

**ExxonMobil Pipeline Company**

**SCAT Area Transition Report  
for A24**

Silvertip Pipeline Incident  
Laurel, Montana

October 22, 2011



## **SCAT Area Transition Report for A24**

Silvertip Pipeline Incident  
Laurel, Montana

Prepared for:  
ExxonMobil Pipeline Company

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Our Ref.:  
B0085883.1103

Date:  
October 22, 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 A24, 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 A24. This report is intended to be read and used in conjunction with the Summary of Assessment and Oil Removal Activities report.

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

Figure 1 provides an aerial map of SCAT Area A24, 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 A24 is 34.2. There were access issues for the right bank.

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

No historic properties or cultural resources have been identified within this area 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 Area A24. One oiled Woodhouse's toad (*Bufo woodhousii*) was captured, cleaned, and released. In addition, four oiled birds were noted: a nesting lightly oiled Downey woodpecker (*Picoides pubescens*); a lightly oiled pair of yellow warblers (*Dendroica petechia*); a lightly oiled nesting yellow warbler (*Dendroica petechia*), potentially one of the previously noted pair; and a lightly oiled northern shoveler (*Anas clypeata*). The figure with this section shows five oiled birds were observed (note the 2 by one of the symbols). None of these birds were captured for cleaning. One Wildlife Priority Cleanup Area (WPCA) was identified. The WPCA consisted of a band of heavy oiled vegetation along the river bank; the cleanup of this area was substantially delayed due to legal issues. The WPCA was treated to reduce the potential for wildlife oiling and is no longer considered a wildlife hazard. Three active migratory bird nests were identified in Area A24; two of the nests are noted above and the third belonged to a species that was not identified.

**1.3 Summary of Environmental Sampling**

Table 1 (below) summarizes samples collected within Area A24. 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 A24 are provided on Figure 3.

**Table 1 Environmental Sampling Summary**

Agency	Sample Num	Date	Matrix	Location	Latitude	Longitude
CTEH	LAMT082450616	24-Aug-11	Soil_River	SO-A24	45.676985	-108.671694
MDEQ	ST-071811-KW4	18-Jul-11	Soil_Surface	ST-KW-06	45.6767	-108.66802

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 three exceedances: one for C11-C22 aromatics, one for C9-C18 aliphatics, and one for total extractable hydrocarbons.

**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 A24 are included in Appendix B. Figure 4 provides the maximum oiling zones observed by the SCAT team during the initial surveys of Area A24.

**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. 13](#) and [CTR No. 14](#)).

**1.6 Oil Removal Activities**

Oil removal activities were conducted within Area A24 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 (PPE), 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 A24 and developed a Pre-Inspection Survey Transmittal (PIST) associated with the left bank within Area A24, which is presented in Appendix C.

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

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

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

Figure 5 shows the oiling conditions within Area A24 following completion of oil removal activities. The SCAT team performed final surveys of the left and right banks within SCAT Area A24 to confirm the agreed-upon cleanup endpoints identified in the applicable CTRs had been achieved. The final SCAT survey documentation is presented in Appendix E.

#### **1.10 SCAT Area Conclusions**

Based on the final SCAT surveys performed on the left and right banks within Area A24, no further treatment is recommended for these segments. SCAT Segment Sign-Off Forms are included as Appendix F.



**SCAT Area Transition  
Report for A24**

Silvertip Pipeline Incident  
Laurel, Montana

**2. Transition Sign-Off Form**

**SCAT Area Transition Report for A24**

**Prepared for:**

**Unified Command**

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Date

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Unified Command – RP



**SCAT Area Transition  
Report for A24**

Silvertip Pipeline Incident  
Laurel, Montana

**SCAT Area Transition Report for A24**

**Prepared for:**

**Unified Command**

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Date

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Unified Command – FOSC



**SCAT Area Transition  
Report for A24**

Silvertip Pipeline Incident  
Laurel, Montana

**SCAT Area Transition Report for A24**

**Prepared for:**

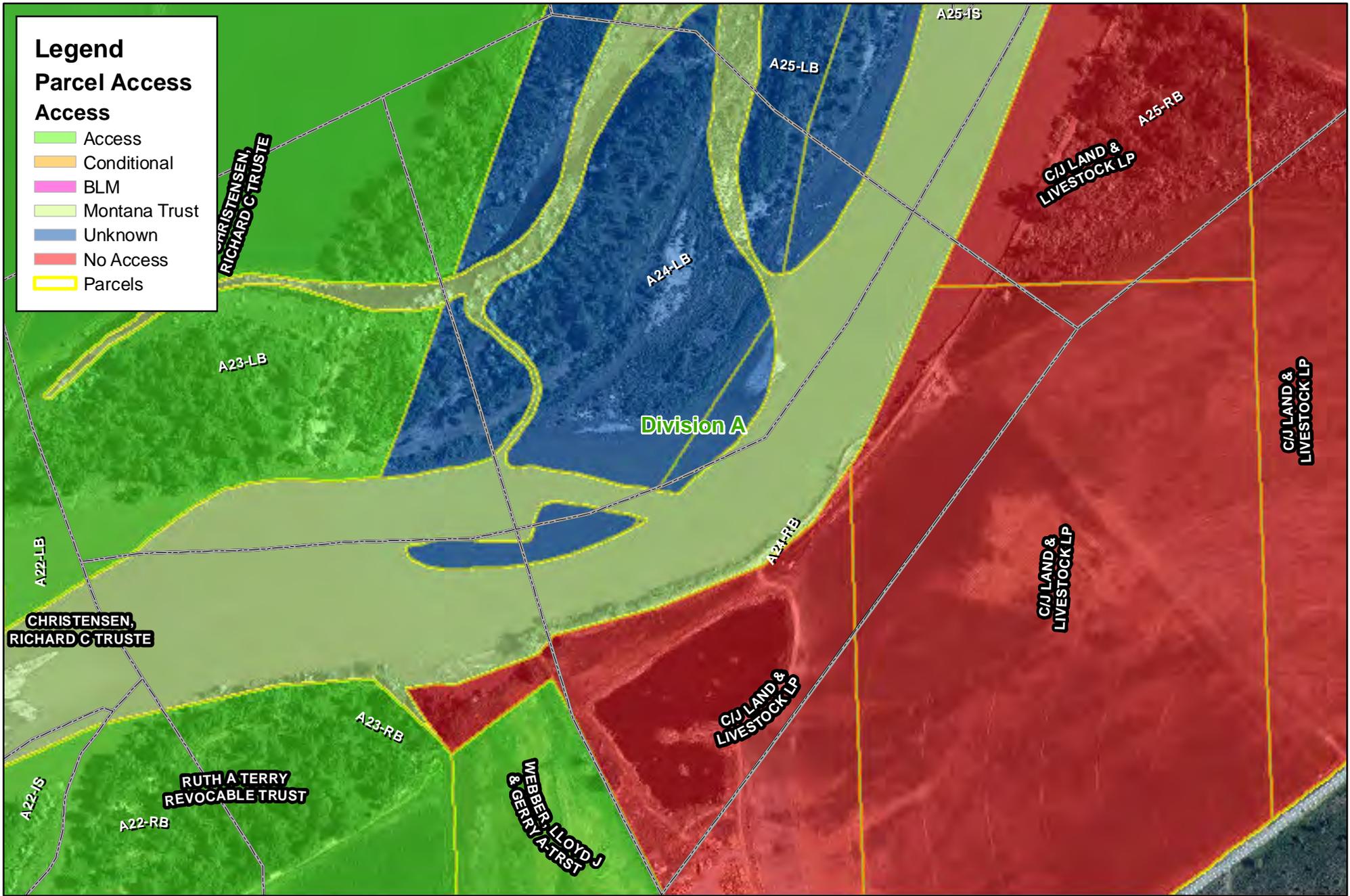
**Unified Command**

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Date

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Unified Command – MDEQ



**Legend**

**Parcel Access**

**Access**

- Access
- Conditional
- BLM
- Montana Trust
- Unknown
- No Access
- Parcels

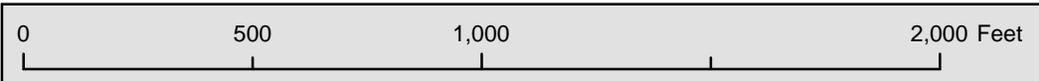
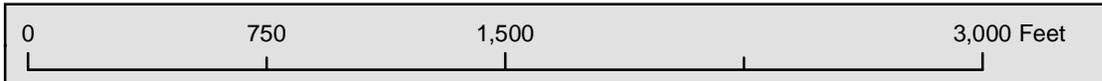
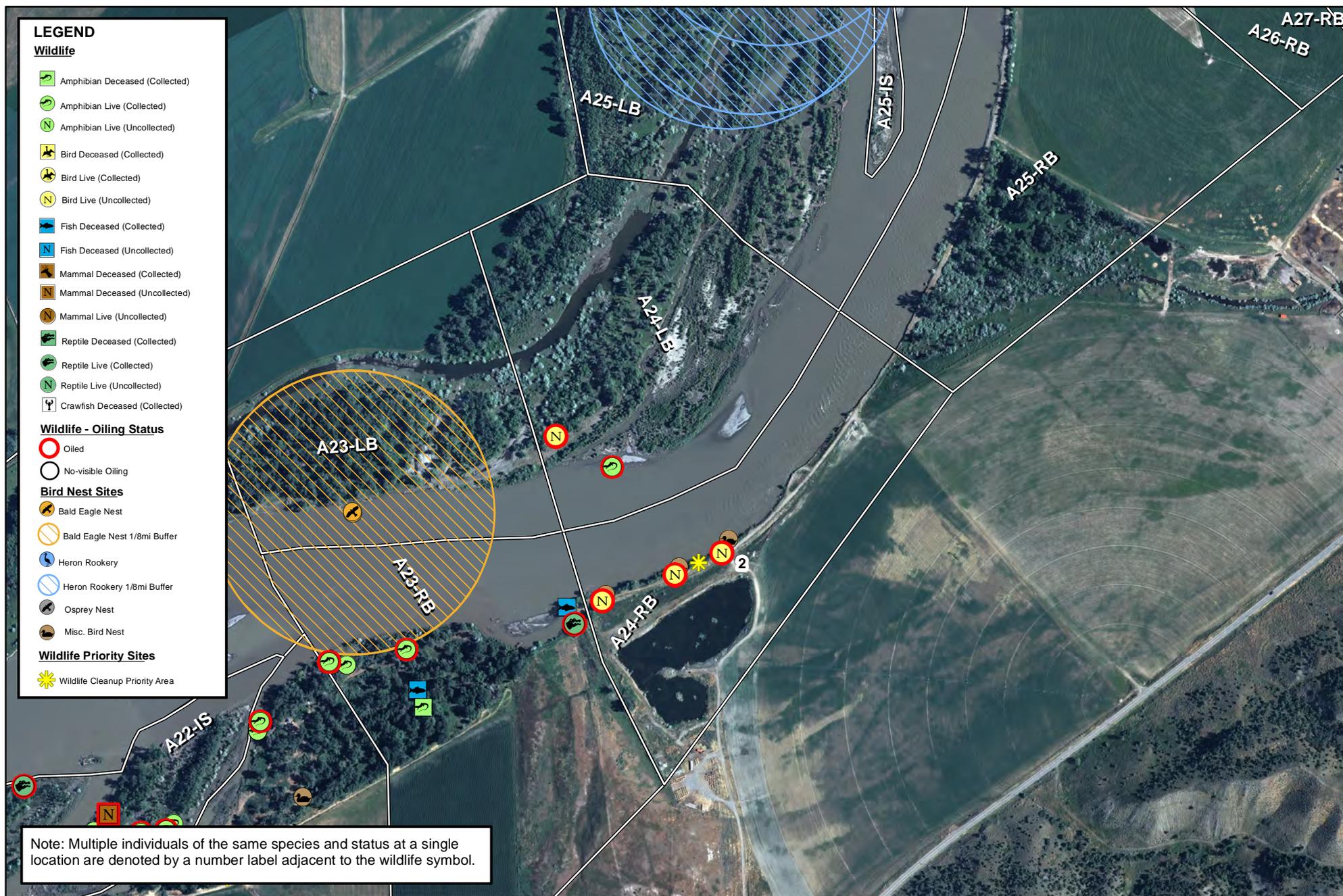


Figure 1

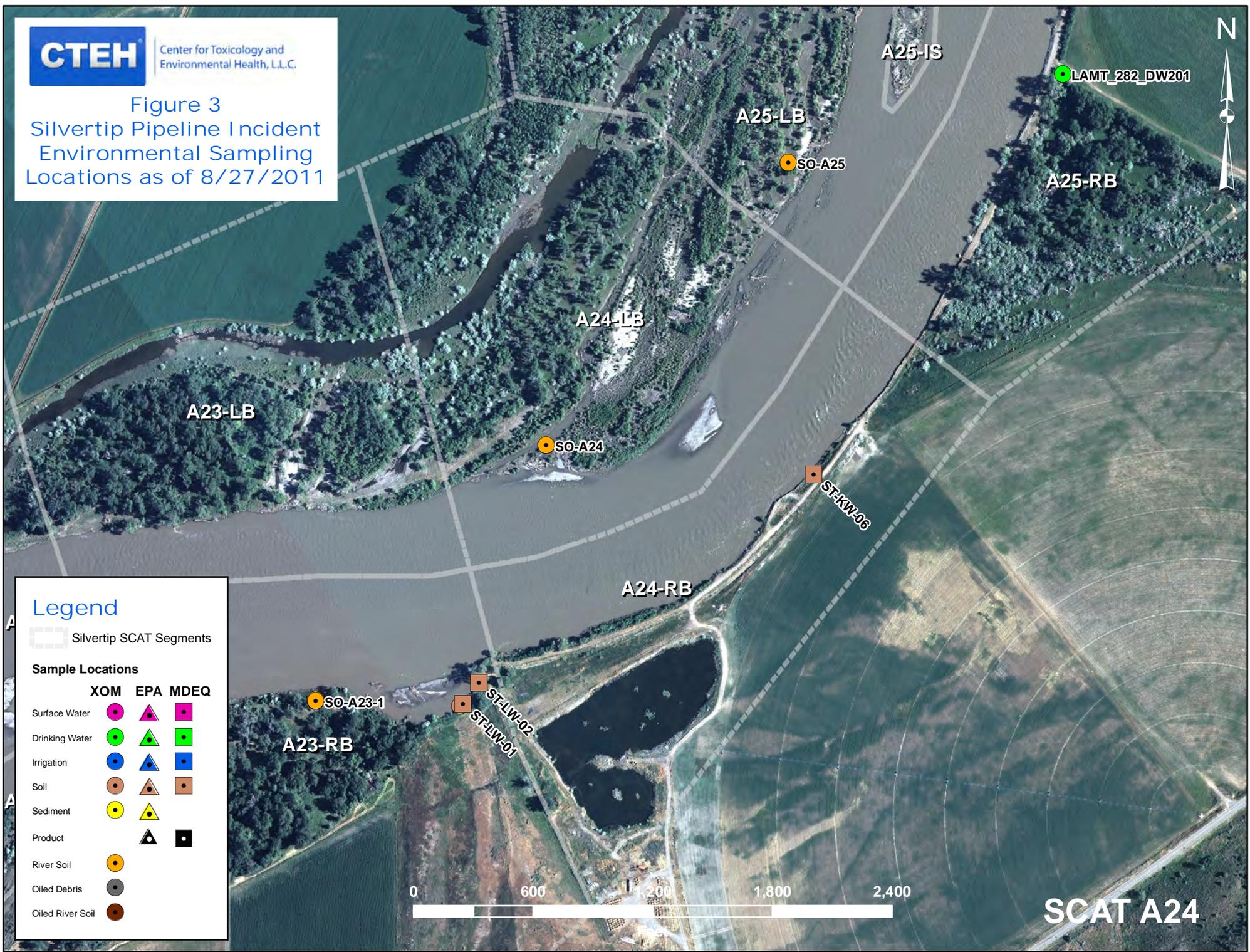


**Figure 2**  
**Wildlife Resources**



Center for Toxicology and Environmental Health, L.L.C.

Figure 3  
Silvertip Pipeline Incident  
Environmental Sampling  
Locations as of 8/27/2011



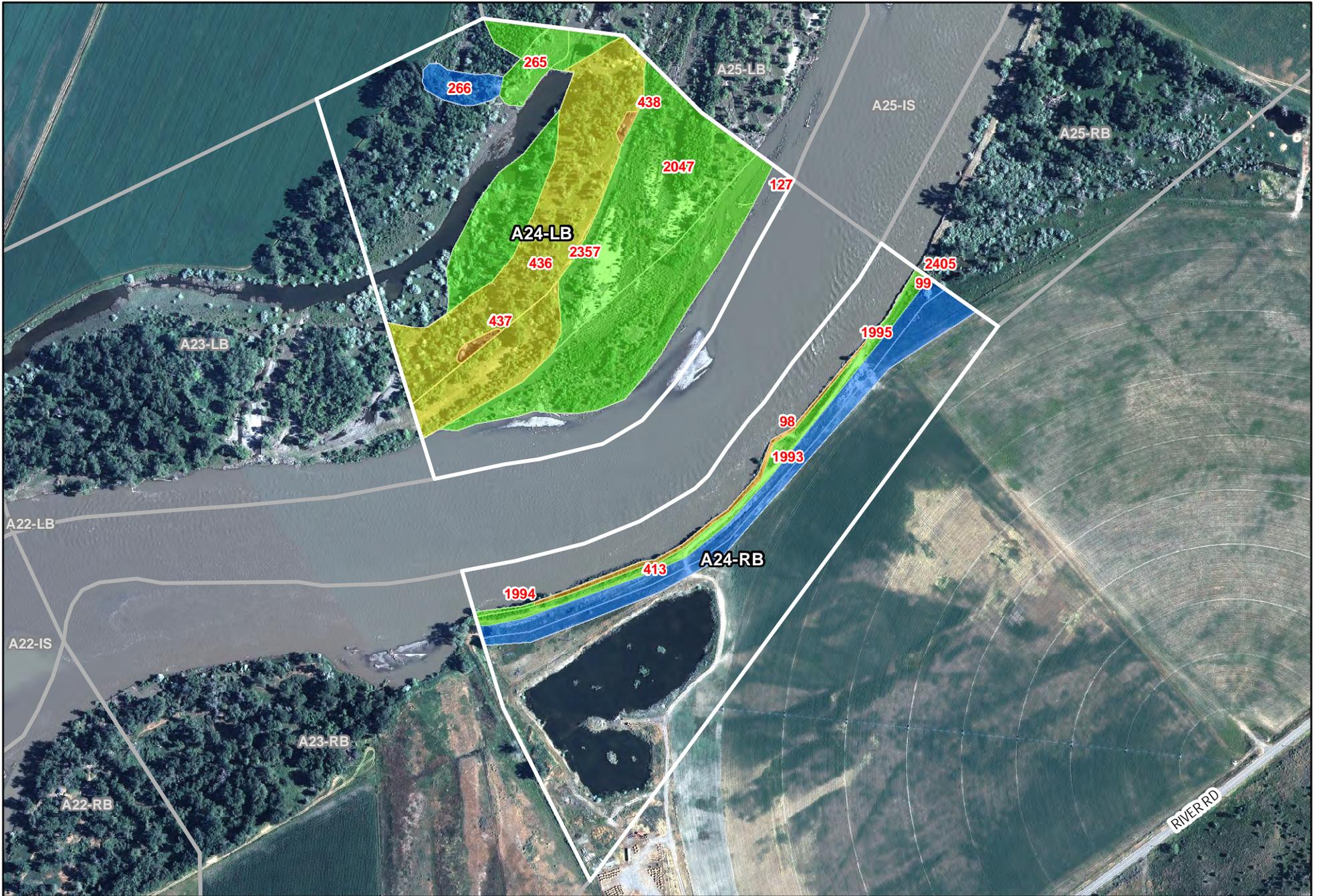
### Legend

Silvertip SCAT Segments

### Sample Locations

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

SCAT A24



- 9999** Oiling Zone ID
- 998** Heavy Oiling
- 997** Moderate Oiling

- 996** Light Oiling
- 995** Very Light Oiling
- 994** No Oil Observed

**Figure 4 - Maximum SCAT Observations For SCAT Area: A24**





- 9999 Oiling Zone ID
- Heavy Oiling
- Moderate Oiling

- Light Oiling
- Very Light Oiling
- No Oil Observed

**Figure 5 - Final SCAT Observations  
For SCAT Area: A24**





## **Appendix A**

Sample Detection Summary



## Detections in Samples Collected in SCAT Area A24

NA - Not Available

Detected Above Screening Level

Sample Num	Date	Sample Type	Matrix	Analytical Method	Analyte	Detected	Result	Screening Level	Result Qualifier	Units	Above?
LAMT0824SO616	08/24/2011	Field	Soil_River	EPA 6010	Arsenic	Y	17.5	40		mg/kg	no
LAMT0824SO616	08/24/2011	Field	Soil_River	EPA 6010	Barium	Y	122	820		mg/kg	no
LAMT0824SO616	08/24/2011	Field	Soil_River	EPA 6010	Cadmium	Y	1	3.8		mg/kg	no
LAMT0824SO616	08/24/2011	Field	Soil_River	EPA 6010	Chromium	Y	21.4	280		mg/kg	no
LAMT0824SO616	08/24/2011	Field	Soil_River	EPA 6010	Lead	Y	7.5	400		mg/kg	no
LAMT0824SO616	08/24/2011	Field	Soil_River	EPA 9060	Mean Total Organic Carbon	Y	1320	NA		mg/kg	no
LAMT0824SO616	08/24/2011	Field	Soil_River	EPA 6010	Nickel	Y	14.1	150		mg/kg	no
LAMT0824SO616	08/24/2011	Field	Soil_River	EPA 9060	RSD%	Y	10.1	NA		%	no
LAMT0824SO616	08/24/2011	Field	Soil_River	EPA 9060	Total Organic Carbon	Y	1510	NA		mg/kg	no
LAMT0824SO616	08/24/2011	Field	Soil_River	EPA 6010	Vanadium	Y	38.5	39		mg/kg	no
ST-071811-KW4		Field	Soil_Surface	8260B	1,2-Dichloroethane-d4	Y	77	NA		%	no
ST-071811-KW4		Field	Soil_Surface	8270C	1-Methylnaphthalene	Y	1.3	22	DJ	mg/kg	no
ST-071811-KW4		Field	Soil_Surface	8270C	2,4,6-Tribromophenol	Y	70	NA	D	%	no
ST-071811-KW4		Field	Soil_Surface	MA-EPH-MDEQ-REM	2-Bromonaphthalene	Y	117	NA	D	%	no
ST-071811-KW4		Field	Soil_Surface	MA-EPH-MDEQ-REM	2-Fluorobiphenyl	Y	113	NA	D	%	no
ST-071811-KW4		Field	Soil_Surface	8270C	2-Fluorobiphenyl	Y	76	NA	D	%	no
ST-071811-KW4		Field	Soil_Surface	8270C	2-Methylnaphthalene	Y	1.5	310	DJ	mg/kg	no
ST-071811-KW4		Field	Soil_Surface	MA-EPH-MDEQ-REM	C11-C22 Aromatics	Y	7210	400	D	mg/kg	YES
ST-071811-KW4		Field	Soil_Surface	MA-EPH-MDEQ-REM	C19-C36 Aliphatics	Y	5620	20000	D	mg/kg	no
ST-071811-KW4		Field	Soil_Surface	MA-VPH-MDEQ-REM	C9-C10 Aromatics	Y	3.9	100		mg/kg	no
ST-071811-KW4		Field	Soil_Surface	MA-VPH-MDEQ-REM	C9-C12 Aliphatics	Y	4.4	100		mg/kg	no
ST-071811-KW4		Field	Soil_Surface	MA-EPH-MDEQ-REM	C9-C18 Aliphatics	Y	2860	200	D	mg/kg	YES
ST-071811-KW4		Field	Soil_Surface	8260B	Dibromofluoromethane	Y	78	NA		%	no
ST-071811-KW4		Field	Soil_Surface	8270C	Nitrobenzene-D5	Y	73	NA	D	%	no
ST-071811-KW4		Field	Soil_Surface	MA-EPH-MDEQ-REM	Octadecane, 1-chloro-	Y	65	NA	D	%	no
ST-071811-KW4		Field	Soil_Surface	8270C	o-Fluorophenol	Y	69	NA	D	%	no
ST-071811-KW4		Field	Soil_Surface	MA-EPH-MDEQ-REM	o-Terphenyl	Y	214	NA	D	%	no
ST-071811-KW4		Field	Soil_Surface	8260B	p-Bromofluorobenzene	Y	75	NA		%	no
ST-071811-KW4		Field	Soil_Surface	8270C	Phenanthrene	Y	1.4	NA	DJ	mg/kg	no
ST-071811-KW4		Field	Soil_Surface	8270C	Phenol-d5	Y	68	NA	D	%	no
ST-071811-KW4		Field	Soil_Surface	8270C	Terphenyl-d14	Y	71	NA	D	%	no



## Detections in Samples Collected in SCAT Area A24

NA - Not Available

Detected Above Screening Level

Sample Num	Date	Sample Type	Matrix	Analytical Method	Analyte	Detected	Result	Screening Level	Result Qualifier	Units	Above?
ST-071811-KW4		Field	Soil_Surface	8260B	Toluene	Y	0.27	10	J	mg/kg	no
ST-071811-KW4		Field	Soil_Surface	MA-VPH-MDEQ-REM	Toluene	Y	0.33	10		mg/kg	no
ST-071811-KW4		Field	Soil_Surface	8260B	Toluene-d8	Y	70	NA		%	no
ST-071811-KW4		Field	Soil_Surface	MA-EPH-MDEQ-REM	Total Extractable Hydrocarbons	Y	<b>18500</b>	200	D	mg/kg	YES
ST-071811-KW4		Field	Soil_Surface	MA-VPH-MDEQ-REM	Total Purgeable Hydrocarbons	Y	19	200		mg/kg	no



## **Appendix B**

Initial SCAT Survey Forms and  
Sketches

DBIG

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 1046 hrs to 1047 hrs	Water Level low - mean - bankfull - <u>overbank</u> falling - steady - rising
Segment/Reach ID: A24 <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 489 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 1-10 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 1 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

12.7

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			<u>X</u>	X	489	1	70			<u>X</u>	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

Oiled Band Heights: Zone A - 40cm

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

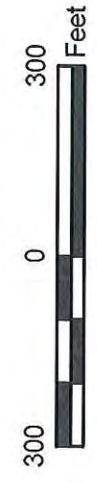
Cleanup Recommendations: Trim oiled vegetation; wipe large oiled debris; remove small oiled debris; wipe oiled trees;

(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 A24 Left Bank  
11-Jul-2011

DB/G/Sc

<b>1 GENERAL INFORMATION</b>		Date (dd/mm/yy) 17/07/2011	Time (24h): std / <u>daylight</u> 10:45 hrs to 11:30 hrs	Water Level low - mean - bankfull - <u>overbank</u> falling - steady - rising
Segment/Reach ID: A24 <u>Left Bank / Right Bank / Island</u>				
Operations Division: A				
Survey by: <u>Foot</u> / ATV / Boat / Helicopter / Overlook / _____		Sun / Clouds / Fog / Rain / Snow / Windy / <u>Calm</u>		Air Temp + / - <u>33</u> deg C

<b>2 SURVEY TEAM # 3</b>	Name:	Organization:	Signature:
Jenni Nelson		Polaris	
Mike Ruggles		Montana Fish Wildlife and Parks	
Janice Witul		EPA	
Rebecca Ridenour		MDEQ	

**3 SEGMENT** Total Segment/Reach Length \_\_\_\_\_ m Segment/Reach Length Surveyed 190 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: 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 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 200m \_\_\_\_\_ est. water depth: <1m 1-3m 3-10m >10m \_\_\_\_\_

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 0 bags or \_\_\_\_\_ trucks access restrictions: Area is wet & heavily vegetated, fences around fields.

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	90	20	<1			X	X		X									veg		
B				X	100	20	0														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				
NONE																

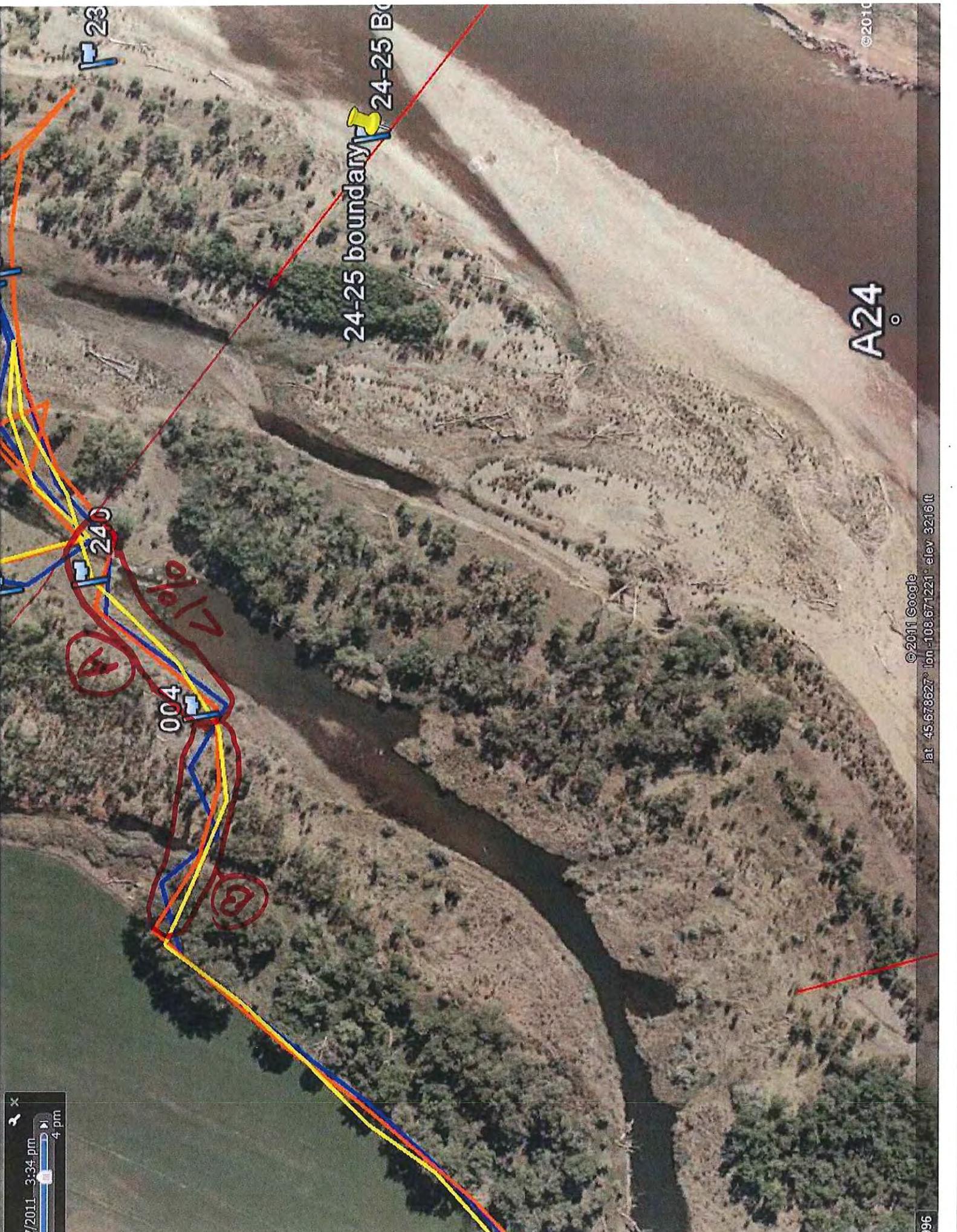
**8 COMMENTS** ecological/recreational/cultural/economic constraints - shorezone biota and wildlife observations - cleanup recommendations

A - flood plain area with occasional oiled debris & small spots of oil on tree leaves/branches & grasses.

No treatment required.

(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# \_\_\_\_\_)



24-25 boundary

A24

23

240

004

©2011 Google

lat 45.678627° lon -108.671221° elev 3216 ft

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

<b>1 GENERAL INFORMATION</b>		Date (dd/mm/yy) 21/07/2011	Time (24h): std / daylight 11:10 hrs to 12:10 hrs	Water Level low - mean - bankfull - <u>overbank</u> falling - steady - rising
Segment/Reach ID: A24 <u>Left Bank</u> / Right Bank/Island				
Operations Division: A				
Survey by: <u>Foot</u> / ATV / Boat / Helicopter / Overlook /		Sun / Clouds / Fog / Rain / Snow / Windy / <u>Calm</u>		Air Temp +/- <u>34</u> deg C

<b>2 SURVEY TEAM # 3</b>	Name:	Organization:	Signature:
Jenni Nelson	<i>[Signature]</i>	Polaris	<i>[Signature]</i>
Mike Ruggles	<i>[Signature]</i>	Montana Fish Wildlife and Parks	<i>[Signature]</i>
Janice Witul	<i>[Signature]</i>	EPA	<i>[Signature]</i>

**3 SEGMENT** Total Segment/Reach Length \_\_\_\_\_ m Segment/Reach Length Surveyed 350 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: (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 P confined or leveed \_\_\_\_\_ Substrate Type: Mud/Sand

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 20 bags or \_\_\_\_\_ trucks Access restrictions: Area is wet, and has some running channels,

Oiled trees/shrubs Y / N River Current strong Y / N Other Features: areas of deep mud and wet unstable sand; fences; thick veg.

**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. %	OIL THICKNESS										OIL CHARACTER						
								TO	CV	CT	ST	FL	FR	MS	TB	PT	TC	SR	AP	NO				
A				X	350	100	<1	(X)	X	X				X										veg
B				X	50	10	1-2	(X)	X					X										veg
C				X	25	10	3	(X)	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

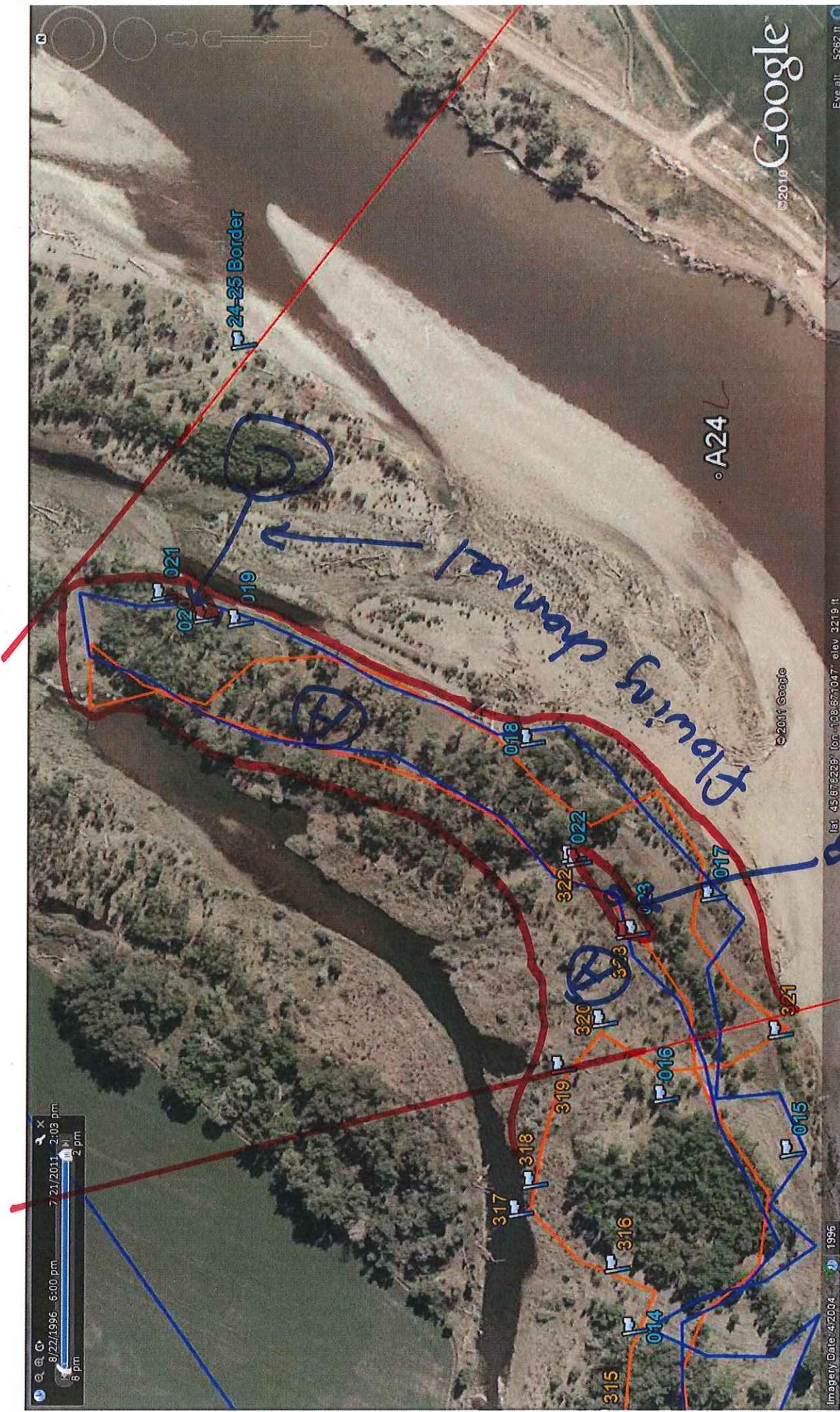
A - Trace oiling throughout floodplain area, intermittent oiled debris, woody veg, tree trunks & grasses.

B - Sporadic (light) oil in an area between two small ponds. Light silver sheen evident on ponds - very light (wp 22-23)

C - brown stain on grass to fatty coating in a small area on channel bank - (wp 20-21) - No treatment recommended

(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# \_\_\_\_\_)



SCAT #3 A24L 21 July 2011

DB/g

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 1048 hrs to 1050 hrs	Water Level low - mean - bankfull - <u>overbank</u> <u>falling</u> - steady - rising
Segment/Reach ID: A24 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

<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 589 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 \_\_\_\_\_ 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

Cliff or Bluff: \_\_\_\_\_ Est Height \_\_\_\_\_ m canyon \_\_\_\_\_ manmade \_\_\_\_\_ meander P 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 1-10m 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 1 \_\_\_\_\_ 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

AY  
91

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		387	0.75	95			X	X		X											Grass, trees, debris, rocks
B			X		201	1																X		Grass, trees, debris, rocks

**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

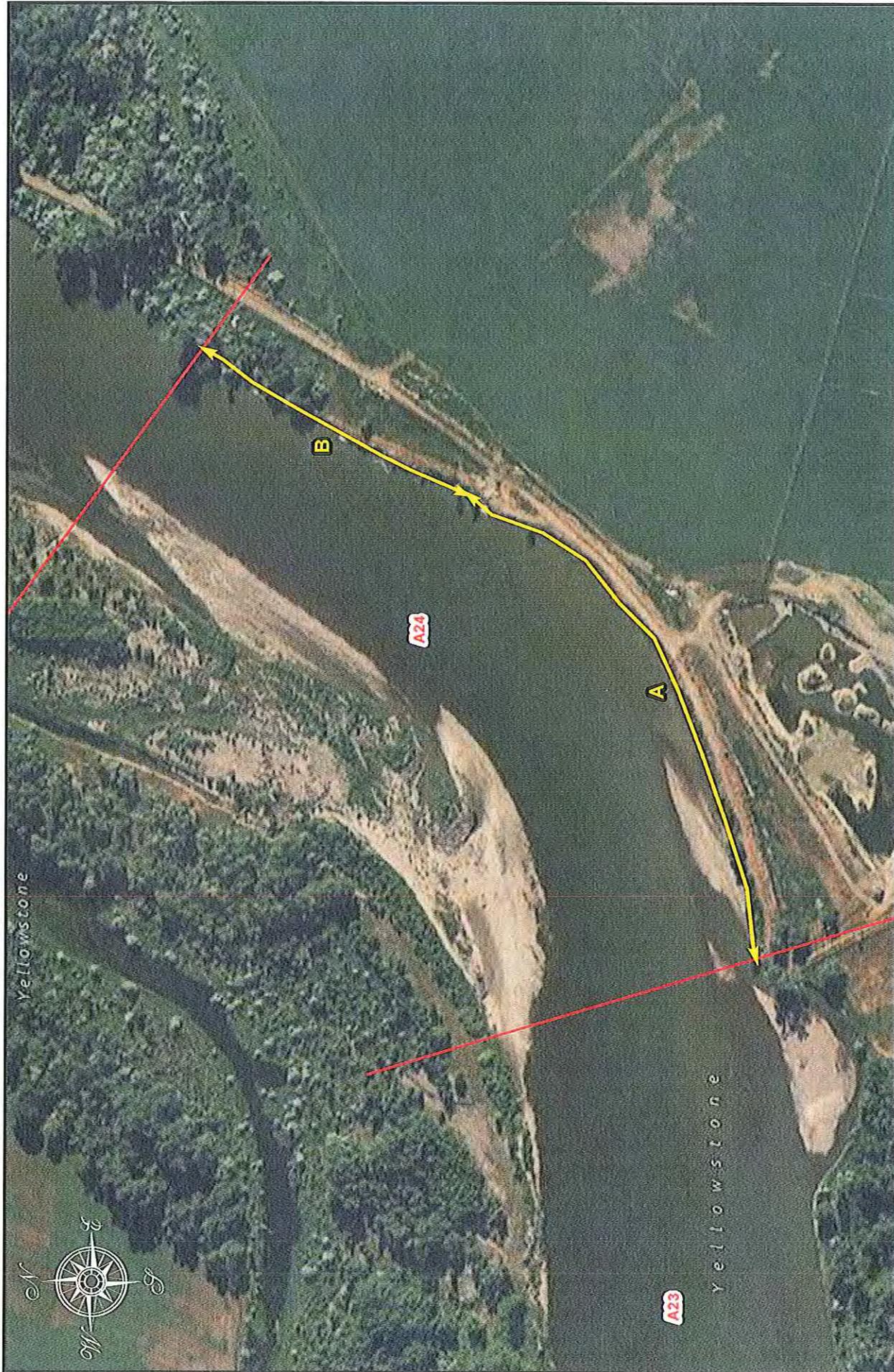
Zone A Oiled Band Height: 45cm

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; wipe oiled rocks (if can be performed safely).

(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

300 0 300 Feet



**SCAT Teams 2 & 4 Survey**  
 Segment A24 Right Bank  
 11-Jul-2011

DB/6

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

Page 1 of 1

<b>1 GENERAL INFORMATION</b>		Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: <u>A24</u>	Left Bank (Right Bank / Island)	<u>21/07/11</u>	<u>1014</u> hrs to <u>1036</u> hrs	low - mean ( <u>bankfull</u> ) - overbank
Operations Division: <u>A</u>				( <u>falling</u> ) steady - rising
Survey by: ( <u>Foot</u> ) ATV / Boat / Helicopter / Overlook /		( <u>Sun</u> ) Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp + / - <u>21.0</u> deg C

2 SURVEY TEAM #	name	organization	contact phone number
<u>0</u>			
<u>Chelsea Murphy</u>	<u>Chelsea Murphy</u>	<u>Cardno ENTRIX</u>	<u>775.313.3976</u>
<u>Steve Kennedy</u>	<u>Steve Kennedy</u>	<u>Cardno ENTRIX</u>	<u>281/723-1259</u>
<u>JAMES ROBERTS</u>	<u>James Roberts</u>	<u>USCG PAC STRIKE TEAM</u>	<u>727 244 8292</u>
<u>Darrieh Turner</u>	<u>Darrieh Turner</u>	<u>MT DEB</u>	<u>406-444-1504</u>

**3 SEGMENT** Total Segment/Reach Length 600 m Segment/Reach Length Surveyed 600 m

Start GPS: LATITUDE 45.67450 deg. \_\_\_\_\_ min. LONGITUDE 108.47284 deg. \_\_\_\_\_ min. Datum: WGS 84

End GPS: LATITUDE 45.68053 deg. \_\_\_\_\_ min. LONGITUDE 108.46487 deg. \_\_\_\_\_ min.

**4A RIVER BANK TYPE** 795 SELECT only one primary (P) shoreline type and any number of secondary (S) types. CIRCLE those OILED

Bedrock: Cliff/Ramp \_\_\_\_\_ Shelf cm Manmade: Solid \_\_\_\_\_ Permeable S (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: Rip rap S 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 S confined or leveed S Substrate Type: mid/cobble

Sloped: 100 (>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 225 m 300 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 Private Property - crop fields

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				<u>P</u>	<u>25</u>	<u>25</u>	<u>0</u>														<u>P</u>	<u>veg/cobble</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					NO

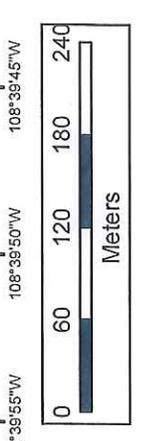
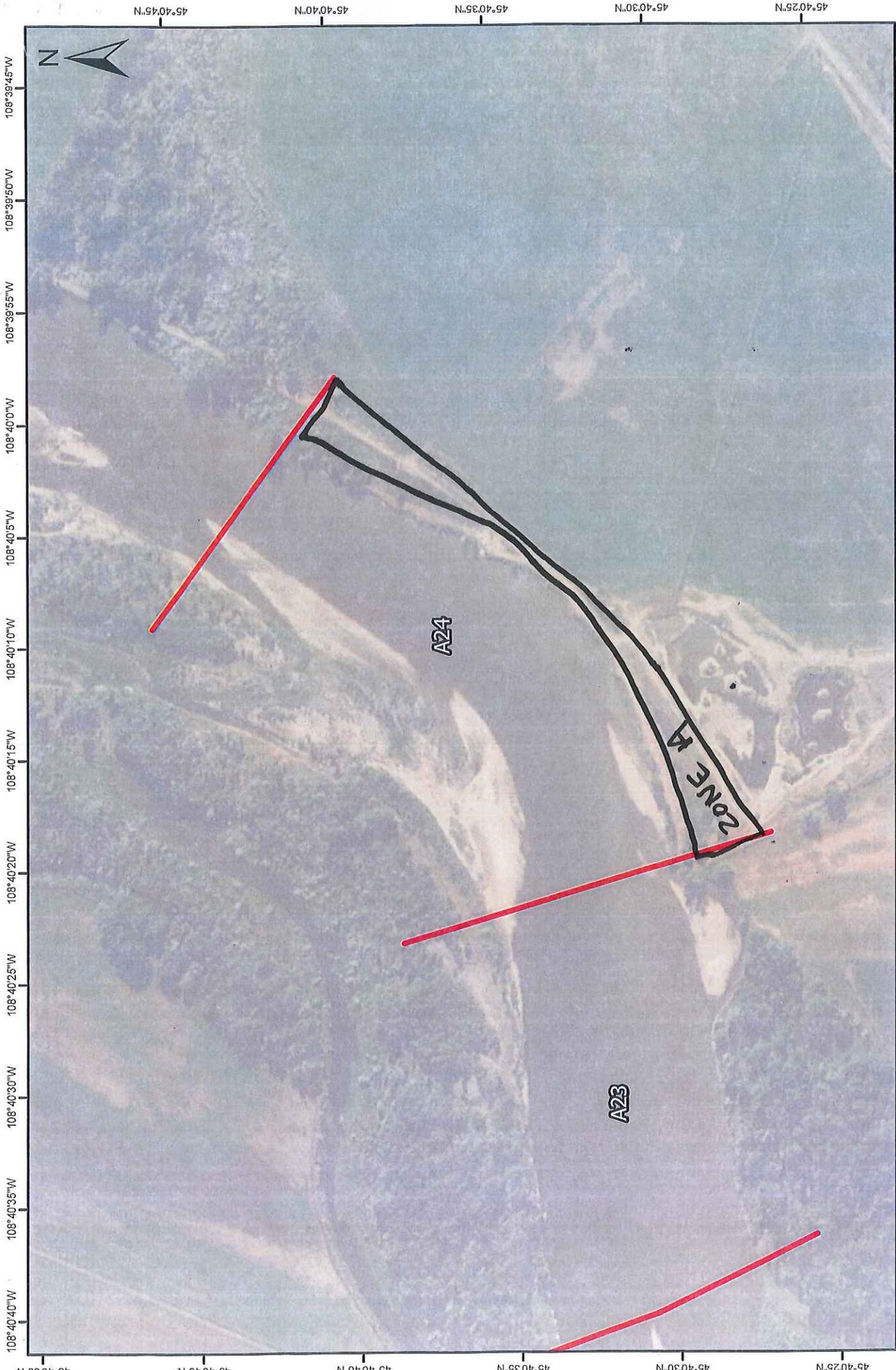
**8 COMMENTS** ecological/recreational/cultural/economic constraints - shorezone biota and wildlife observations - cleanup recommendations

Zone A - NOD in overbank - water didnt go overbank in this segment - NFT

(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# \_\_\_\_\_))

Pic 1-7



108°40'40"W 108°40'35"W 108°40'30"W 108°40'25"W 108°40'20"W 108°40'15"W 108°40'10"W 108°40'5"W 108°40'0"W 108°39'55"W 108°39'50"W 108°39'45"W

45°40'25"N 45°40'30"N 45°40'35"N 45°40'40"N 45°40'45"N

**A24 - A**  
(LFB)??

DATE: 7/21/11  
TEAM: Scott Co

COMMENTS: Overbank only

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

<b>1 GENERAL INFORMATION</b>		Date (dd/mm/yy) 01/09/11	Time (24h): std / daylight 0900 hrs to 1500 hrs	Water Level low - <u>mean</u> - bankfull - overbank falling - steady - rising
Segment/Reach ID: <u>B24</u> Left Bank / Right Bank / Island				
Operations Division: <u>WA</u>				
Survey by: <u>Foot</u> / ATV / Boat / Helicopter / Overlook /		Sun / Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp +/- <u>20</u> deg C

<b>2 SURVEY TEAM # 2 &amp; 4</b>	Name	Organization	Signature
	Pete Lee	Polaris	<i>P. Lee</i>
	Eric Harlow	Cardno ENTRIX	<i>Eric Harlow</i>
	Griff Miller <sup>ADU</sup> <sub>09/01/11</sub> STEPHEN BALL	USEPA	<i>Griff Miller</i>
	Larry Alheim	MTDEQ	<i>Larry Alheim</i>
	Michael Dirks	Cardno ENTRIX	<i>Michael D. Dirks</i>
	Larisa Leonova	USEPA	<i>Larisa Leonova</i>
	Brad Olszeski <sup>ADU</sup> <sub>09/01/11</sub> EARL RADONSKI	MTFWP	<i>Earl Radonski</i>

**3 SEGMENT** Total Segment/Reach Length 570 m Segment/Reach Length Surveyed 570 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 (Bluff) Est Height 5 m canyon \_\_\_\_\_ manmade \_\_\_\_\_ meander \_\_\_\_\_ confined or leveed X 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) >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: Boat only Private Landowner

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

**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	530	40															X	Grass, trees, debris
B			X		40	3	20			X	X						X					
C			X		450	3	60		X	X	X						X					

1993  
1994  
1995

**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: BASES OF VEGETATION (0.05m) TO OVERHANGING LIMBS (~2.0m)

Treatment recommendations:

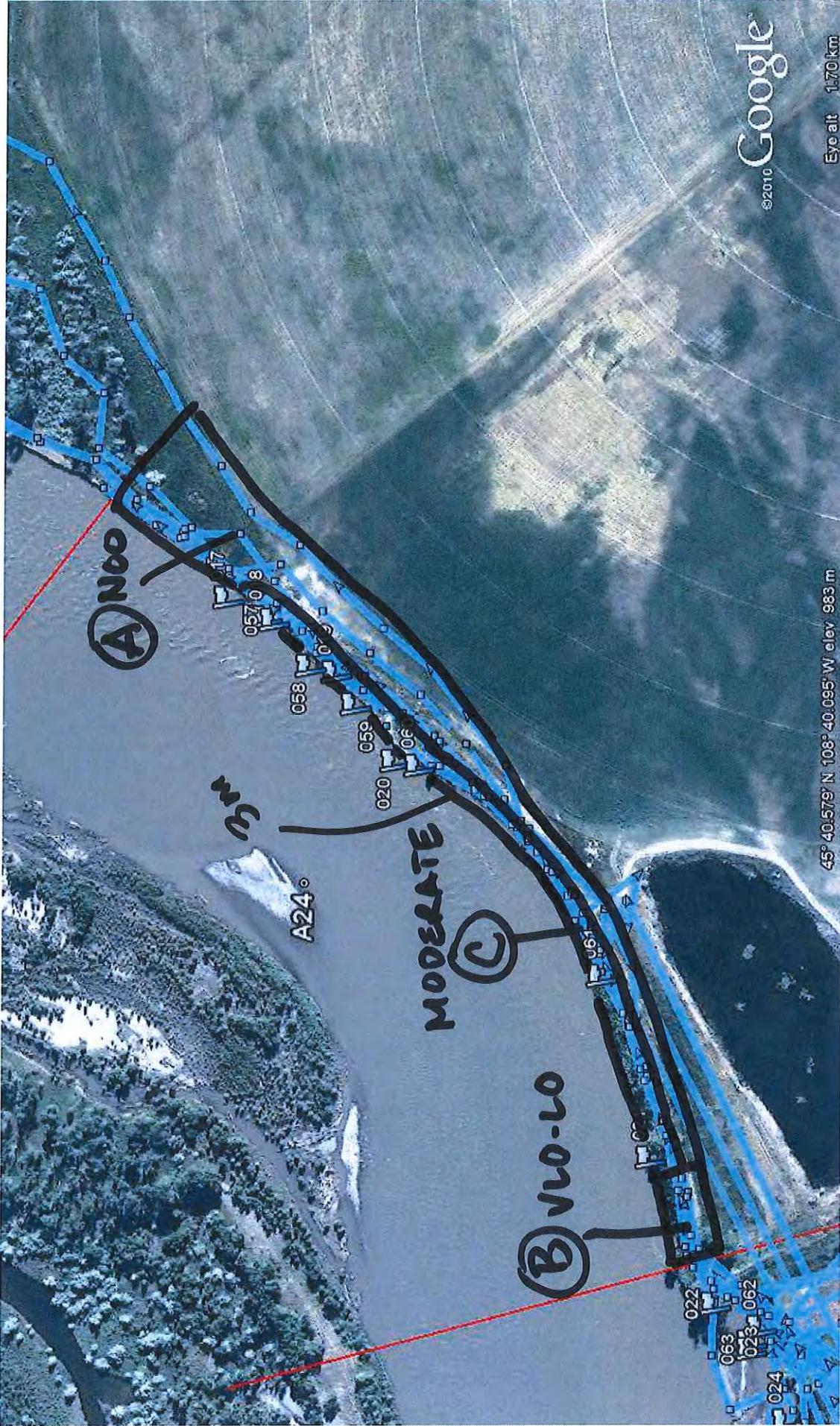
Zone B : No further treatment required.

Zone C : ATM #2 and ATM #1

Zone A : NOD-NFT

Note: Bank is very steep

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



A24-RB  
SCAT 2+4  
1 Sept 2011



## **Appendix C**

Pre-Inspection Survey Transmittal

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

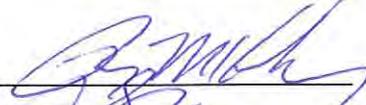
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Survey Date: 8/27/11

Segment: A24 LB

Team:

RP SCAT Liaison Ray McKelvey

Signed: 

RP SCAT Liaison Lauren Glushik

Signed: 

RP SCAT Liaison \_\_\_\_\_

Signed: \_\_\_\_\_

EPA SCAT Liaison \_\_\_\_\_

Signed: \_\_\_\_\_

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

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

**If NO:**

Location Sketch attached? YES \_\_\_\_\_ NO X

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

Comments: A24 LB is ready for re-scat.

Property name: **Richard Christensen**

**Land access off Frontage Road to Christensen Road.**



## **Appendix D**

Post-Inspection Survey Transmittal

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



## **Appendix E**

Final SCAT Survey Forms and  
Sketches

D1316

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

<b>1 GENERAL INFORMATION</b>		Date (dd/mm/yy) <b>2-9-11</b>	Time (24h): std / daylight <b>1310</b> hrs to <b>1410</b> hrs	<b>Water Level</b> low - <u>near</u> - bankfull - overbank falling <u>steady</u> - rising
Segment/Reach ID: <b>A24</b> <u>(Left Bank)</u> Right Bank / Island				
Operations Division: <b>A</b>				
Survey by: <u>Foot</u> / ATV / Boat / Helicopter / Overlook / _____		Sun / Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp + / - <b>25</b> deg C

2 SURVEY TEAM # <b>3</b>	Name	Organization	Signature
	<b>Charles Roy</b>	<b>Enbridge</b>	<i>[Signature]</i>
	<b>Steve OPP</b>	<b>DEQ</b>	<i>[Signature]</i>
	<b>TEDDY TANNER</b>	<b>U.S. EPA</b>	<i>[Signature]</i>

**3 SEGMENT** Total Segment/Reach Length **440** m Segment/Reach Length Surveyed **440** 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 P Pebble/Cobble S Boulder \_\_\_\_\_ Peat/Organic \_\_\_\_\_ Vegetated Bank: S 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: Sand

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

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

seasonal water level: low / near / 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: N oiled Y / N amount NA 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			<u>X</u>		440	100	C1				<u>P</u>						<u>P</u>					<u>S</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					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

Zone A - < 190 cm of stand veg + debris  
No further treatment

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

9/2/2015



9-2-11  
T.S.

A-24  
LD

A

A25-IS

A25

A24

A24-RB

A24-LB

A23-LB

N45°40'49.44"

W108°40'23.52"

W108°39'57.6"



A23

1996

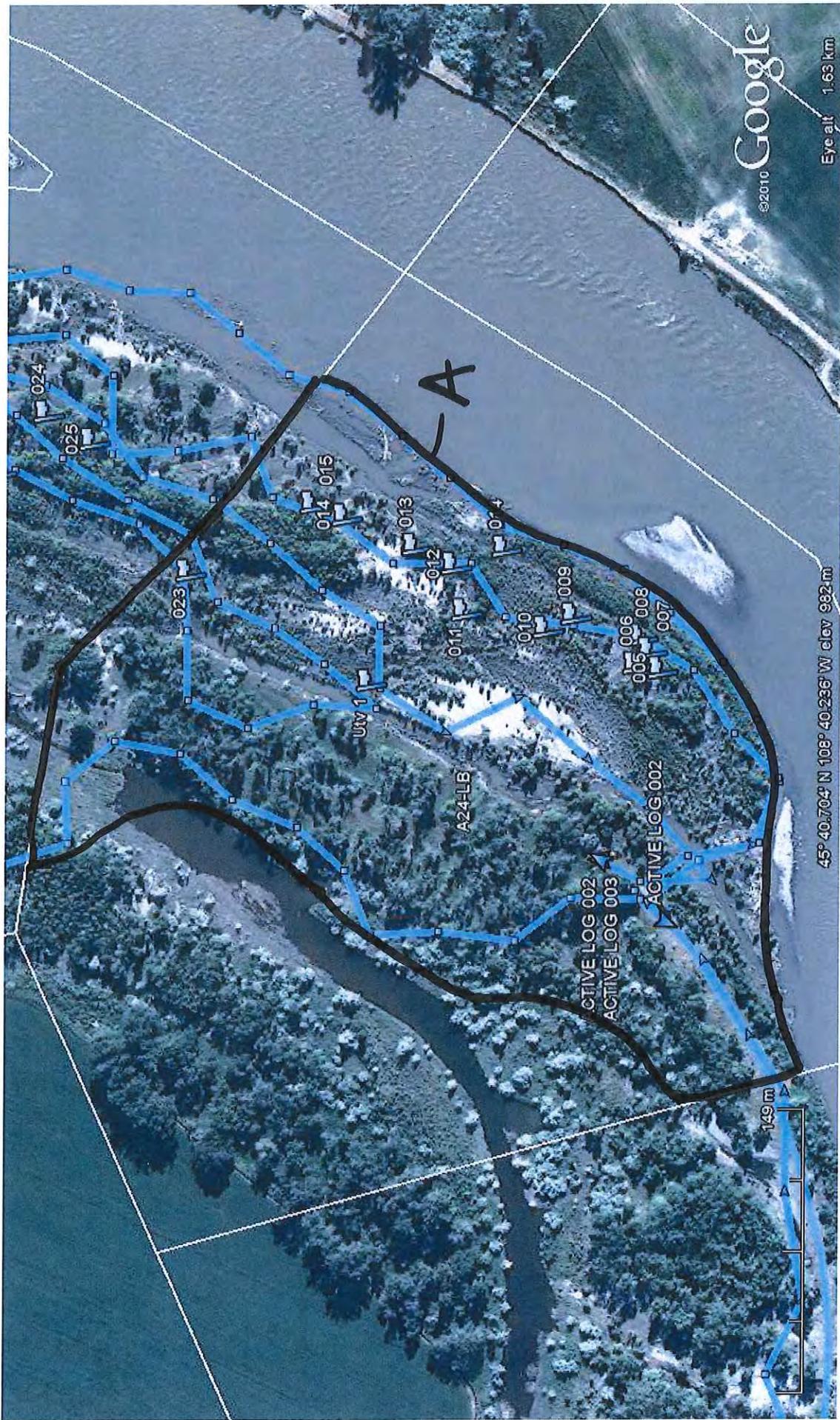
© 2011 Google

45°40'42.78" N 108°40'13.68" W elev 3222 ft

GOOGLE

Eye alt





T3 9/21/11

PB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

<b>1 GENERAL INFORMATION</b>		Date (dd/mm/yy) 27/09/11	Time (24h): std / daylight 1030 hrs to 1400 hrs	Water Level low - <u>mean</u> - bankfull - overbank falling - steady - rising
Segment/Reach ID: <u>A 24</u> Left Bank / <u>Right Bank</u> / Island		Operations Division: A		
Survey by: <u>Foot</u> / ATV / Boat / Helicopter / Overlook /		Sun / Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp + / - <u>28</u> deg C

<b>2 SURVEY TEAM # 3</b>	Name	Organization	Signature
Pete Lee		Polaris	<i>POLee</i>
Mark Ewanic		MTDEQ	<i>Mark Ewanic</i>

**3 SEGMENT** Total Segment/Reach Length 580 m Segment/Reach Length Surveyed 580 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 P (type) Rock 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 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: Williams property

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		580	10	<1			S	P						X					Grass, trees, debris Rock

**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

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

Oil height: 2-3 m

Treatment recommendations:  
 Zone A : Treated by Ops and Hot Shot crew ; No further  
 Zone : Treatment (NFT)

RESCAT

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

P20f2



A24 RB  
T3 9/27/11



## **Appendix F**

Completed SCAT Segment Sign-Off  
Forms

# SCAT SEGMENT OPERATIONS COMPLETION SIGN-OFF SHEET

## SILVERTIP PIPELINE RELEASE

Segment A 24L Date of Survey 9-2-11

Dates of Initial SCAT Assessments 11JUL11 (EC)  
(to be filled out by SCAT Data Management)

CTR(s) Associated with SCAT Segment 13

Segment has been treated by Operations or an Operations Hotshot Team  YES  NO

Segment Assessment Complete<sup>1</sup>

Partial Segment Assessment

*The undersigned are in agreement that the above segment or partial segment meets the Approved Treatment Methods Target Endpoints.*

This Segment is Conditionally Approved   
(See attached Post Inspection Survey Transmittal (POST))

*The undersigned are in agreement that the above segment meets the Approved Treatment Methods Target Endpoints conditional upon completion of the treatment identified in the attached Post Inspection Survey Transmittal (POST).*

  
Sign Name \_\_\_\_\_ Terry Turner / U.S. EPA \_\_\_\_\_ 9/3/11  
Print Name/ Affiliation \_\_\_\_\_ Date \_\_\_\_\_  
**Federal Representative (EPA/USCG)**

  
Sign Name \_\_\_\_\_ Steve Opp / DEQ \_\_\_\_\_ 9/2/11  
Print Name/ Affiliation \_\_\_\_\_ Date \_\_\_\_\_  
**State Representative (DEQ/FWP)**

  
Sign Name \_\_\_\_\_ Charles Pons / Kado ENTRIX \_\_\_\_\_ 9-2-11  
Print Name/ Affiliation \_\_\_\_\_ Date \_\_\_\_\_  
**RP Representative (SCAT RP Representative)**

Once all applicable SCAT Segments (i.e. LB, RB, and IS) within a particular SCAT Area (i.e. A21) have been successfully signed-off during a formal SCAT Assessment, the SCAT Area will achieve the Response Endpoints and an Area Transition Report will be completed and submitted to EPA and DEQ.

<sup>1</sup> A Segment Sign-Off Assessment is considered complete when all accessible lands that have not already been signed-off by a claims liaison have been surveyed. If any previous SCAT Assessments were conducted, all lands that were originally recommended for treatment must be re-surveyed in the Sign-Off Assessment. If the conducted survey does not meet these conditions it is considered a Partial Assessment. Multiple Partial Assessments that meet the conditions of a Complete Assessment may together constitute a Complete Sign-Off Assessment.

# SCAT SEGMENT OPERATIONS COMPLETION SIGN-OFF SHEET

## SILVERTIP PIPELINE RELEASE

Segment A 24 LB Date of Survey 9/21/11

Dates of Initial SCAT Assessments 11 JUL 2011  
(to be filled out by SCAT Data Management)

CTR(s) Associated with SCAT Segment 13

Segment has been treated by Operations or an Operations Hotshot Team  YES  NO

Segment Assessment Complete<sup>1</sup>   
Partial Segment Assessment

*The undersigned are in agreement that the above segment or partial segment meets the Approved Treatment Methods Target Endpoints.*

This Segment is Conditionally Approved   
(See attached Post Inspection Survey Transmittal (POST))

*The undersigned are in agreement that the above segment meets the Approved Treatment Methods Target Endpoints conditional upon completion of the treatment identified in the attached Post Inspection Survey Transmittal (POST).*

No Federal Rep Present

Sign Name \_\_\_\_\_ Print Name/ Affiliation \_\_\_\_\_ Date \_\_\_\_\_  
**Federal Representative (EPA/USCG)**

[Signature] \_\_\_\_\_ JAY WATSON FWP \_\_\_\_\_ 9/22/11 \_\_\_\_\_  
Sign Name \_\_\_\_\_ Print Name/ Affiliation \_\_\_\_\_ Date \_\_\_\_\_  
**State Representative (DEQ/FWP)**

P. Lee \_\_\_\_\_ Pete Lee / Polaris \_\_\_\_\_ 9/21/11 \_\_\_\_\_  
Sign Name \_\_\_\_\_ Print Name/ Affiliation \_\_\_\_\_ Date \_\_\_\_\_  
**RP Representative (SCAT RP Representative)**

Once all applicable SCAT Segments (i.e. LB, RB, and IS) within a particular SCAT Area (i.e. A21) have been successfully signed-off during a formal SCAT Assessment, the SCAT Area will achieve the Response Endpoints and an Area Transition Report will be completed and submitted to EPA and DEQ.

<sup>1</sup> A Segment Sign-Off Assessment is considered complete when all accessible lands that have not already been signed-off by a claims liaison have been surveyed. If any previous SCAT Assessments were conducted, all lands that were originally recommended for treatment must be re-surveyed in the Sign-Off Assessment. If the conducted survey does not meet these conditions it is considered a Partial Assessment. Multiple Partial Assessments that meet the conditions of a Complete Assessment may together constitute a Complete Sign-Off Assessment.

# SCAT SEGMENT OPERATIONS COMPLETION SIGN-OFF SHEET

## SILVERTIP PIPELINE RELEASE

Segment A24 RB Date of Survey 9/27/11

Dates of Initial SCAT Assessments 11 Jul 2011 (18)  
(to be filled out by SCAT Data Management)

CTR(s) Associated with SCAT Segment 63

Segment has been treated by Operations or an Operations Hotshot Team  YES  NO

Segment Assessment Complete<sup>1</sup>

Partial Segment Assessment

*The undersigned are in agreement that the above segment or partial segment meets the Approved Treatment Methods Target Endpoints.*

This Segment is Conditionally Approved   
(See attached Post Inspection Survey Transmittal (POST))

*The undersigned are in agreement that the above segment meets the Approved Treatment Methods Target Endpoints conditional upon completion of the treatment identified in the attached Post Inspection Survey Transmittal (POST).*

*No Federal Rep Present*

Sign Name \_\_\_\_\_ Print Name/ Affiliation \_\_\_\_\_ Date \_\_\_\_\_  
**Federal Representative (EPA/USCG)**

Mark Ewanck MARK EWANCK / MT DEQ 9/27/11  
Sign Name \_\_\_\_\_ Print Name/ Affiliation \_\_\_\_\_ Date \_\_\_\_\_  
**State Representative (DEQ/FWP)**

Pete Lee Pete Lee / Polaris 9/27/11  
Sign Name \_\_\_\_\_ Print Name/ Affiliation \_\_\_\_\_ Date \_\_\_\_\_  
**RP Representative (SCAT RP Representative)**

Once all applicable SCAT Segments (i.e. LB, RB, and IS) within a particular SCAT Area (i.e. A21) have been successfully signed-off during a formal SCAT Assessment, the SCAT Area will achieve the Response Endpoints and an Area Transition Report will be completed and submitted to EPA and DEQ.

<sup>1</sup> A Segment Sign-Off Assessment is considered complete when all accessible lands that have not already been signed-off by a claims liaison have been surveyed. If any previous SCAT Assessments were conducted, all lands that were originally recommended for treatment must be re-surveyed in the Sign-Off Assessment. If the conducted survey does not meet these conditions it is considered a Partial Assessment. Multiple Partial Assessments that meet the conditions of a Complete Assessment may together constitute a Complete Sign-Off Assessment.