Miles
NOAA	National Oceanic and Atmospheric Administration
NRC	National Response Center
NRDA	National Resource Damage Assessment
NRT	National Response Team
OBA	Oxygen Breathing Apparatus
OPA 90	Oil Pollution Act of 1990
OSC	On-Scene Coordinator/Commander
OSHA	Occupational Safety and Health Administration (USDL)
PHMSA	Pipeline and Hazardous Materials Safety Administration (DOT)
PPE	Personal Protective Equipment
PREP	(National) Preparedness for Response Exercise Program
QI	Qualified Individual
RCRA	Resource Conservation and Recovery Act of 1976
RQ	Reportable Quantity
SARA	Superfund Amendments and Reauthorization Act
SCADA	Supervisory Control and Data Acquisition (System)
SCBA	Self Contained Breathing Apparatus
SDS	Safety Data Sheets
SDWA	Safe Drinking Water Act of 1986
SERC	State Emergency Response Commission
SETS	Safety Environment and Training Services

ACRONYMS

SI	Surface Impoundment
SIC	Standard Industrial Classification (Code)
SMT	Spill Management Team
SOSC	State On-Scene Coordinator
SPCC	Spill Prevention, Control, and Countermeasures (Plan)
SSC	Scientific Support Coordinator (NOAA)
SWD	Salt Water Disposal
UC	Unified Command
UCS	Unified Command System
UEL	Upper Explosive Limit
USACOE	U. S. Army Corps of Engineers
USCG	U. S. Coast Guard
USDOD	U. S. Department of Defense
USDL	U. S. Department of Labor
USDOE	U. S. Department of Energy
USDOI	U. S. Department of the Interior
USDOJ	U. S. Department of Justice
USDOT	U. S. Department of Transportation
USFWS	U. S. Fish and Wildlife Service (USDOI)
USGS	U. S. Geological Survey (USDOI)

DEFINITIONS

Adverse Weather
The weather conditions that will be considered when identifying response systems and equipment in a response plan for the applicable operating environment. Factors to consider include significant wave height, ice, temperature, weather-related visibility, and currents with the Captain of the Port (COTP) zone in which the systems or equipment are intended to function.

Aqueous Film Forming Foam
A fluoro-carbon surfactant that acts as an effective vapor securing agent due to its effect on the surface tension of the water. Its physical properties enable it to float and spread across surfaces of a hydrocarbon fuel with more density than protein foam.

Average Most Probable Discharge (USCG)
A discharge of the lesser of 50 barrels (2100 gallons) or one percent of the volume of the worst case discharge.

Barrel
Measure of space occupied by 42 U. S. gallons at 60 degrees Fahrenheit.

Bleve
A boiling liquid-expanding vapor explosion; failure of a liquefied flammable gas container caused by fire exposure. Pronounced "blevey."

Boilover
Occurs when the heat from a fire in a tank travels down to the bottom of the tank causing water that is already there to boil and push part of the tank's contents over the side.

Carbon Dioxide
A heavy, colorless, odorless, asphyxiating gas, that does not normally support combustion. It is one and one-half times heavier than air and when directed at the base of a fire its action is to dilute the fuel vapors to a lean mixture to extinguish the fire.

Class A Fire
A fire involving common combustible materials which can be extinguished by the use of water or water solutions. Materials in this category include wood and wood-based materials, cloth, paper, rubber and certain plastics.

Class B Fire
A fire involving flammable or combustible liquids, flammable gases, greases and similar products. Extinguishment is accomplished by cutting off the supply of oxygen to the fire or by preventing flammable vapors from being given off.

Class C Fire
A fire involving energized electrical equipment, conductors or appliances. Nonconducting extinguishing agents must be used for the protection of firefighters.

Class D Fire
A fire involving combustible metals, for example, sodium, potassium, magnesium, titanium and aluminum. Extinguishment is accomplished through the use of heat-absorbing extinguishing agents such as certain dry powders that do not react with the burning metals.

Cold (Support) Zone
An area free of contaminants so that Personal Protection Equipment (PPE) is not required for personnel working in this area. Command functions and supporting operations are carried out here.

Command Post
A site located at a safe distance from the spill site where response decisions are made, equipment and manpower deployed, and communications handled. The Incident Commander and the On-Scene Coordinators may direct the on-scene response from this location.

Communication Equipment
Equipment that will be utilized during response operations to maintain communication between employees, contractors, federal/state/local agencies.

Containment Boom
A flotation/freeboard device, made with a skirt/curtain, longitudinal strength member, and ballast unit/weight designed to entrap and contain the product for recovery.

Contamination Reduction Zone
Same as the warm zone, a buffer between the hot and cold zones. Decontamination activities take place there. Equipment needed to support the primary response operation may be staged in the warm zone.

Contingency Plan
A document used by: (1) federal, state, and local agencies to guide planning and response procedures regarding spill of oil, hazardous substances, or other emergencies; (2) a document used by industry as a response plan to spills of oil, hazardous substances, or other emergencies occurring upon their vessels or at their facilities.

Contract or Other Approved Means

Includes:

- A written contractual agreement with a response contractor. The agreement should identify and ensure the availability of the specified personnel and equipment described under U.S.C.G. Regulations within stipulated response times in the specified geographic areas.

- Certification by the facility owner or operator that the specified personnel and equipment described under USCG Regulations are owned, operated, or under the direct control of the facility owner or operator, and are available within stipulated times in the specified geographic areas.

- Active membership in a local or regional oil spill removal organization that has identified specified personnel and equipment described under USCG Regulations that are available to respond to a discharge within stipulated times in the specified geographic areas.

- A document which:

- Identifies the personnel, equipment, services, capable of being provided by the response contractor within stipulated response times in specified geographic areas.

- Sets out the parties' acknowledgment that the response contractor intends to commit the resources in the event of a response.

- Permits the Coast Guard to verify the availability of the response resources identified through tests, inspections and drills.
- Is incorporated by reference in the Response Plan.

- For a facility that could reasonably be expected to cause substantial harm to the environment, with the consent of the response contractor or oil spill removal organization, the identification of a response contractor or oil spill removal organization with specified equipment and personnel which are available within stipulated response times in specific geographic areas.

Demand Breathing Apparatus
A type of self-contained breathing apparatus that provides air or oxygen from a supply carried by the user.

Dispersants
Those chemical agents that emulsify, disperse, or solublize oil into the water column or promote the surface spreading of oil slicks to facilitate dispersal of the oil into the water column.

Diversion Boom
A flotation/freeboard device, made with a skirt/curtain, longitudinal strength member, and ballast unit/weight designed to deflect or divert the product towards a pick up point, or away from certain areas.

Environmentally Sensitive Areas
Streams and water bodies, aquifer recharge zones, springs, wetlands, agricultural areas, bird rookeries, endangered or threatened species (flora and fauna) habitat, wildlife preserves or conservation areas, parks, beaches, dunes, or any other area protected or managed for its natural resource value.

Exclusion Zone
Same as hot zone, the area where a hazard exists. This is the hazardous location on site, therefore entry requires personal protective equipment (PPE). It must be big enough for both mitigation activities and protection of personnel in the warm zone should an explosion, fire, change of wind direction, or an unexpected release occur during response activities.

Explosive Range
Flammable range; the range of the mixture of air and flammable gas or flammable vapor of liquids that must be present in the proper proportions for the mixture to be ignited. The range has upper and lower limits; any mixture above the upper explosive limit or below the lower explosive limit will not burn.

Facility
Any pipeline, structure, equipment, or device used for handling oil including, but not limited to, underground and aboveground storage tanks, impoundments, mobile or portable drilling or workover rigs, barge mounted drilling or workover rigs, and portable fueling facilities located offshore or on or adjacent to coastal waters or any place where a discharge of oil from the facility could enter coastal waters or threaten to enter the coastal waters.

Federal Fund
The oil spill liability trust fund established under OPA.

First Responders, First Response Agency
A public health or safety agency (i.e., fire service or police department) charged with responding to a spill during the emergency phase and alleviating immediate danger to human life, health, safety, or property.

Flashover
The ignition of combustibles in an area heated by convection, radiation, or a combination of the two. The action may be a sudden ignition in a particular location followed by rapid spread or a "flash" of the entire area.

Flash Point
The temperature at which a liquid fuel gives off sufficient vapor to form an ignitable mixture near its surface.

Foam
A blanket of bubbles that extinguishes fire mainly by smothering. The blanket prevents flammable vapors from leaving the surface of the fire and prevents oxygen from reaching the fuel. The water in the foam also has a cooling effect.

Hazardous Material
Any nonradioactive solid, liquid, or gaseous substance which, when uncontrolled, may be harmful to humans, animals, or the environment. Including but not limited to substances otherwise defined as hazardous wastes, dangerous wastes, extremely hazardous wastes, oil, or pollutants.

Hazardous Substance
Any substance designed as such by the Administrator of EPA pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act; regulated pursuant to Section 311 of the Federal Water Pollution Control Act.

Hazardous Waste
Any solid waste identified or listed as a hazardous waste by the Administrator of the EPA pursuant to the federal Solid Waste Disposal Act, as amended by the Resources Conservation and Recovery Act (RCRA), 42 U.S.C., Section 6901, et seq as amended. The EPA Administrator has identified the characteristics of hazardous wastes and listed certain wastes as hazardous in Title 40 of the Code of Federal Regulations, Part 261, Subparts C and D respectively.

Higher Volume Port Area
Ports of:

- Boston, MA
- New York, NY
- Delaware Bay and River to Philadelphia, PA
- St. Croix, VI
- Pascagoula, MS
- Mississippi River from Southwest Pass, LA to Baton Rouge, LA
- Louisiana Offshore Oil Port (LOOP), LA
- Lake Charles, LA
- Sabine-Nachez River, TX
- Galveston Bay and Houston Ship Channel, TX
- Corpus Christi, TX
- Los Angeles/Long Beach Harbor, CA
- San Francisco Bay, San Pablo Bay, Carquinez Strait, Suisun Bay to Antioch, CA
- Straits of Juan de Fuca and Puget Sound, WA
- Prince William Sound, AK

Hot (Exclusion) Zone
The area where a hazard exists. This is the hazardous location on site, therefore entry requires personal protective equipment (PPE). It must be big enough for both mitigation activities and protection of personnel in the warm zone should an explosion, fire, change of wind direction, or an unexpected release occur during response activities.

Hyperthermia
A dangerously high fever that can damage nerve centers. This condition can result from exposure to excessive heat over an extended period of time.

Ignition Temperature
The lowest temperature at which a fuel will burn without continued application of an ignition source.

Incident Commander (IC)
The one individual in charge at any given time of an incident. The Incident Commander will be responsible for establishing a unified command with all on-scene coordinators.

Incident Command System
A method by which the response to an extraordinary event, including a spill, is categorized into functional components and responsibility for each component assigned to the appropriate individual or agency.

Incident Management Team (or Spill Management Team)
The personnel identified to staff the organizational structure identified in a response plan to manage response plan implementation.

Interim Storage Site
A site used to temporarily store recovered oil or oily waste until the recovered oil or oily waste is disposed of at a permanent disposal site. Interim storage sites include trucks, barges, and other vehicles, used to store waste until the transport begins.

Lead Agency
The government agency that assumes the lead for directing the spill response.

Lead Federal Agency
The agency which coordinates the federal response to incidents on navigable waters. The lead Federal agencies are:

- **U. S. Coast Guard (USCG):** Oil and chemically hazardous materials incidents on navigable waters
- **Environmental Protection Agency (EPA):** Oil and chemically hazardous materials incidents on most inland waters and in the inland zone

Lead State Agency
The agency which coordinates state support to Federal and/or Local governments or assumes the lead in the absence of a Federal spill response.

Lower Flammable Limit
Minimum flammable concentration of a particular gas in the air.

Marine Transportation-Related Facility (MTR Facility)
An onshore facility, including piping and any structure used to transfer oil to or from a vessel, subject to regulation under 33 CFR Part 154 and any deepwater port subject to regulation under 33 CFR Part 150.

Maximum Extent Practicable
The planning values derived from the planning criteria used to evaluate the response resources described in the response plan to provide the on-water recovery capability and the shoreline protection and clean-up capability to conduct response activities for a worst case discharge from a facility in adverse weather.

Maximum Most Probable Discharge (USCG)
A discharge of the lesser of 2,500 barrels or ten percent of the volume of a worst case discharge for USCG-related vessels. A discharge of the lesser of 1200 barrels or 10 percent of a worst case discharge for USCG-regulated facilities.

Medium Discharge (EPA)
For EPA-regulated facilities, a discharge greater than 2100 gallons (50 bbl) and less than or equal to 36,000 gallons (858 bbl) or 10 percent of the capacity of the largest tank at the facility, whichever is less.

National Contingency Plan
The plan prepared under the Federal Water Pollution Control Act (33 United States Code '1321 et seq) and the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 United State Code '9601 et seq), as revised from time to time.

Nearshore Area
The area extending seaward 12 miles from the boundary lines defined in 46 CFR Part 7, except in the Gulf of Mexico. In the Gulf of Mexico, it means the area extending seaward 12 miles from the line of demarcation (COLREG) lines) defined in '80.740 - 80.850 of Title 33 of the CFR.

Non-Persistent or Group I Oil
A petroleum-based oil that, at the time of shipment, consists of hydrocarbon fractions:

- At least 50% of which by volume, distill at a temperature of 340°C (645°F)
- At least 95% of which volume, distill at a temperature of 370°C (700°F)

Non-Petroleum Oil
Oil of any kind that is not petroleum-based. It includes, but is not limited to, animal and vegetable oils.

Offshore Area
The area beyond 12 nautical miles measured from the boundary lines defined in 46 CFR Part 7 extending seaward to 50 nautical miles, except in the Gulf of Mexico. In the Gulf of Mexico it is the area beyond 12 nautical miles of the line of demarcation (COLREG lines) defined in '80-740 - 80.850 of Title 33 of the CFR extending seaward to 50 nautical miles.

Oil or Oils
Naturally occurring liquid hydrocarbons at atmospheric temperature and pressure coming from the earth, including condensate and natural gasoline, and any fractionation thereof, including, but not limited to, crude oil, petroleum gasoline, fuel oil, diesel oil, oil sludge, oil refuse, and oil mixed with wastes other than dredged spoil. Oil does not include any substance listed in Table 302.4 of 40 CFR Part 302 adopted August 14, 1989, under Section 101(14) of the Federal Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended by P.L. 99-499.

Oil Spill Removal Organization (OSRO)
An entity that provides oil spill response resources, and includes any for profit or not-for-profit contractor, cooperative, or in-house response resources that have been established in a geographic area to provide required response resources.

Operating Area
The rivers and canals, inland, nearshore, Great Lakes, or offshore geographic location(s) in which a facility is handling, storing, or transporting oil.

Operating Environment
Rivers and canals, inland, Great Lakes, or ocean. These terms are used to define the conditions in which response equipment is designed to function.

Owner or Operator
Any person, individual, partnership, corporation, association, governmental unit, or public or private organization of any character.

PPE - Level A
Offers the highest level of respiratory, skin, eye and mucous membrane protection. Intended for IDLH or near IDLH conditions. Level A consists of the following:

- Positive pressure self contained breathing apparatus (SCBA)
- Fully encapsulated chemical resistant unit
- Inner and outer chemical resistant gloves
- Chemical resistant boots with steel toe and shank
- Hard hat
- Other accessories as required

PPE - Level B
Offers the highest degree of respiratory protection, but a lesser level of skin and eye protection. Level B is the minimum level recommended on initial site entries until the hazards have been further identified and defined by monitoring sampling, and other methods. Level B protection may be used where confined space entry conditions exist and existing gases or vapors are not harmful to the skin. Level B consists of the following:

- Positive pressure self contained breathing apparatus (SCBA)
- Chemical resistant clothing appropriate for hazard
- Inner and outer chemical resistant gloves
- Chemical resistant boots with steel toe and shank
- Hard hat
- Other accessories as required

PPE - Level C
May be used when the type of airborne substance is known, its concentration has been measured, and criteria for using air-purifying respirators have been met. Also, skin and eye exposure is unlikely. Level C consists of the following:

- Full-face, air purifying respirator appropriate for contaminant
- Chemical, fire and/or heat resistant clothing appropriate for hazard
- Inner and outer chemical resistant gloves
- Chemical resistant boots with steel toe and shank
- Hard hat
- Other accessories as required

PPE - Level D
Standard minimum level of protection required during routine operations or incidents with no known hazards. Level D consists of the following:

- Flame retardant clothing
- Safety glasses
- Leather boots or shoes
- Hard hat
- Fire fighting protective clothing

Persistent Oil
A petroleum-based oil that does not meet the distillation criteria for a non-persistent oil. For the purposes of this Appendix, persistent oils are further classified based on specific gravity as follows:

- Group II - specific gravity less than .85
- Group III - specific gravity between .85 and less than .95
- Group IV - specific gravity .95 to and including 1.0
- Group V - specific gravity greater than 1.0

Primary Response Contractor(s)
An individual, company, or cooperative that has contracted directly with the plan holder to provide equipment and/or personnel for the containment or cleanup of spilled oil.

Qualified Individual(s)
An English-speaking representative(s) of the facility identified in the plan, located in the United States, available on a 24-hour basis, familiar with implementation of the facility response plan, and trained in his or her responsibilities under the plan. This person must have full written authority to implement the facility's response plan. This includes:

- Activating and engaging in contracting with identified oil spill removal organization(s)
- Acting as a liaison with the predesignated of Federal On-Scene Coordinator (FOCS)
- Obligating, either directly or through prearranged contracts, funds required to carry out all necessary or directed response

Regional Response Team
The Federal Response Organization (consisting of representatives from selected Federal and State agencies) which acts as a regional body responsible for planning and preparedness before an oil spill occurs and providing advice to the FOSC in the event of a major or substantial spill.

Reid Vapor Pressure Method
Method used by the American Society of Testing Materials to test vapor pressure. It is a measure of the volatility, or tendency to vaporize, of a liquid.

Responsible Party
Any person, owner/operator, or facility that has control over an oil or hazardous substance immediately before entry of the oil or hazardous substance into the atmosphere or in or upon the water, surface, or subsurface land of the state.

Rivers and Canals
A body of water confined within the inland area that has a projected depth of 12 feet or less, including the Intracoastal Waterway and other waterways artificially created for navigation.

Skimmers
Mechanical devices used to skim the surface of the water and recover floating oil. Skimmers fall into four basic categories (suction heads, floating weirs, oleophilic surface units, and hydrodynamic devices) which vary in efficiency depending on the type of oil and size of spill.

Slopover
An event that occurs when water is introduced into a tank of very hot liquid, causing the liquid to froth and spatter.

Small Discharge (EPA)
Same as average most probable discharge.

Sorbents
Materials ranging from natural products to synthetic polymeric foams placed in confined areas to soak up small quantities of oil. Sorbents are very effective in protecting walkways, boat decks, working areas, and previously uncontaminated or cleaned areas.

Spontaneous Ignition
A fire that occurs without a flame, spark, hot surface, or other outside source of ignition.

Staging Areas
Designated areas near the spill site accessible for gathering and deploying equipment and/or personnel.

State Emergency Response Commission (SERC)
A group of officials appointed by the Governor to implement the provisions of Title III of the Federal Superfund Amendments and Reauthorization Act of 1986 (SARA). The SERC approves the State Oil and Hazardous Substance Discharge Prevention and Contingency Plan and Local Emergency Response Plans.

Static Electricity
Charges of electricity accumulated on opposing and usually moving surfaces having negative and positive charges, respectively. A hazard exists where the static potential is sufficient to discharge a spark in the presence of flammable vapors or combustible dusts.

Support Zone
Same as cold zone, an area free of contaminants so that personal protection equipment (PPE) is not required for personnel working in this area. Command functions and supporting operations are carried out here.

Tornado Warning
A tornado has been sighted.

Tornado Watch
Conditions are favorable for tornados to form.

Unified Command
The method by which local, state, and federal agencies will work with the Incident Commander to:

- Determine their roles and responsibilities for a given incident
- Determine their overall objectives for management of an incident
- Select a strategy to achieve agreed upon objectives
- Deploy resources to achieve agreed-upon objectives

Warm (Contamination Reduction) Zone
A buffer between the hot and cold zones. Decontamination activities take place there. Equipment needed to support the primary response operation may be staged in the warm zone.

Waste
Oil or contaminated soil, debris, and other substances removed from coastal waters and adjacent waters, shorelines, estuaries, tidal flats, beaches, or marshes in response to an unauthorized discharge. Waste means any solid, liquid, or other material intended to be disposed of or discarded and generated as a result of an unauthorized discharge of oil. Waste does not include substances intended to be recycled if they are in fact recycled within 90 days of their generation or if they are brought to a recycling facility within that time.

Wildlife Rescue
Efforts made in conjunction with federal and state agencies to retrieve, clean, and rehabilitate birds and wildlife affected by an oil spill.

APPENDIX

F *INTERNAL SPILL RESPONSE EQUIPMENT*

INTERNAL SPILL RESPONSE EQUIPMENT

The following spill response equipment is maintained **onsite for immediate deployment at Alexander, Aune, Ross and Trenton facilities**:

QUANTITY	ITEM	LOCATION
2 pair	Pull Over Boots	Onsite Conex Box
1 bag	Tie Straps	Onsite Conex Box
2	Retractable Life Lines	Onsite Conex Box
2	Small Brush Heads	Onsite Conex Box
4	2 3/16" Carabiners	Onsite Conex Box
1 set	Screwdrivers	Onsite Conex Box
6 pair	Leather Gloves	Onsite Conex Box
1 bag	Latex Gloves	Onsite Conex Box
6 pair	Chemical Gloves	Onsite Conex Box
100 pair	Cotton Gloves	Onsite Conex Box
2	Suspenders	Onsite Conex Box
10	Safety Vest	Onsite Conex Box
1 set	Crescent Wrench	Onsite Conex Box
1	Pry Bar	Onsite Conex Box
1	Emergency Response Book	Onsite Conex Box
2	Air Horns	Onsite Conex Box
1	Channel Lock Pliers	Onsite Conex Box
1	Vise Grip Pliers	Onsite Conex Box
1	Stanley Knife	Onsite Conex Box
1	Ball Pin Hammer	Onsite Conex Box
2	Caution Signs	Onsite Conex Box
2	Wide Head Brooms	Onsite Conex Box
1 set	Allen Wrench Set	Onsite Conex Box
2	Safety Harness	Onsite Conex Box
2	Shock Absorber Harness	Onsite Conex Box
2	Life Lines	Onsite Conex Box
1,040 feet	8" Soft Boom	Onsite Conex Box
520 feet	5" Soft Boom	Onsite Conex Box

QUANTITY	ITEM	LOCATION
1	Snake Bite Kit	Onsite Conex Box
3 boxes	15 x 19 Pads	Onsite Conex Box

Williston Field Office:

QUANTITY	ITEM	LOCATION
2 pair	Pull Over Boots	Spill Trailer
1 bag	Tie Straps	Spill Trailer
1	Retractable Life Lines	Spill Trailer
6 pair	Leather Gloves	Spill Trailer
2	Small Brush Heads	Spill Trailer
4	2 3/16" Carabiners	Spill Trailer
1 set	Screwdrivers	Spill Trailer
1 bag	Latex Gloves	Spill Trailer
2	Suspenders	Spill Trailer
10	Safety Vest	Spill Trailer
1 set	Crescent Wrench	Spill Trailer
1	Pry Bar	Spill Trailer
1	Emergency Response Book	Spill Trailer
2	Air Horns	Spill Trailer
1	Channel Lock Pliers	Spill Trailer
1	Vice Grip Pliers	Spill Trailer
6 pair	Chemical Gloves	Spill Trailer
1	Stanley Knife	Spill Trailer
1	Ball Pin Hammer	Spill Trailer
2	Caution Signs	Spill Trailer
2	Wide Head Brooms	Spill Trailer
1 set	Allen Wrench Set	Spill Trailer
1	Safety Harness	Spill Trailer
2	Shock Absorber Harness	Spill Trailer
2	Life Lines	Spill Trailer
1,000 feet	8" Soft Boom	Spill Trailer
520 feet	5" Soft Boom	Spill Trailer
1	Snake Bite Kit	Spill Trailer

QUANTITY	ITEM	LOCATION
4 boxes	15 x 19 Pads	Spill Trailer
7 rolls	Blanket Pads	Spill Trailer
20 packs	Absorbent Pads	Spill Trailer
2	Measuring Wheel	Spill Trailer
5	Round Shovels	Spill Trailer
2	5 Gallen Enviro-Clean Soap	Spill Trailer
50	C- Batteries	Spill Trailer
4	Pelican Lights	Spill Trailer
2	Roll Visqueen	Spill Trailer
2	Sign Braces	Spill Trailer
5	Go-Jo Soap	Spill Trailer
30 pairs	Black Rubber Boot Covers -XL	Spill Trailer
30 pairs	Back Rubber Boot Covers – L	Spill Trailer
10	Goggles	Spill Trailer
10	Safety Glasses	Spill Trailer
2 boxes	Rags	Spill Trailer
100 pairs	Cotton Gloves	Spill Trailer
25	Cloth Chemical Suites – XL	Spill Trailer
12	Ty-Chem SL Coveralls	Spill Trailer
25	Cloth Chemical Suites – L	Spill Trailer
2	Buckets with Tops	Spill Trailer
1 case	Paper Towels	Spill Trailer
2	Broom Handles	Spill Trailer
1	Plastic Shovels	Spill Trailer
2	Waders	Spill Trailer
1 box	Duct Tape	Spill Trailer
5 rolls	Danger Tape	Spill Trailer
2	Fire Extinguishers	Spill Trailer
2	Fire Extinguisher Brackets	Spill Trailer
2	First Aid Kits	Spill Trailer
6 bags	Absorbent	Spill Trailer
17 bags	5” Sorbent Boom	Spill Trailer
1 roll	White Nylon Rope	Spill Trailer

QUANTITY	ITEM	LOCATION
1	Fire Blanket	Spill Trailer
1	Slip Pliers	Spill Trailer
1	Post Driver	Spill Trailer
12	Fence Post	Spill Trailer
1 bundle	Wood Stakes	Spill Trailer
1	Disposable Camera	Spill Trailer
4	Safety Cones	Spill Trailer
1	2 5/15 Trailer Hitch	Spill Trailer
1	Windsock with Pole	Spill Trailer
1	Windsock Frame	Spill Trailer
4	Small Flashlights	Spill Trailer
1	Potable Air Compressor	Spill Trailer
2	Black Absorbent Pads	Spill Trailer