

**ExxonMobil Pipeline Company**

**SCAT Area Transition Report for  
A17**

Silvertip Pipeline Incident  
Laurel, Montana

October 18, 2011



## **SCAT Area Transition Report for A17**

Silvertip Pipeline Incident  
Laurel, Montana

Prepared for:  
ExxonMobil Pipeline Company

Prepared by:  
ARCADIS G&M of North Carolina, Inc.  
11000 Regency Parkway  
West Tower, Suite 205  
Cary, North Carolina 27518-8518  
Tel 919.469.1952  
Fax 919.469.5676

Our Ref.:  
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Date:  
October 18, 2011

*The observations described in this Report were made exclusively under the conditions at the time and subject to the limitations stated therein. It is understood by Client that ARCADIS has relied on the accuracy of documents, oral information, and other material and information provided by sources documented in this report, including but not limited to information provided by Client and Client's other contractors. ARCADIS has not independently verified any such information. The conclusions presented in the Report are based solely upon the observations and representations made by others.*

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## **1. Executive Summary of Oil Removal Activities**

This Shoreline Cleanup Assessment Technique (SCAT) Area Transition Report provides a summary of the SCAT surveys conducted to determine the extent of oiling along the riverbanks and floodplain within SCAT Area A17, as well as the oil remediation activities completed in this area based on the SCAT Team recommendations. This report also summarizes the environmental samples collected in SCAT Area A17.

### **1.1 Land Ownership and Access Issues**

Figure 1 provides an aerial map of SCAT Area A17, along with the (a) SCAT Area boundary, (b) parcel boundaries and respective property owners, and (c) access constraints identified during the oil cleanup process. The acreage surveyed in Area A17 is 25.3. There were access issues on a small upland portion of the left bank of this area.

### **1.2 Cultural, Historic, and Natural Resource Constraints**

No historic properties or cultural resources have been identified on the right bank within this segment that would affect oil removal activities.

Figure 2 summarizes the natural resources identified in this segment. International Bird Rescue and Resource Advisors from U.S. Fish and Wildlife Service conducted regular inspections of the areas in A17 that did not have access issues. No oiled wildlife was observed or recovered. No Wildlife Priority Cleanup Areas were identified. No active migratory bird nests were identified in Area A17.

### **1.3 Summary of Environmental Sampling**

Table 1 (below) summarizes samples collected within Area A17. The analytical results for the samples collected can be accessed through a publicly accessible database on the United States Environmental Protection Agency's (USEPA's) website. The approximate locations of samples collected within Area A17 are provided on Figure 3.

**Table 1 Environmental Sampling Summary**

Agency	Sample Num	Date	Matrix	Location	Latitude	Longitude
CTEH	LAMT0719DW201	7/19/11	Water_Drinking	LAMT_345_DW201	45.65846	-108.704322
CTEH	LAMT0719IW301	7/19/11	Water_Irrigation	LAMT_345_IW301	45.65743	-108.704221
CTEH	LAMT0727SO201	7/27/11	Soil_Surface	LAMT_406_SO201	45.66018	-108.703263
CTEH	LAMT0727SO211	7/27/11	Soil_Surface	LAMT_406_SO211	45.65969	-108.702591
CTEH	LAMT0816SO402	8/16/11	Soil_River	SO-A17-1	45.65963	-108.704259
CTEH	LAMT0825SE404	8/25/11	Sediment	A17	45.65786	-108.705585

Appendix A contains a summary of sample results with detections for this sample set. Detections with a result above the screening level are highlighted; for this set, there were no exceedances.

**1.4 Summary of Initial SCAT Surveys**

The SCAT teams used systematic evaluation criteria and treatment method tables approved by the National Oceanic and Atmospheric Administration to provide a standard approach for data collection and conducting field surveys. The forms and sketches from the initial SCAT surveys performed along the river bank (water edge) and floodplain within Area A17 are included in Appendix B. Figure 4 provides the maximum oiling zones observed by the SCAT team during the initial surveys of Area A17.

**1.5 Applicable Compiled Treatment Recommendations**

The SCAT team developed compiled treatment recommendations (CTRs) providing approved treatment methods (ATMs) for each oiling zone identified during the initial SCAT surveys ([CTR No. 2](#), included as Appendix C).

**1.6 Oil Removal Activities**

Oil removal activities were conducted within Area A17 in accordance with the ATMs identified in the CTRs. [Appendix I](#) of the Summary of Assessment and Oil Removal Activities report presents this data including: date range/days worked, average number of people working per day, equipment used, and various types of bags removed: oily debris, personal protective equipment, plastic, trash, super sacks, wood chips, and contaminated wood.

### **1.7 Pre-Inspection Survey Transmittal**

SCAT Operations liaisons performed an inspection of the remediated areas of SCAT Area A17 and developed a Pre-Inspection Survey Transmittal (PIST) associated with the right bank within Area A17, which is presented in Appendix D.

### **1.8 Post-Inspection Survey Transmittal**

A Post-Inspection Survey Transmittal (POST) was not conducted for this segment.

### **1.9 Summary of Final SCAT Surveys**

Figure 5 shows the oiling conditions within Area A17 following completion of oil removal activities. The SCAT team performed final surveys of the right bank within SCAT Area A17 to confirm the agreed-upon cleanup endpoints identified in the applicable CTRs had been achieved. The final SCAT survey documentation is presented in Appendix F.

### **1.10 SCAT Area Conclusions**

Based on the final SCAT survey performed on the right bank within Area A17, no further treatment is recommended for this area. Based on the initial SCAT survey, no oiling was observed on the left bank or the island of Area A17. A SCAT Segment Sign-Off Sheet is included as Appendix G.



**SCAT Area Transition  
Report for A17**

Silvertip Pipeline Incident  
Laurel, Montana

**2. Transition Sign-Off Form**

**SCAT Area Transition Report for A17**

**Prepared for:**

**Unified Command**

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Date

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Unified Command – RP



**SCAT Area Transition  
Report for A17**

Silvertip Pipeline Incident  
Laurel, Montana

**SCAT Area Transition Report for A17**

**Prepared for:**

**Unified Command**

9/27/2011

Date

S. MURPHY S. MURPHY

Unified Command – FOSC



**SCAT Area Transition  
Report for A17**

Silvertip Pipeline Incident  
Laurel, Montana

**SCAT Area Transition Report for A17**

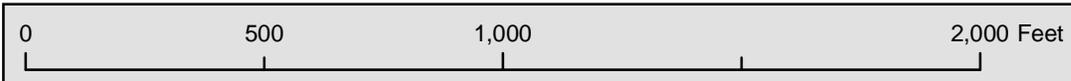
**Prepared for:**

**Unified Command**

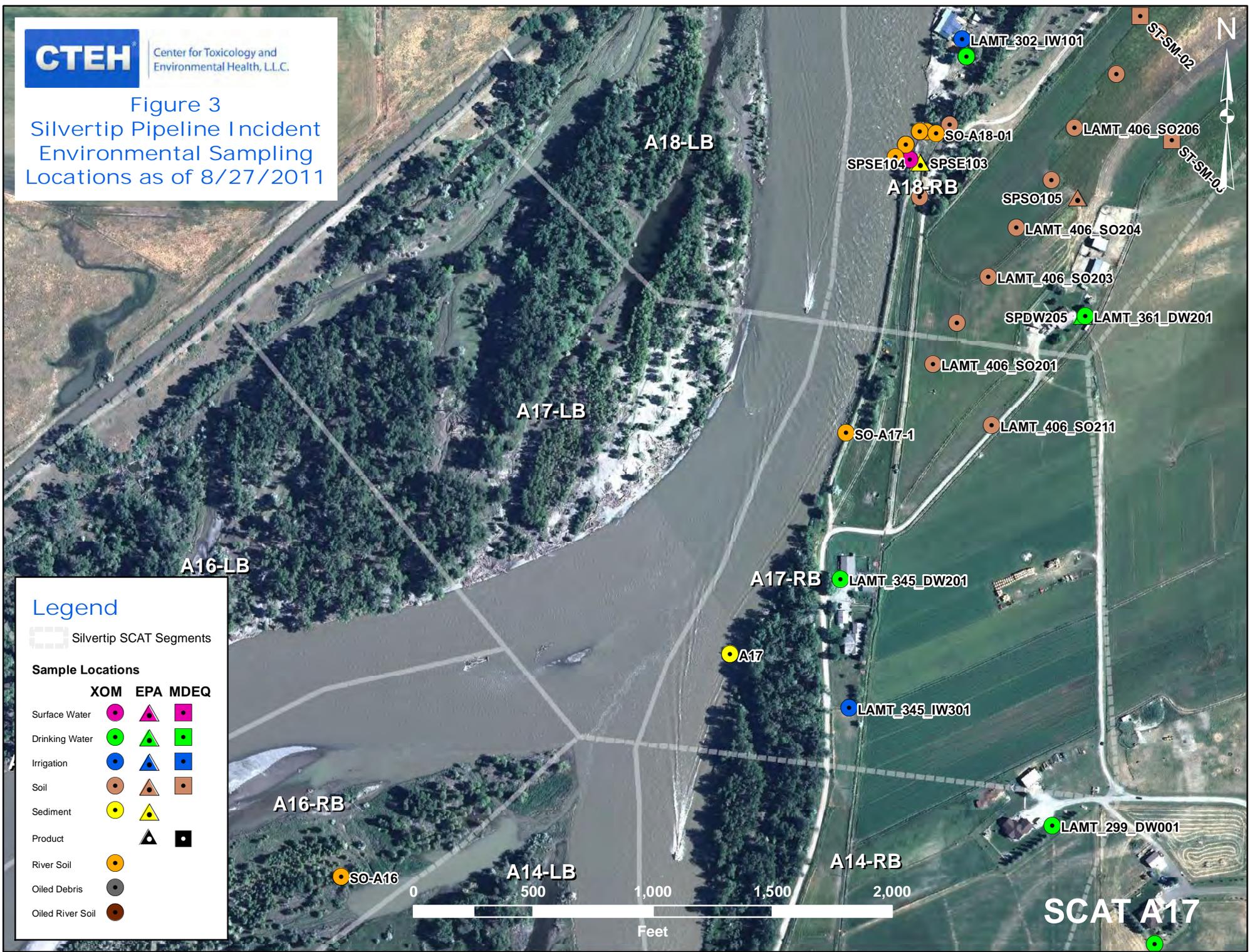
9/27/11  
Date

Laura Alvey  
Unified Command – MDEQ





**Figure 2**  
**Wildlife Resources**

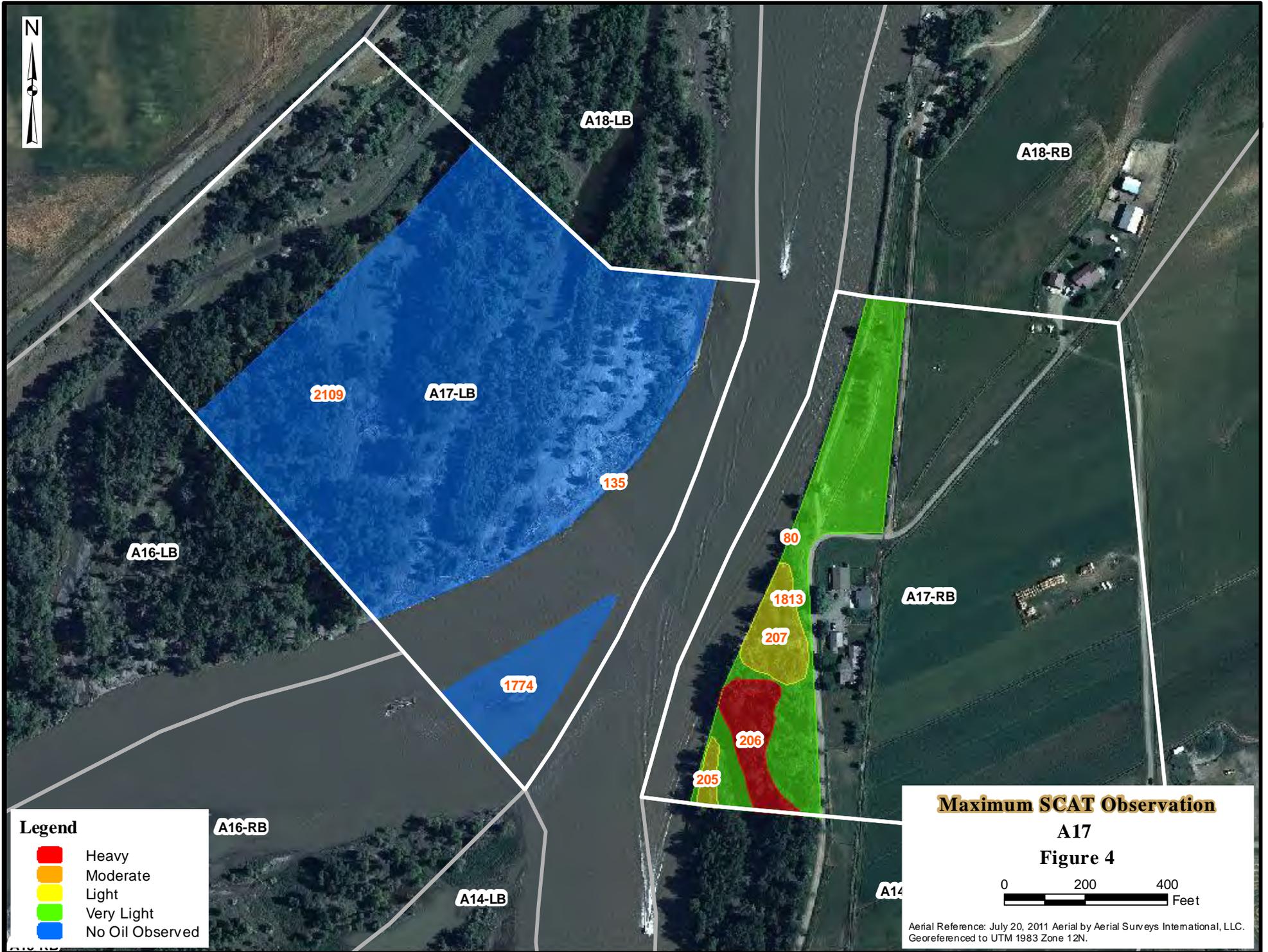


**Legend**

Silvertip SCAT Segments

**Sample Locations**

	XOM	EPA	MDEQ
Surface Water			
Drinking Water			
Irrigation			
Soil			
Sediment			
Product			
River Soil			
Oiled Debris			
Oiled River Soil			



**Legend**

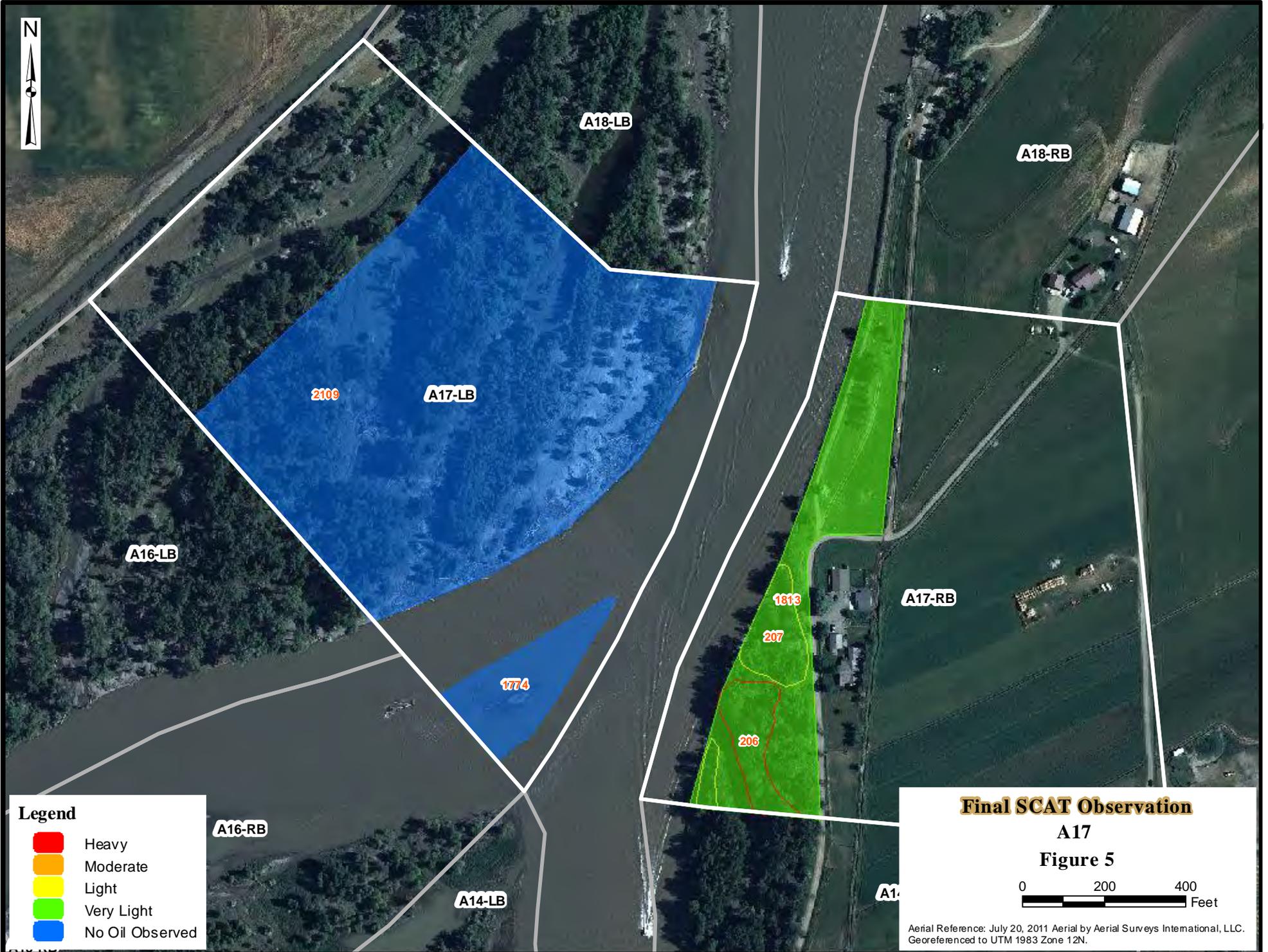
- Heavy
- Moderate
- Light
- Very Light
- No Oil Observed

**Maximum SCAT Observation**

A17  
Figure 4



Aerial Reference: July 20, 2011 Aerial by Aerial Surveys International, LLC.  
Georeferenced to UTM 1983 Zone 12N.





## **Appendix A**

Sample Detections Summary



## Detections in Samples Collected in SCAT Area A17

Printed 9/7/2011

NA - Not Available

**Detected Above Screening Level**

Sample Num	Date	Sample Type	Matrix	Analytical Method	Analyte	Detected	Result	Screening Level	Result Qualifier	Units	Above?
LAMT0727SO201	27-Jul-11	Field	Soil_Surface	EPA 6010	Arsenic	Y	13.7	40		mg/kg	no
LAMT0727SO201	27-Jul-11	Field	Soil_Surface	EPA 6010	Barium	Y	130	820		mg/kg	no
LAMT0727SO201	27-Jul-11	Field	Soil_Surface	EPA 6010	Cadmium	Y	1.1	3.8		mg/kg	no
LAMT0727SO201	27-Jul-11	Field	Soil_Surface	EPA 6010	Chromium	Y	19.6	280		mg/kg	no
LAMT0727SO201	27-Jul-11	Field	Soil_Surface	EPA 6010	Lead	Y	9.8	400		mg/kg	no
LAMT0727SO211	27-Jul-11	Field	Soil_Surface	EPA 6010	Arsenic	Y	15.3	40		mg/kg	no
LAMT0727SO211	27-Jul-11	Field	Soil_Surface	EPA 6010	Barium	Y	136	820		mg/kg	no
LAMT0727SO211	27-Jul-11	Field	Soil_Surface	EPA 6010	Cadmium	Y	1.2	3.8		mg/kg	no
LAMT0727SO211	27-Jul-11	Field	Soil_Surface	EPA 6010	Chromium	Y	21.2	280		mg/kg	no
LAMT0727SO211	27-Jul-11	Field	Soil_Surface	EPA 6010	Lead	Y	10.4	400		mg/kg	no



## **Appendix B**

Initial SCAT Survey Forms and  
Sketches

DB/G /sc

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

<b>1 GENERAL INFORMATION</b>		Date (dd/mm/yy) 11-Jul-2011	Time (24h): std / daylight 1057 hrs to 1058 hrs	<b>Water Level</b> low - mean - bankfull - <u>overbank</u> <u>falling</u> - steady - rising
Segment/Reach ID: A17 <u>Left Bank</u> / Right Bank / Island		Operations Division: A		
Survey by: Foot / ATV / <u>Boat</u> / Helicopter / Overlook / _____		Sun / Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp +/- <u>29.4</u> deg C

<b>2 SURVEY TEAM # 2 &amp; 4</b>	name	organization	contact phone number
Andrew Milanes		Polaris	
Tom Freeman		Polaris	
Andrew Johnson		USCG	
Travis Olson		USCG	

**3 SEGMENT** Total Segment/Reach Length \_\_\_\_\_ m Segment/Reach Length Surveyed 376 m

Start GPS: LATITUDE \_\_\_\_\_ deg. \_\_\_\_\_ min. LONGITUDE \_\_\_\_\_ deg. \_\_\_\_\_ min. Datum: \_\_\_\_\_

End GPS: LATITUDE \_\_\_\_\_ deg. \_\_\_\_\_ min. LONGITUDE \_\_\_\_\_ deg. \_\_\_\_\_ min.

**4A RIVER BANK TYPE** SELECT only one primary (P) shoreline type and any number of secondary (S) types. CIRCLE those OILED

Bedrock: Cliff/Ramp \_\_\_\_\_ Shelf \_\_\_\_\_ Manmade: Solid \_\_\_\_\_ Permeable (type) \_\_\_\_\_ Wetland: Swamp \_\_\_\_\_ Bog/Fen \_\_\_\_\_ Marsh \_\_\_\_\_

Sediment Bank: Clay/Mud \_\_\_\_\_ Sand \_\_\_\_\_ Mixed S \_\_\_\_\_ Pebble/Cobble \_\_\_\_\_ Boulder \_\_\_\_\_ Peat/Organic \_\_\_\_\_ Vegetated Bank: P Wooded Upland: S

Sediment Flat: Clay/Mud \_\_\_\_\_ Sand \_\_\_\_\_ Mixed/Coarse \_\_\_\_\_ Other: \_\_\_\_\_ If snow and ice use Winter River SOS

**4B RIVER VALLEY CHARACTER** select as appropriate complete for primary

Cliff or Bluff: \_\_\_\_\_ Est Height \_\_\_\_\_ m canyon \_\_\_\_\_ manmade \_\_\_\_\_ meander \_\_\_\_\_ confined or leveed \_\_\_\_\_ Substrate Type: mixed

Sloped: (>5°)(15°)(30°) straight P braided S oxbow \_\_\_\_\_ flood plain valley \_\_\_\_\_ Forested / Vegetated / Bare

**4C RIVER CHANNEL CHARACTER** circle or select as appropriate

est. width: <1m 1-10m 10-100m >100m 150m est. water depth: <1m 1-3m 3-10m >10m \_\_\_\_\_ m

shoal(s) present Y/N point bar present Y/N bar-shoal substrate: silt / sand / gravel / cobble / boulder / bedrock / debris

seasonal water level: low / mean / bank full / overbank flow est. change over next 7 days: falling — same — rising

**5 OPERATIONAL FEATURES** Suitable backshore staging Y/N Access: Direct from backshore Y/N Alongshore from next segment Y/N

Debris: Y/N oiled Y/N amount \_\_\_\_\_ bags or \_\_\_\_\_ trucks access restrictions

Oiled trees/shrubs Y/N River Current strong Y/N Other Features: \_\_\_\_\_

**6 SURFACE OILING CONDITIONS** begin with "A" in the lowest tidal zone - circle the zone/s that correspond to primary shoreline type

135

OIL ZONE ID	RIVER BANK ZONE				OIL COVER			OIL THICKNESS					OIL CHARACTER							SUBST. TYPE(S)		
	MS	LB	UB	OB	Length	Width	Distrib.	TO	CV	CT	ST	FL	FR	MS	TB	PT	TC	SR	AP		NO	
	m	m	%	m	m	%																
A			X		376	1															X	Grass, trees, debris

**7 SUBSURFACE OILING CONDITIONS** use letter for ZONE location plus Number of pit or trench — e.g., "A1"

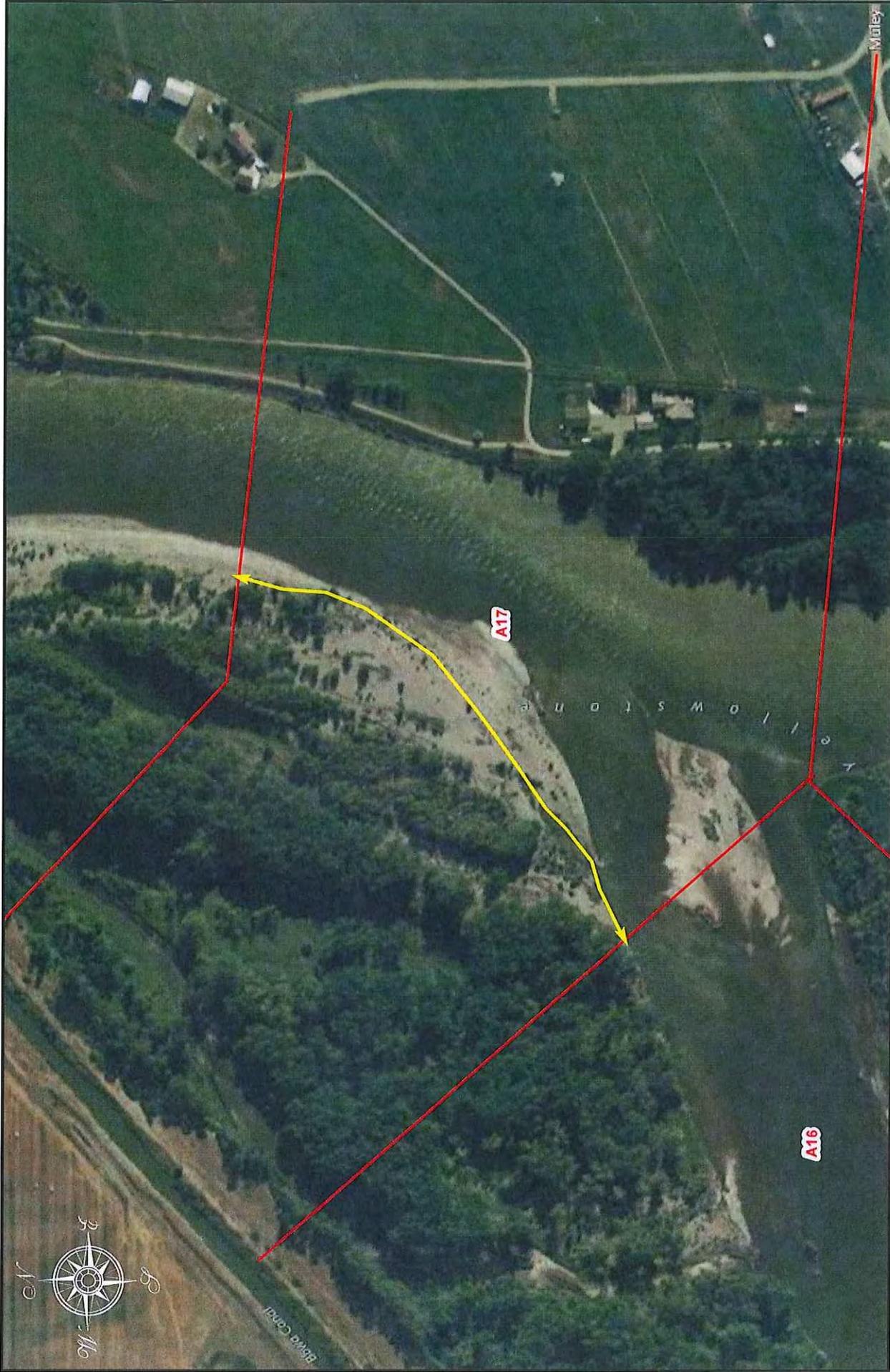
TRENCH or PIT NO.	RIVER BANK ZONE				MAX. PIT DEPTH cm	OILED ZONE cm-cm	SUBSURFACE OIL CHARACTER						WATER TABLE cm	SHEEN COLOUR B, R, S, N	CLEAN BELOW Yes / No	SUBST. TYPE(S)	
	MS	LB	UB	OB			SAP	OP	PP	OR	OF	TR					NO

**8 COMMENTS** ecological/recreational/cultural/economic constraints - shorezone biota and wildlife observations - cleanup recommendations

Cleanup Recommendations: No oil observed along river channel margin

(for ALL sub-segments record: sub-segment ID, length, length surveyed, and GPS start/end fixes)

Sketch (Yes/No) Photos Yes/No (Roll # \_\_\_\_\_ Frames \_\_\_\_\_) Video Tape Yes/No (tape# \_\_\_\_\_)



**Legend**

Oil Zones

Segment Boundaries



**SCAT Teams 2 & 4 Survey**

Segment A17 Left Bank

11-Jul-2011

DB/9

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

<b>1 GENERAL INFORMATION</b>		Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: <u>A17</u> <del>Left Bank / Right Bank / Island</del>		<u>22/08/11</u>	<u>10:50</u> hrs to <u>11:20</u> hrs	low - mean - bankfull - overbank
Operations Division: <u>A</u>				<u>falling</u> > steady - rising
Survey by: <u>Foot / ATV / Boat / Helicopter / Overlook /</u>		<u>Sun</u> / Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp + / - <u>    </u> deg C

2 SURVEY TEAM # <u>3</u>	Name	Organization	Signature
	<u>Todd Farrar</u>	<u>Polaris</u>	<u>[Signature]</u>
	<u>Rachelle Thompson</u>	<u>EPA</u>	<u>[Signature]</u>
	<u>Jay Watson</u>	<u>FWP</u>	<u>[Signature]</u>

**3 SEGMENT** Total Segment/Reach Length      m Segment/Reach Length Surveyed 154 m

Start GPS: LATITUDE      deg.      min. LONGITUDE      deg.      min. Datum:     

End GPS: LATITUDE      deg.      min. LONGITUDE      deg.      min.

**4A RIVER BANK TYPE** SELECT only one primary (P) shoreline type and any number of secondary (S) types. CIRCLE those OILED

Bedrock: Cliff/Ramp      Shelf      Manmade: Solid      Permeable      (type)      Wetland: Swamp      Bog/Fen      Marsh     

Sediment Bank: Clay/Mud      Sand S Mixed      Pebble/Cobble P Boulder      Peat/Organic      Vegetated Bank:      Wooded Upland:     

Sediment Flat: Clay/Mud      Sand      Mixed/Coarse      Other:      If snow and ice use Winter River SOS

**4B RIVER VALLEY CHARACTER** select as appropriate complete for primary

Cliff or Bluff:      Est Height      m canyon      manmade      meander      confined or leveed      Substrate Type: Silt

Sloped: >5° (15°) (30°) straight      braided P oxbow      flood plain valley      Forested / Vegetated / Bare

**4C RIVER CHANNEL CHARACTER** circle or select as appropriate

est. width: <1m 1-10m 10-100m >100m 160m est. water depth: <1m 1-3m 3-10m >10m      m

shoal(s) present Y / N point bar present Y / N bar-shoal substrate: silt / sand / gravel / cobble / boulder / bedrock / debris

seasonal water level: low / mean / bank full / overbank flow est. change over next 7 days: falling - same - rising

**5 OPERATIONAL FEATURES** Suitable backshore staging Y / N Access: Direct from backshore Y / N Alongshore from next segment Y / N

Debris: Y / N oiled Y / N amount      bags or      trucks access restrictions Island

Oiled trees/shrubs Y / N River Current strong Y / N Other Features:     

**6 SURFACE OILING CONDITIONS** begin with "A" in the lowest tidal zone - circle the zone/s that correspond to primary shoreline type

OIL ZONE ID	RIVER BANK ZONE				OIL COVER			OIL THICKNESS					OIL CHARACTER						SUBST. TYPE(S)			
	MS	LB	UB	OB	Length	Width	Distrib.	TO	CV	CT	ST	FL	FR	MS	TB	PT	TC	SR		AP	NO	
					m	m	%															
A		<u>X</u>			<u>154</u>	<u>37</u>															<u>X</u>	

**7 SUBSURFACE OILING CONDITIONS** use letter for ZONE location plus Number of pit or trench - e.g., "A1"

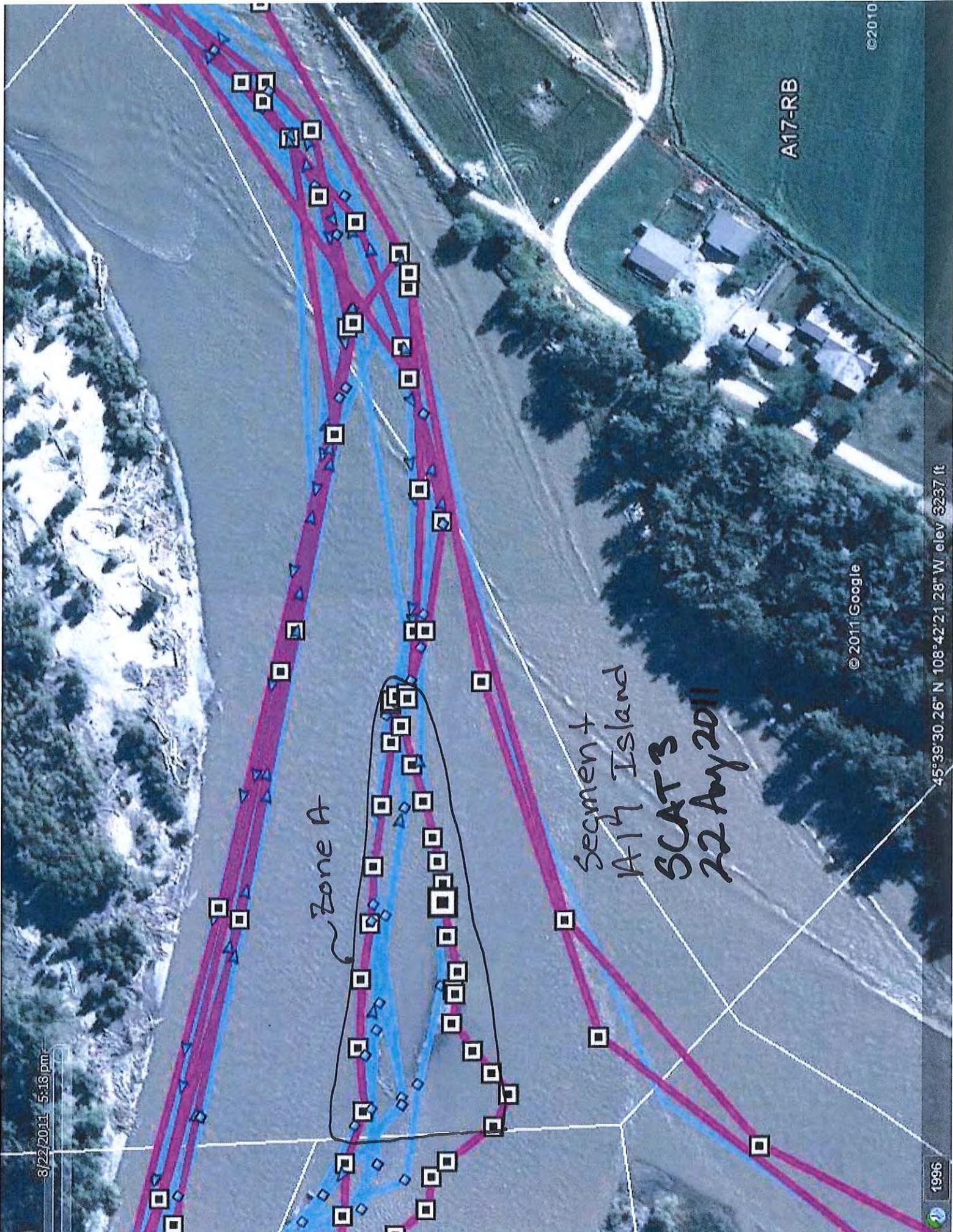
TRENCH or PIT NO.	RIVER BANK ZONE				MAX. PIT DEPTH cm	OILED ZONE cm-cm	SUBSURFACE OIL CHARACTER						WATER TABLE cm	SHEEN COLOUR B, R, S, N	CLEAN BELOW Yes / No	SUBST. TYPE(S)
	MS	LB	UB	OB			SAP	OP	PP	OR	OF	TR				

**8 COMMENTS** ecological/recreational/cultural/economic constraints - shorezone biota and wildlife observations - cleanup recommendations

Overbank Survey Required Y / N Overbank Survey Completed Y / N Shoreline Survey Completed Y / N

New Emerging Island - No Oiling Observed

8/22/2011 5:18 pm



Zone A

Segment +  
A17 Island  
SCAT 3  
22 Aug 2011

A17-RB

© 2011 Google

©2010

45°39'30.26" N 108°42'21.28" W elev 3237 ft

1986

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

<b>1 GENERAL INFORMATION</b>		Date (dd/mm/yy) 05/09/11	Time (24h): std / daylight 1030 hrs to 1230 hrs	Water Level low - <u>mean</u> - bankfull - overbank falling - steady - rising
Segment/Reach ID: <u>A17</u> (Left Bank) / Right Bank / Island				
Operations Division: <u>A</u>				
Survey by: <u>Foot</u> / ATV / Boat / Helicopter / Overlook /		Sun / Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp + / - <u>22</u> deg C

<b>2 SURVEY TEAM # 2</b>	Name	Organization	Signature
Pete Lee		Polaris	
Lee Burroughs		MTFWP	
Steve Merritt		USEPA	

**3 SEGMENT** Total Segment/Reach Length 360 m Segment/Reach Length Surveyed 360 m

Start GPS: LATITUDE \_\_\_\_\_ deg. \_\_\_\_\_ min. LONGITUDE \_\_\_\_\_ deg. \_\_\_\_\_ min. Datum: \_\_\_\_\_

End GPS: LATITUDE \_\_\_\_\_ deg. \_\_\_\_\_ min. LONGITUDE \_\_\_\_\_ deg. \_\_\_\_\_ min.

**4A RIVER BANK TYPE** SELECT only one primary (P) shoreline type and any number of secondary (S) types. CIRCLE those OILED

Bedrock: Cliff/Ramp \_\_\_\_\_ Shelf \_\_\_\_\_ Manmade: Solid \_\_\_\_\_ Permeable \_\_\_\_\_ (type) \_\_\_\_\_ Wetland: Swamp \_\_\_\_\_ Bog/Fen \_\_\_\_\_ Marsh \_\_\_\_\_

Sediment Bank: Clay/Mud \_\_\_\_\_ Sand \_\_\_\_\_ Mixed X \_\_\_\_\_ Pebble/Cobble \_\_\_\_\_ Boulder \_\_\_\_\_ Peat/Organic \_\_\_\_\_ Vegetated Bank: P Wooded Upland: S

Sediment Flat: Clay/Mud \_\_\_\_\_ Sand \_\_\_\_\_ Mixed/Coarse \_\_\_\_\_ Other: \_\_\_\_\_ If snow and ice use Winter River SOS

**4B RIVER VALLEY CHARACTER** select as appropriate complete for primary

Cliff or Bluff: \_\_\_\_\_ Est Height \_\_\_\_\_ m canyon \_\_\_\_\_ manmade \_\_\_\_\_ meander \_\_\_\_\_ confined or leveed \_\_\_\_\_ Substrate Type: \_\_\_\_\_

Sloped: \_\_\_\_\_ (>5°)(15°)(30°) straight \_\_\_\_\_ braided X P oxbow \_\_\_\_\_ flood plain valley X Forested / Vegetated / Bare

**4C RIVER CHANNEL CHARACTER** circle or select as appropriate

est. width: <1m 1-10m 10-100m >100m m est. water depth: <1m 1-3m >10m \_\_\_\_\_ m

shoal(s) present Y / N point bar present Y / N bar-shoal substrate: silt, sand / gravel / cobble / boulder / bedrock / debris

seasonal water level: low (mean) / bank full / overbank flow est. change over next 7 days: falling - same - rising

**5 OPERATIONAL FEATURES** Suitable backshore staging Y / N Access: Direct from backshore Y / N Alongshore from next segment Y / N

Debris Y / N oiled Y / N amount \_\_\_\_\_ bags or \_\_\_\_\_ trucks Access restrictions: \_\_\_\_\_

Oiled trees/shrubs Y / N River Current strong Y / N Other Features: \_\_\_\_\_

**6 SURFACE OILING CONDITIONS** begin with "A" in the lowest tidal zone - circle the zone/s that correspond to primary shoreline type

OIL ZONE ID	RIVER BANK ZONE				OIL COVER			OIL THICKNESS					OIL CHARACTER					SUBST. TYPE(S)				
	MS	LB	UB	OB	Length m	Width m	Distrib. %	TO	CV	CT	ST	FL	FR	MS	TB	PT	TC		SR	AP	NO	
A				X	360	240															X	Grass, trees, debris

**7 SUBSURFACE OILING CONDITIONS** use letter for ZONE location plus Number of pit or trench - e.g., "A1"

TRENCH or PIT NO.	RIVER BANK ZONE				MAX. PIT DEPTH cm	OILED ZONE cm-cm	SUBSURFACE OIL CHARACTER					WATER TABLE cm	SHEEN COLOUR B, R, S, N	CLEAN BELOW Yes / No	SUBST. TYPE(S)	
	MS	LB	UB	OB			SAP	OP	PP	OR	OF					TR

**8 COMMENTS** ecological/recreational/cultural/economic constraints - shorezone biota and wildlife observations - cleanup recommendations

Overbank Survey Required (Y) / N Overbank Survey Completed (Y) / N Shoreline Survey Completed (Y) / N

Oil height:

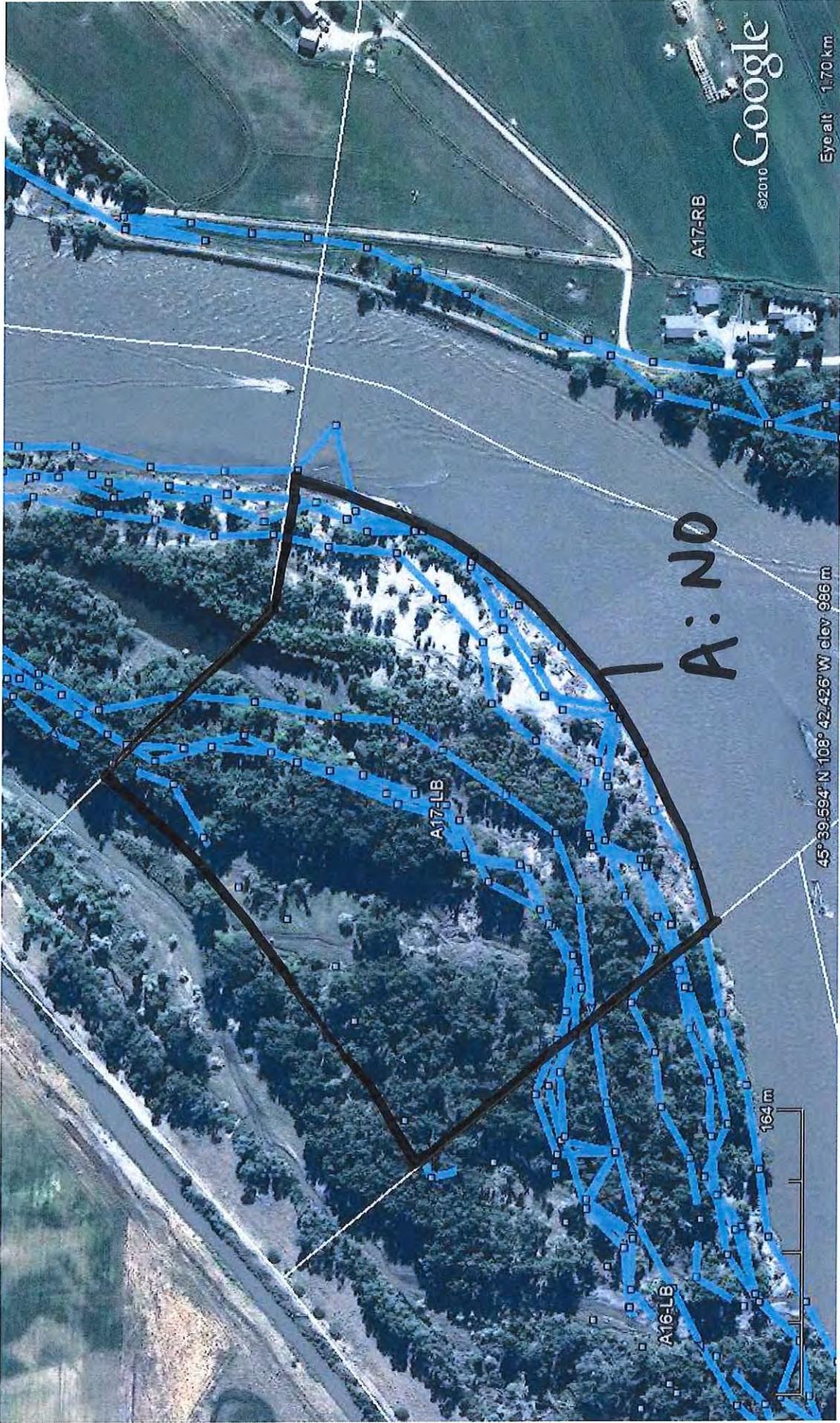
Treatment recommendations:

Zone A : No oil ; no treatment required

Zone :

Ops Hot shot team (Ed Jessup)

Sketch Yes / No Photos Yes / No Frames \_\_\_\_\_ Photographer \_\_\_\_\_



A17 LB  
T2 9/5/11

DB/RS

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

<b>1 GENERAL INFORMATION</b>		Date (dd/mm/yy) 11-Jul-2011	Time (24h): std / daylight 1057 hrs to 1100 hrs	<b>Water Level</b> low - mean - bankfull - <u>overbank</u> falling - steady - rising
Segment/Reach ID: A17 Left Bank / <u>Right Bank</u> / Island				
Operations Division: A				
Survey by: Foot / ATV / <u>Boat</u> / Helicopter / Overlook / _____		Sun / Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp +/- <u>29.4</u> deg C

2 SURVEY TEAM # 2 & 4	name	organization	contact phone number
Andrew Milanes		Polaris	
Tom Freeman		Polaris	
Andrew Johnson		USCG	
Travis Olson		USCG	

**3 SEGMENT** Total Segment/Reach Length \_\_\_\_\_ m Segment/Reach Length Surveyed 405 m

Start GPS: LATITUDE \_\_\_\_\_ deg. \_\_\_\_\_ min. LONGITUDE \_\_\_\_\_ deg. \_\_\_\_\_ min. Datum: \_\_\_\_\_

End GPS: LATITUDE \_\_\_\_\_ deg. \_\_\_\_\_ min. LONGITUDE \_\_\_\_\_ deg. \_\_\_\_\_ min.

**4A RIVER BANK TYPE** SELECT only one primary (P) shoreline type and any number of secondary (S) types. CIRCLE those OILED

Bedrock: Cliff/Ramp \_\_\_\_\_ Shelf \_\_\_\_\_ Manmade: Solid S Permeable \_\_\_\_\_ (type) \_\_\_\_\_ Wetland: Swamp \_\_\_\_\_ Bog/Fen \_\_\_\_\_ Marsh \_\_\_\_\_

Sediment Bank: Clay/Mud \_\_\_\_\_ Sand \_\_\_\_\_ Mixed S Pebble/Cobble S Boulder S Peat/Organic \_\_\_\_\_ **Vegetated Bank:** P **Wooded Upland:** S

Sediment Flat: Clay/Mud \_\_\_\_\_ Sand \_\_\_\_\_ Mixed/Coarse \_\_\_\_\_ Other: \_\_\_\_\_ If snow and ice use Winter River SOS

**4B RIVER VALLEY CHARACTER** select as appropriate complete for primary

Cliff or Bluff: \_\_\_\_\_ Est Height \_\_\_\_\_ m canyon \_\_\_\_\_ manmade \_\_\_\_\_ meander \_\_\_\_\_ confined or leveed \_\_\_\_\_ Substrate Type: mixed

Sloped: (>5°)(15°)(30°) straight \_\_\_\_\_ braided X oxbow \_\_\_\_\_ flood plain valley \_\_\_\_\_ Forested / Vegetated / Bare

**4C RIVER CHANNEL CHARACTER** circle or select as appropriate

est. width: < 1m 1-10 m 10-100 m >100m 150m est. water depth: < 1 m 1-3 m 3-10 m >10 m \_\_\_\_\_ m

shoal(s) present Y/N point bar present Y/N bar-shoal substrate: silt / sand / gravel / cobble / boulder / bedrock / debris

seasonal water level: low / mean / bank full / overbank flow est. change over next 7 days: falling — same — rising

**5 OPERATIONAL FEATURES** Suitable backshore staging Y/N Access: Direct from backshore Y/N Alongshore from next segment Y/N

Debris: Y/N oiled Y/N amount \_\_\_\_\_ bags or 10 trucks access restrictions

Oiled trees/shrubs Y/N River Current strong Y/N Other Features: \_\_\_\_\_

**6 SURFACE OILING CONDITIONS** begin with "A" in the lowest tidal zone - circle the zone/s that correspond to primary shoreline type

OIL ZONE ID	RIVER BANK ZONE				OIL COVER			OIL THICKNESS								OIL CHARACTER								SUBST. TYPE(S)
	MS	LB	UB	OB	Length m	Width m	Distrib. %	TO	CV	CT	ST	FL	FR	MS	TB	PT	TC	SR	AP	NO				
A			X		405	1	75			X	X		X									Grass, trees, debris		

**7 SUBSURFACE OILING CONDITIONS** use letter for ZONE location plus Number of pit or trench — e.g., "A1"

TRENCH or PIT NO.	RIVER BANK ZONE				MAX. PIT DEPTH cm	OILED ZONE cm-cm	SUBSURFACE OIL CHARACTER						WATER TABLE cm	SHEEN COLOUR B, R, S, N	CLEAN BELOW Yes / No	SUBST. TYPE(S)	
	MS	LB	UB	OB			SAP	OP	PP	OR	OF	TR					NO

**8 COMMENTS** ecological/recreational/cultural/economic constraints - shorezone biota and wildlife observations - cleanup recommendations

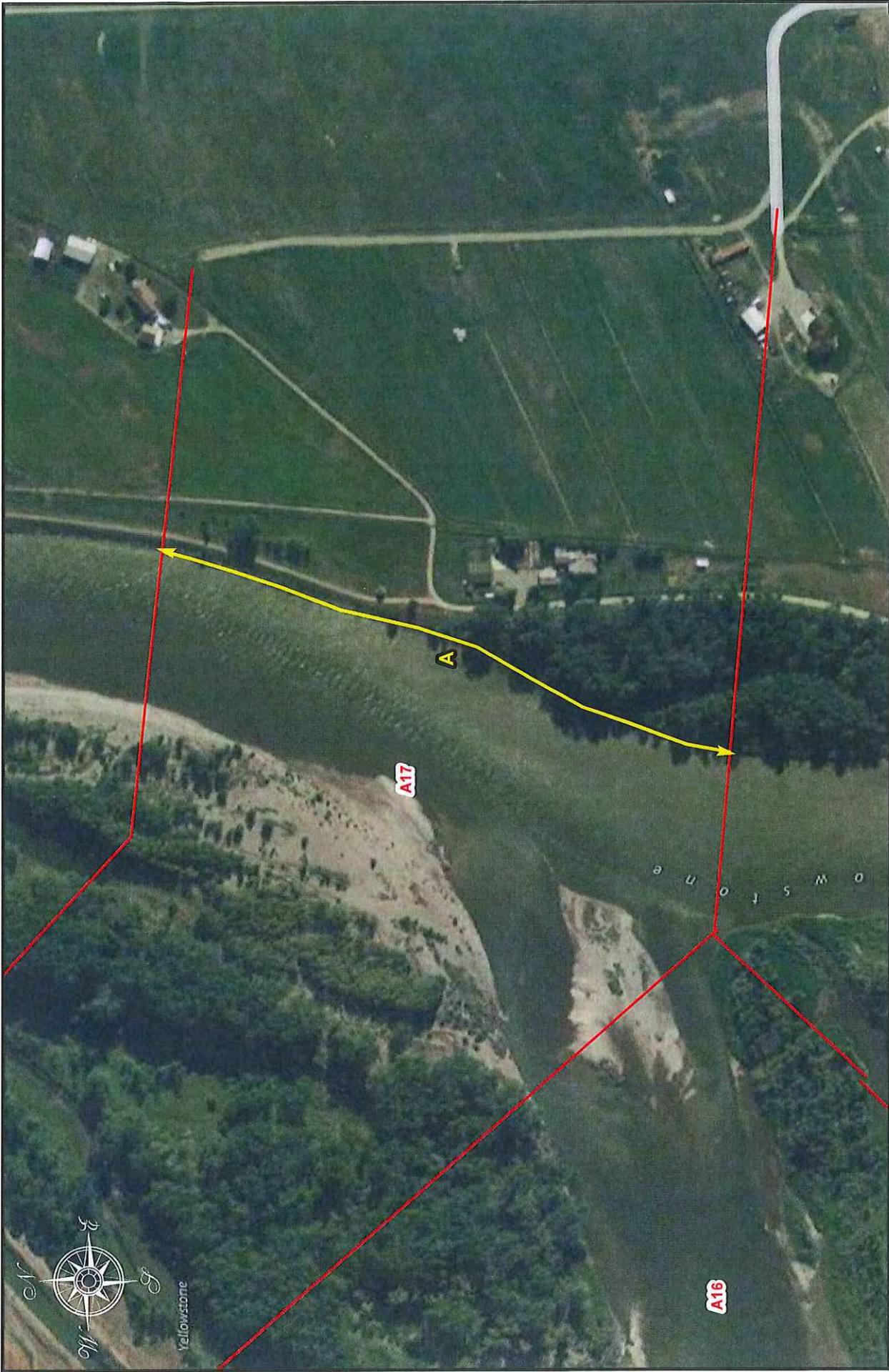
Zone A Oiled Band Height: 30cm

Due to survey platform (jet-drive boat) oil band width and heights are estimates. Unable to verify by foot.

Cleanup Recommendations: Trim oiled vegetation; wipe large oiled debris; remove small oiled debris; wipe oiled trees;

(for ALL sub-segments record: sub-segment ID, length, length surveyed, and GPS start/end fixes)

Sketch (Yes/No) Photos (Yes/No (Roll # \_\_\_\_\_ Frames \_\_\_\_\_)) Video Tape Yes/No (tape# \_\_\_\_\_)



**Legend**

Oil Zones

Segment Boundaries



**SCAT Teams 2 & 4 Survey**

Segment A17 Right Bank

11-Jul-2011

PS/6/SC

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

<b>1 GENERAL INFORMATION</b>		Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: A17 Left Bank / <u>Right Bank</u> / Island		15/07/2011		low - mean - bankfull - <u>overbank</u>
Operations Division: A			1000 hrs to 1130 hrs	<u>falling</u> - steady - rising
Survey by: <u>Foot / ATV / Boat / Helicopter / Overlook /</u>		<u>Sun</u> / Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp +/- <u>27</u> deg C

<b>2 SURVEY TEAM # 3</b>	name	organization	contact phone number
Richard Marty		Polaris	208-360-0733 <i>Richard Marty</i>
Jenni Nelson		Polaris	
Andrew Johnson		US Coast Guard	
Mike Ruggles		Montana Fish Wildlife and Parks	
Ned Balcom		Exxon-Mobile	

**3 SEGMENT** Total Segment/Reach Length \_\_\_\_\_ m Segment/Reach Length Surveyed xx \_\_\_\_\_ m

Start GPS: LATITUDE \_\_\_\_\_ deg. \_\_\_\_\_ min. LONGITUDE \_\_\_\_\_ deg. \_\_\_\_\_ min. Datum: \_\_\_\_\_

End GPS: LATITUDE \_\_\_\_\_ deg. \_\_\_\_\_ min. LONGITUDE \_\_\_\_\_ deg. \_\_\_\_\_ min.

**4A RIVER BANK TYPE** SELECT only one primary (P) shoreline type and any number of secondary (S) types. CIRCLE those OILED

Bedrock: Cliff/Ramp \_\_\_\_\_ Shelf \_\_\_\_\_ Manmade: Solid \_\_\_\_\_ Permeable \_\_\_\_\_ (type) \_\_\_\_\_ Wetland: Swamp \_\_\_\_\_ Bog/Fen \_\_\_\_\_ Marsh \_\_\_\_\_

Sediment Bank: Clay/Mud \_\_\_\_\_ Sand \_\_\_\_\_ Mixed \_\_\_\_\_ Pebble/Cobble \_\_\_\_\_ Boulder \_\_\_\_\_ Peat/Organic \_\_\_\_\_ Vegetated Bank: P Wooded Upland: \_\_\_\_\_

Sediment Flat: Clay/Mud \_\_\_\_\_ Sand \_\_\_\_\_ Mixed/Coarse \_\_\_\_\_ Other: \_\_\_\_\_ If snow and ice use Winter River SOS

**4B RIVER VALLEY CHARACTER** select as appropriate complete for primary

Cliff or Bluff: \_\_\_\_\_ Est Height \_\_\_\_\_ m canyon \_\_\_\_\_ manmade \_\_\_\_\_ meander P confined or leveed \_\_\_\_\_ Substrate Type: Mud

Sloped: \_\_\_\_\_ (>5°)(15°)(30°) straight \_\_\_\_\_ braided \_\_\_\_\_ oxbow \_\_\_\_\_ flood plain valley \_\_\_\_\_ Forested / Vegetated / Bare

**4C RIVER CHANNEL CHARACTER** circle or select as appropriate

est. width: <1m 1-10m 10-100m >100m 150 m est. water depth: <1m 1-3m 3-10 m >10m \_\_\_\_\_ m

shoal(s) present Y/N point bar present Y/N bar-shoal substrate: silt / sand / gravel / cobble / boulder / bedrock / debris

seasonal water level: low / mean / bank full / overbank flow est. change over next 7 days: falling — same — rising

**5 OPERATIONAL FEATURES** Suitable backshore staging Y/N Access: Direct from backshore Y/N Alongshore from next segment Y/N

Debris: Y/N oiled Y/N amount \_\_\_\_\_ bags or 50 trucks access restrictions Area is wet and will not bear loads

Oiled trees/shrubs Y/N River Current strong Y/N Other Features: \_\_\_\_\_

**6 SURFACE OILING CONDITIONS** begin with "A" in the lowest tidal zone - circle the zone/s that correspond to primary shoreline type

205  
206  
207

OIL ZONE ID	RIVER BANK ZONE				OIL COVER			OIL THICKNESS					OIL CHARACTER							SUBST. TYPE(S)		
	MS	LB	UB	OB	Length m	Width m	Distrib. %	TO	CV	CT	ST	FL	FR	MS	TB	PT	TC	SR	AP		NO	
A				X	240	28	5			X			X									veg
B				X	280	235	30		X				X									mud
C				X	280	230	2			X			X									veg

**7 SUBSURFACE OILING CONDITIONS** use letter for ZONE location plus Number of pit or trench — e.g., "A1"

TRENCH or PIT NO.	RIVER BANK ZONE				MAX. PIT DEPTH cm	OILED ZONE cm-cm	SUBSURFACE OIL CHARACTER								WATER TABLE cm	SHEEN COLOUR B, R, S, N	CLEAN BELOW Yes / No	SUBST. TYPE(S)				
	MS	LB	UB	OB			SAP	OP	PP	OR	OF	TR	NO									
NONE																						

**8 COMMENTS** ecological/recreational/cultural/economic constraints - shorezone biota and wildlife observations - cleanup recommendations

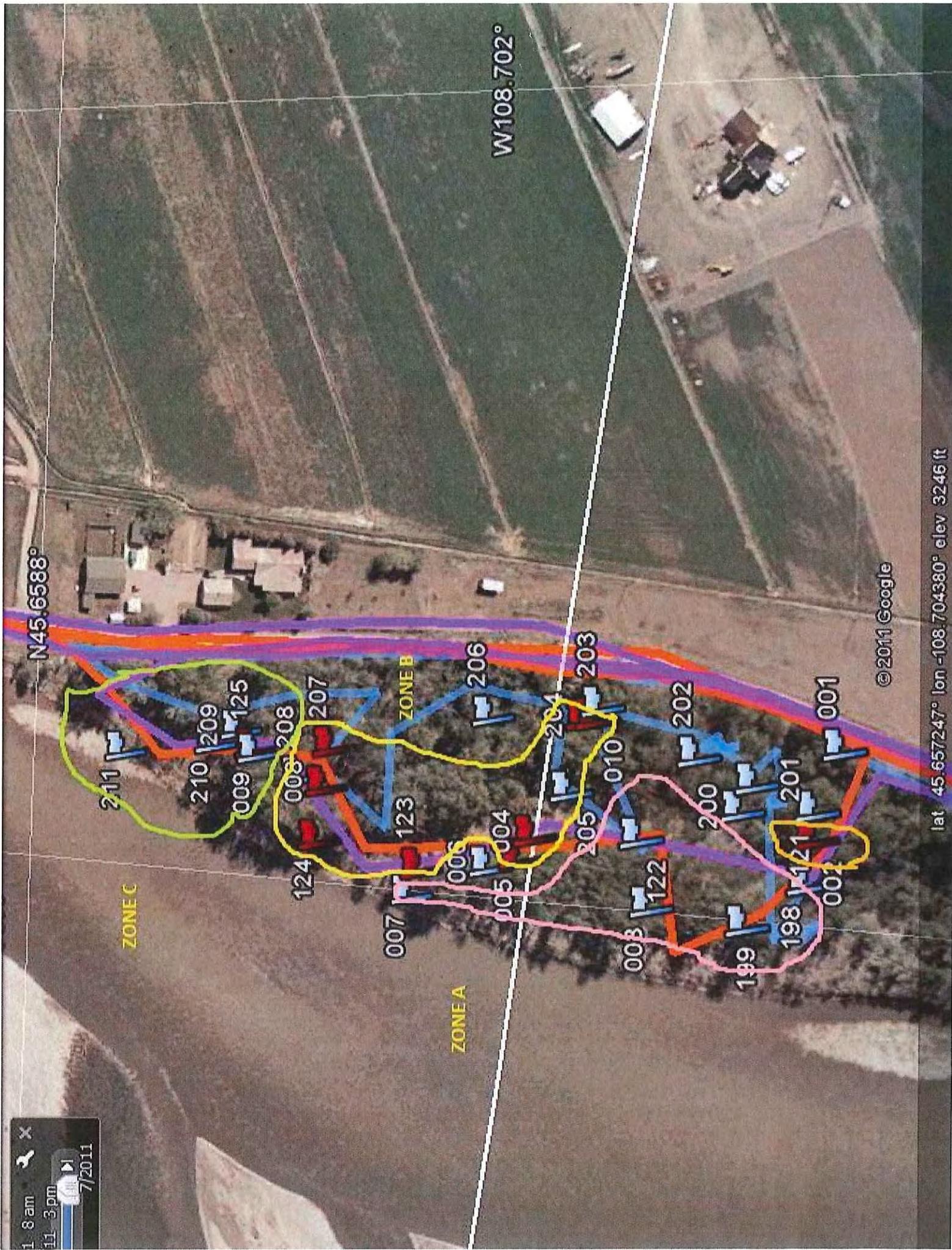
Zones A, B, and C are in a flooded overbank area. Zone A consists of fresh coat on vegetation, 30 cm high on grasses, trees, and vegetation, 5 cm thick, average 5%. Zone B contains coat and cover on downed branches, sticks, and limbs at 30% next to abandoned channel with minor silver to rainbow sheen on water. Zone also includes patties. Zone C consists of fresh coat on vegetation, 30 cm high on grasses, trees, and vegetation, 5 cm thick, average 2%.

Oiled debris and product patties on mud should be recovered and removed from the area. Oiled vegetation should be cut, bagged and disposed. Cleanup is required in both zones but the area is muddy and contains standing water. The thick oil and oiled vegetation should be physically removed from Zone A; Zone B should be mowed and trimmed to remove oiled vegetation.

(for ALL sub-segments record: sub-segment ID, length, length surveyed, and GPS start/end fixes)

Cleanups are required in zones A, B, and C but the areas are muddy and contain standing water. The thick oil and oiled vegetation GPS Point 204 was flagged with Red Flagging for immediate attention with sorbent flags.

1:08 am  
11:03 pm  
7/2011



© 2011 Google

lat 45.657247° lon -108.704380° elev 3246 ft



## **Appendix C**

Applicable Compiled Treatment  
Recommendations

## Compiled Treatment Recommendations – 2 (A14-R and A17-R)

### SCAT Segments Covered:

A14 (Right Bank), A17 (Right Bank)

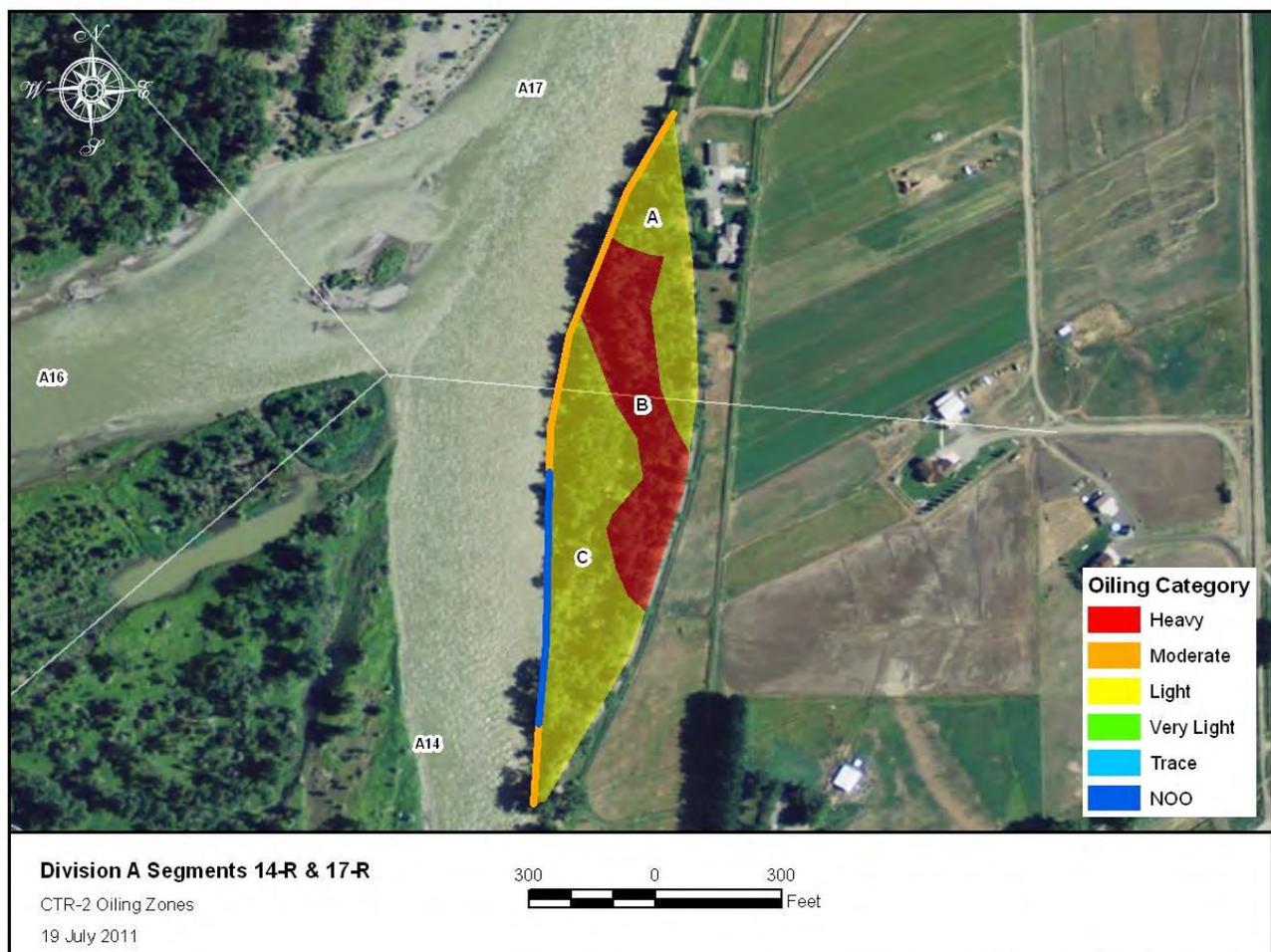
SCAT Survey Dates: 11-Jul-2011, 13-Jul-2011, 15-Jul-2011 (See attached Riverine SCAT Forms)

### Ops Sites Covered:

4g

### Refer to current approved treatment methods:

#1 Cutting of Vegetation, #2 Dead Vegetation and Small Debris, #3 Large Woody Debris, #6 Sorbent Use



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**Zones A & C:**

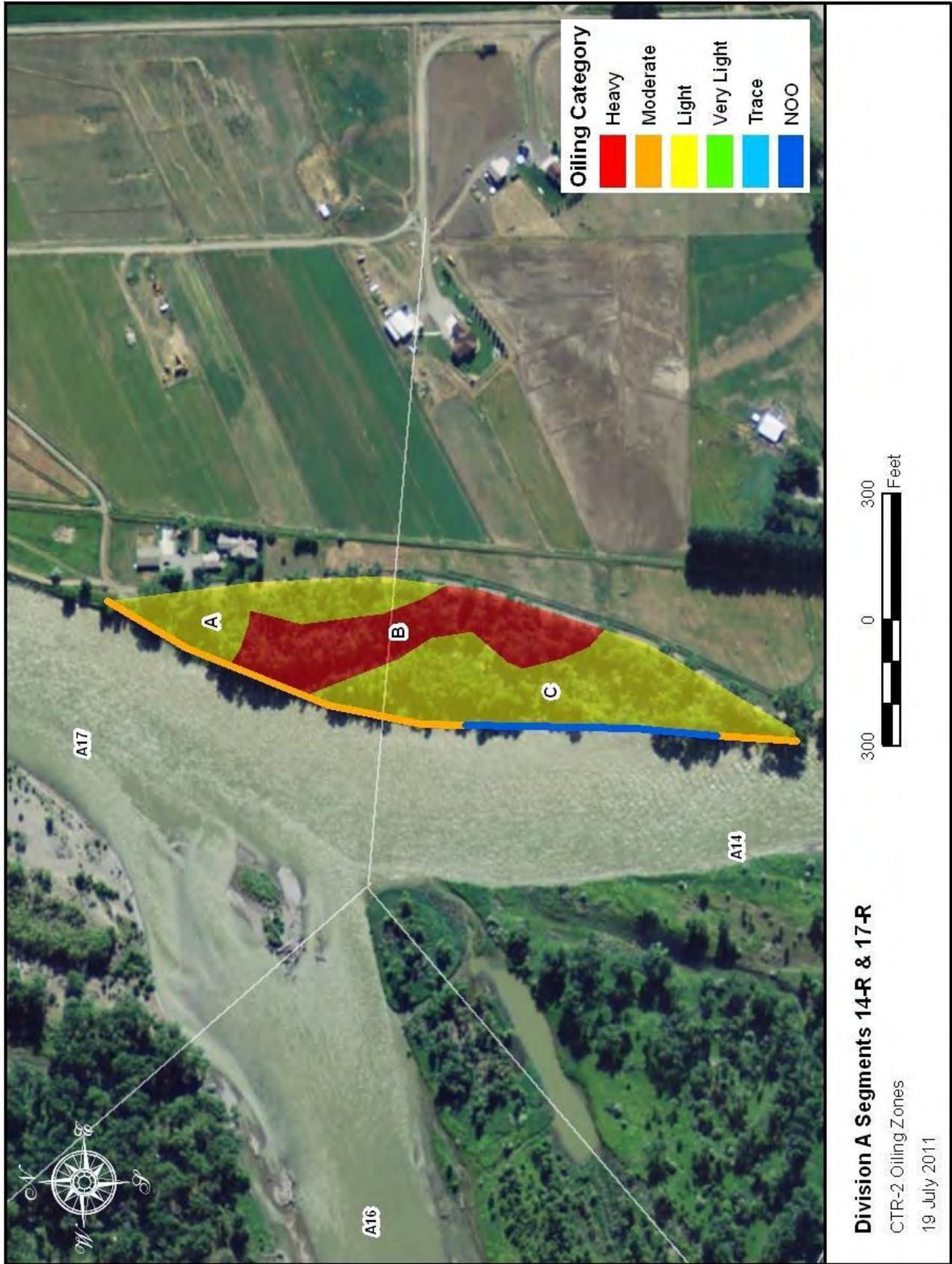
**Primary Oiling Conditions:** ~30% distribution of oiled debris (coat) and oil coat/stain on vegetation.

**Cleanup Recommendations:** Cut and remove oil coated vegetation smaller than 1" diameter. Do not cut grasses shorter than 2" from the ground. Wipe oil-coated vegetation larger than 1" diameter. Only remove oil coated debris smaller than 4" diameter. Wipe oil-coated debris larger than 4" diameter.



Do not cut grasses shorter than 2" from the ground.





Prepared by Andrew Millanes, Polaris SCAT Team 1 Lead

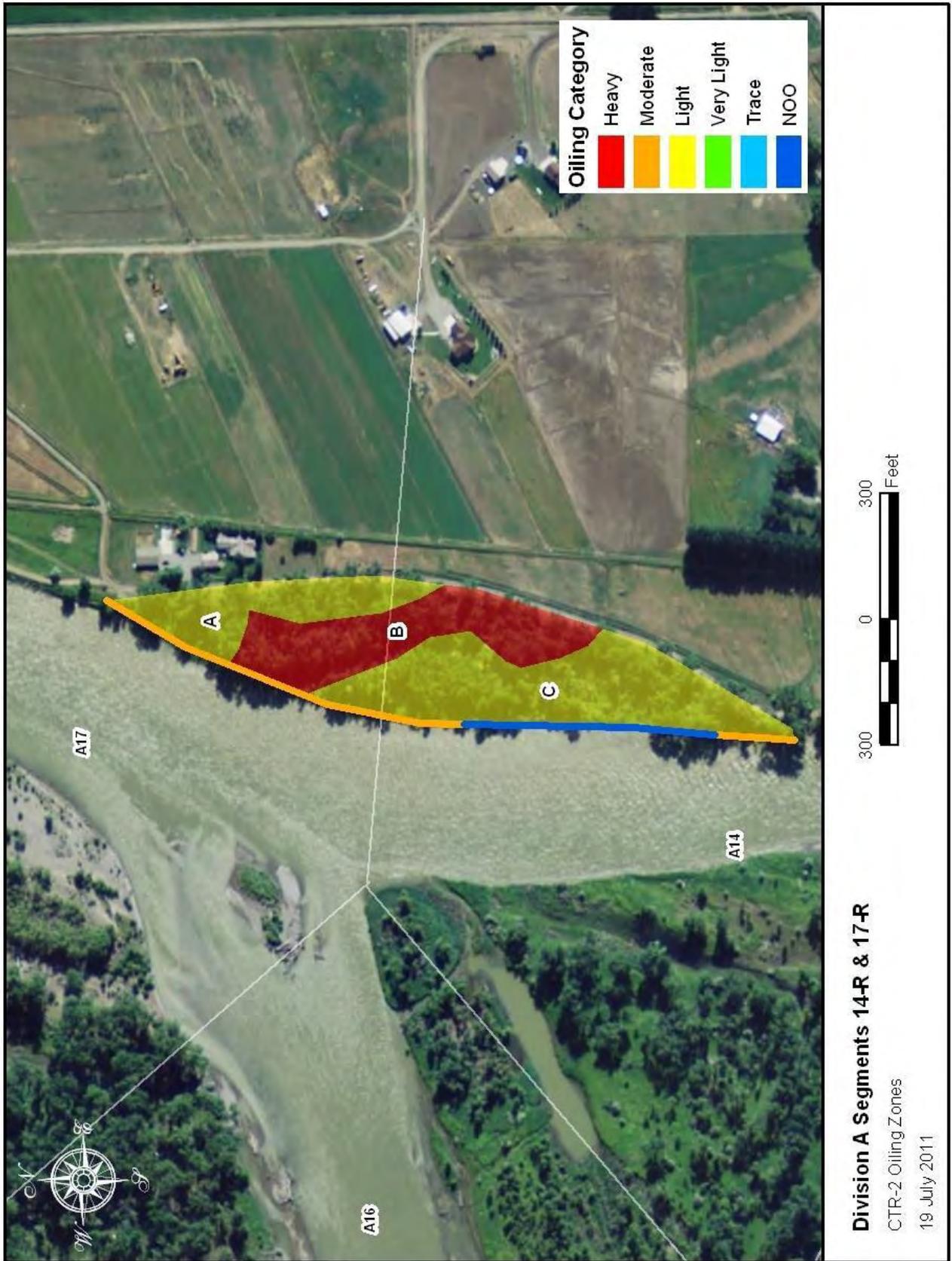
**Zone B:**

**Primary Oiling Conditions:** ~30% distribution of oiled debris (coat/cover), pooled oil on water in ditches, oil coat/stain on vegetation. Note: Quantity of oil-coated debris exceeds 10 roll-offs.

**Cleanup Recommendations:** Remove pooled oil with sorbents. Cut and remove oil-coated vegetation smaller than 1" diameter. Do not cut grass shorter than 2" from the ground. Remove oil-coated debris smaller than 4" diameter. Wipe larger oil-coated vegetation and debris. **Pending further authorization, the size and quantity of oil-coated debris in this zone may warrant alternative cleanup methods such as burning or removal.**



Do not cut grasses shorter than 2" from the ground.





## **Appendix D**

Pre-Inspection Survey Transmittal

**SCAT – Pre Inspection Survey Transmittal (PIST) Memo**

Survey Date: 8/8/11

Segment: A17 RB

Team: SCAT Liaison Ray McKelvey Signed:   
 Observer \_\_\_\_\_ Signed: \_\_\_\_\_  
 Observer \_\_\_\_\_ Signed: \_\_\_\_\_  
 Observer \_\_\_\_\_ Signed: \_\_\_\_\_

X  
Segment meets criteria? YES X NO \_\_\_\_\_

RBOS attached? YES X NO \_\_\_\_\_

**If NO:**  
Location Sketch attached? YES \_\_\_\_\_ NO X

CTR continue? YES \_\_\_\_\_ NO X

Comments: **This segment involves claims**



## **Appendix E**

Post-Inspection Survey Transmittal

**A Post-Inspection Survey  
was not conducted for this area**



## **Appendix F**

Final SCAT Summary Forms and  
Sketches

DB/G

R

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

<b>1 GENERAL INFORMATION</b>		Date (dd/mm/yy) 24/08/11	Time (24h): std / daylight 0900 hrs to 1100 hrs	Water Level low - mean - bankfull - overbank falling - steady - rising
Segment/Reach ID: A <u>17</u> Left Bank / <u>Right Bank</u> / Island				
Operations Division: <u>A</u>				
Survey by: <u>Foot</u> / ATV / Boat / Helicopter / Overlook /		Sun / Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp + / - deg C

2 SURVEY TEAM #	Name	Organization	Signature
1	Bob Nailon	Cardno ENTRIX	[Signature]
2	Pete Lee	Polaris	[Signature]
3	Dave Fuller	MTFWP	[Signature]
4	Cindy Santiaño	USEPA	[Signature]

**3 SEGMENT** Total Segment/Reach Length \_\_\_\_\_ m Segment/Reach Length Surveyed 1705392 m

Start GPS: LATITUDE \_\_\_\_\_ deg. \_\_\_\_\_ min. LONGITUDE \_\_\_\_\_ deg. \_\_\_\_\_ min. Datum: \_\_\_\_\_

End GPS: LATITUDE \_\_\_\_\_ deg. \_\_\_\_\_ min. LONGITUDE \_\_\_\_\_ deg. \_\_\_\_\_ min.

**4A RIVER BANK TYPE** SELECT only one primary (P) shoreline type and any number of secondary (S) types. CIRCLE those OILED

Bedrock: Cliff/Ramp \_\_\_\_\_ Shelf \_\_\_\_\_ Manmade: Solid \_\_\_\_\_ Permeable (type) \_\_\_\_\_ Wetland: Swamp \_\_\_\_\_ Bog/Fen \_\_\_\_\_ Marsh \_\_\_\_\_

Sediment Bank: Clay/Mud \_\_\_\_\_ Sand \_\_\_\_\_ Mixed X Pebble/Cobble \_\_\_\_\_ Boulder \_\_\_\_\_ Peat/Organic \_\_\_\_\_ Vegetated Bank: P Wooded Upland: S

Sediment Flat: Clay/Mud \_\_\_\_\_ Sand \_\_\_\_\_ Mixed/Coarse \_\_\_\_\_ Other: \_\_\_\_\_ If snow and ice use Winter River SOS

**4B RIVER VALLEY CHARACTER** select as appropriate complete for primary

Cliff or Bluff: Est Height \_\_\_\_\_ m canyon \_\_\_\_\_ manmade \_\_\_\_\_ meander \_\_\_\_\_ confined or leveed \_\_\_\_\_ Substrate Type: \_\_\_\_\_

Sloped: (>5°)(15°)(30°) straight \_\_\_\_\_ braided X oxbow \_\_\_\_\_ flood plain valley X Forested / Vegetated / Bare

**4C RIVER CHANNEL CHARACTER** circle or select as appropriate

est. width: <1m 1-10m 10-100m >100m m est. water depth: <1m 1-3m m >10m m

shoal(s) present Y point bar present Y/N bar-shoal substrate: silt / sand / gravel / cobble / boulder / bedrock / debris

seasonal water level: low / mean / bank full / overbank flow est. change over next 7 days: falling - same - rising

**5 OPERATIONAL FEATURES** Suitable backshore staging Y/N Access: Direct from backshore Y/N Alongshore from next segment Y/N

Debris Y/N oiled Y/N amount \_\_\_\_\_ bags or \_\_\_\_\_ trucks Access restrictions: Private Landowners

Oiled trees/shrubs Y/N River Current strong Y/N Other Features: \_\_\_\_\_

**6 SURFACE OILING CONDITIONS** begin with "A" in the lowest tidal zone - circle the zone/s that correspond to primary shoreline type

OIL ZONE	RIVER BANK ZONE				OIL COVER			OIL THICKNESS					OIL CHARACTER						SUBST. TYPE(S)			
	MS	LB	UB	OB	Length	Width	Distrib.	TO	CV	CT	ST	FL	FR	MS	TB	PT	TC	SR		AP	NO	
A				X	1265	55	L1			X	X						X					
					392																	

**7 SUBSURFACE OILING CONDITIONS** use letter for ZONE location plus Number of pit or trench - e.g., "A1"

TRENCH or PIT NO.	RIVER BANK ZONE				MAX. PIT DEPTH cm	OILED ZONE	SUBSURFACE OIL CHARACTER						WATER TABLE cm	SHEEN COLOUR B, R, S, N	CLEAN BELOW Yes / No	SUBST. TYPE(S)	
	MS	LB	UB	OB			SAP	OP	PP	OR	OF	TR					NO

**8 COMMENTS** ecological/recreational/cultural/economic constraints - shorezone biota and wildlife observations - cleanup recommendations

Overbank Survey Required Y/N Overbank Survey Completed Y/N Shoreline Survey Completed Y/N

Oil height: 30 cm

Treatment recommendations

Zone A : No treatment required.

Ops Hot Shot Team (Alex Barboza)

Removed 11 bags of VG/OB

Previous Cleanup operations (CTR2)

Sketch Yes / No Photos Yes / No Frames \_\_\_\_\_ Photographer \_\_\_\_\_



A17-RB  
SCAT 4  
24 Aug 2011



## **Appendix G**

Completed SCAT Segment Sign-Off  
Forms

