

**ExxonMobil Pipeline Company**

**SCAT Area Transition Report for  
B17**

Silvertip Pipeline Incident  
Laurel, Montana

October 19, 2011



## **SCAT Area Transition Report for B17**

Silvertip Pipeline Incident  
Laurel, Montana

Prepared for:  
ExxonMobil Pipeline Company

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*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 B17, 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 B17. 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 B17, 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 B17 is 36.6. There were no access issues for this area.

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

No historic properties or cultural resources have been identified 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 Area B17. No oiled wildlife was observed or recovered. No Wildlife Priority Cleanup Areas were identified. No active migratory bird nests were identified in Area B17.

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

Table 1 (below) summarizes samples collected within Area B17. 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 B17 are provided on Figure 3.

**Table 1 Environmental Sampling Summary**

Agency	Sample Num	Date	Matrix	Location	Latitude	Longitude
CTEH	BIMT0725SW604	25-Jul-11	Water_Surface	B17	45.724392	-108.570313
CTEH	BIMT0823SO503	23-Aug-11	Soil_River	SO-B17	45.725488	-108.567603
MDEQ	B11070821-001	10-Jul-11	Soil_Surface	ST-KG-01	45.72902	-108.57433
MDEQ	B11070821-002	10-Jul-11	Soil_Surface	ST-KG-01	45.72902	-108.57433
MDEQ	B11070821-010	10-Jul-11	Soil_Surface	ST-KG-01	45.72902	-108.57433
MDEQ	B11070821-011	10-Jul-11	Soil_Surface	ST-KG-01	45.72902	-108.57433
MDEQ	B11070821-032	10-Jul-11	Soil_Surface	ST-KG-01	45.72902	-108.57433
MDEQ	B11070821-034	10-Jul-11	Soil_Surface	ST-KG-01	45.72902	-108.57433
MDEQ	ST-071411-KG1	14-Jul-11	Soil_Surface	ST-KG-01	45.72902	-108.57433
MDEQ	ST-071411-KG2	14-Jul-11	Soil_Surface	ST-KG-02	45.72812	-108.57427
MDEQ	ST-071411-KG-BACKGROUND	14-Jul-11	Soil_Surface	ST-KG-03	45.72897	-108.57548
EPA	SPSO128D01_071511	15-Jul-11	Soil_Surface	SPSO128	45.7286285	-108.5759022

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, one exceedence is shown for arsenic.

#### 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 B17 are included in Appendix B. Figure 4 provides the maximum oiling zones observed by the SCAT team during the initial surveys of Area B17.

#### 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. 18](#) and [CTR No. 24](#)).

#### 1.6 Oil Removal Activities

Oil removal activities were conducted within Area B17 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 B17 and developed a Pre-Inspection Survey Transmittal (PIST) associated with the right bank within Area B17, which is presented in Appendix C.

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

SCAT Operations liaisons performed an inspection of the remediated areas of SCAT Area B17 and developed a Post-Inspection Survey Transmittal (POST) associated with the right bank within Area B17, which is presented in Appendix D. This POST was signed, confirming the treatment recommended in the final SCAT survey of the right bank was completed.

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

Figure 5 shows the oiling conditions within Area B17 following completion of oil removal activities. The SCAT team performed final surveys of the right and left banks within SCAT Area B17 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 survey performed on the right and left banks within Area B17, no further treatment is recommended for this area. SCAT Segment Sign-Off Sheets are included as Appendix F.



**SCAT Area Transition  
Report for B17**

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Laurel, Montana

**2. Transition Sign-Off Form**

**SCAT Area Transition Report for B17**

**Prepared for:**

**Unified Command**

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Date

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Unified Command – RP



**SCAT Area Transition  
Report for B17**

Silvertip Pipeline Incident  
Laurel, Montana

**SCAT Area Transition Report for B17**

**Prepared for:**

**Unified Command**

*10/11/2011*

Date

  
S. MERRITT  
Unified Command – FOSC



**SCAT Area Transition  
Report for B17**

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Laurel, Montana

**SCAT Area Transition Report for B17**

**Prepared for:**

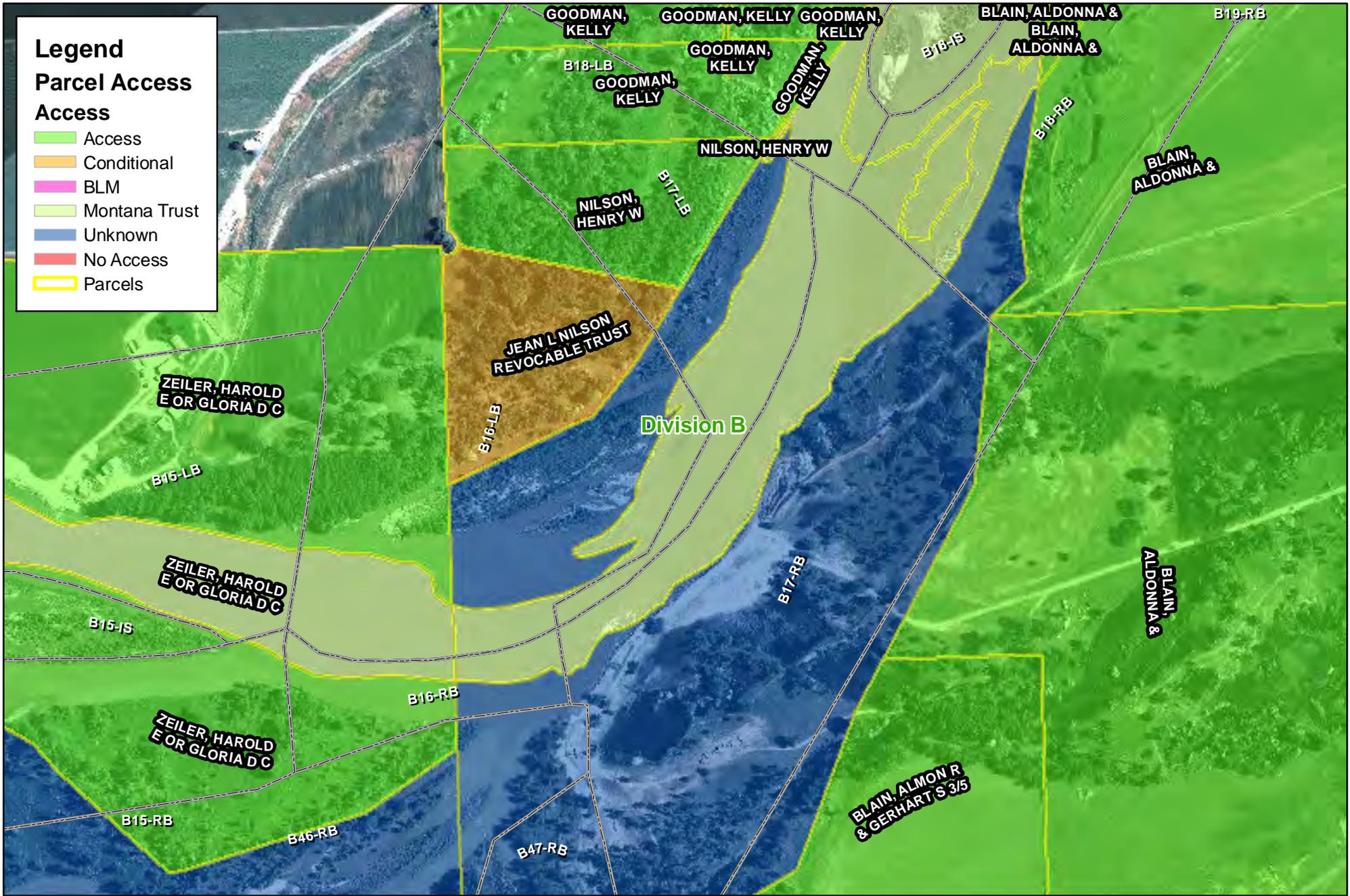
**Unified Command**

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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

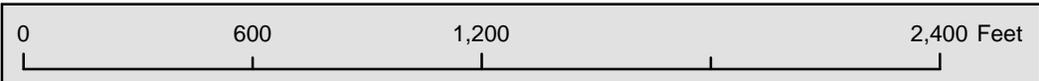
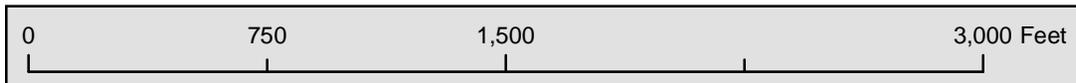


Figure 1

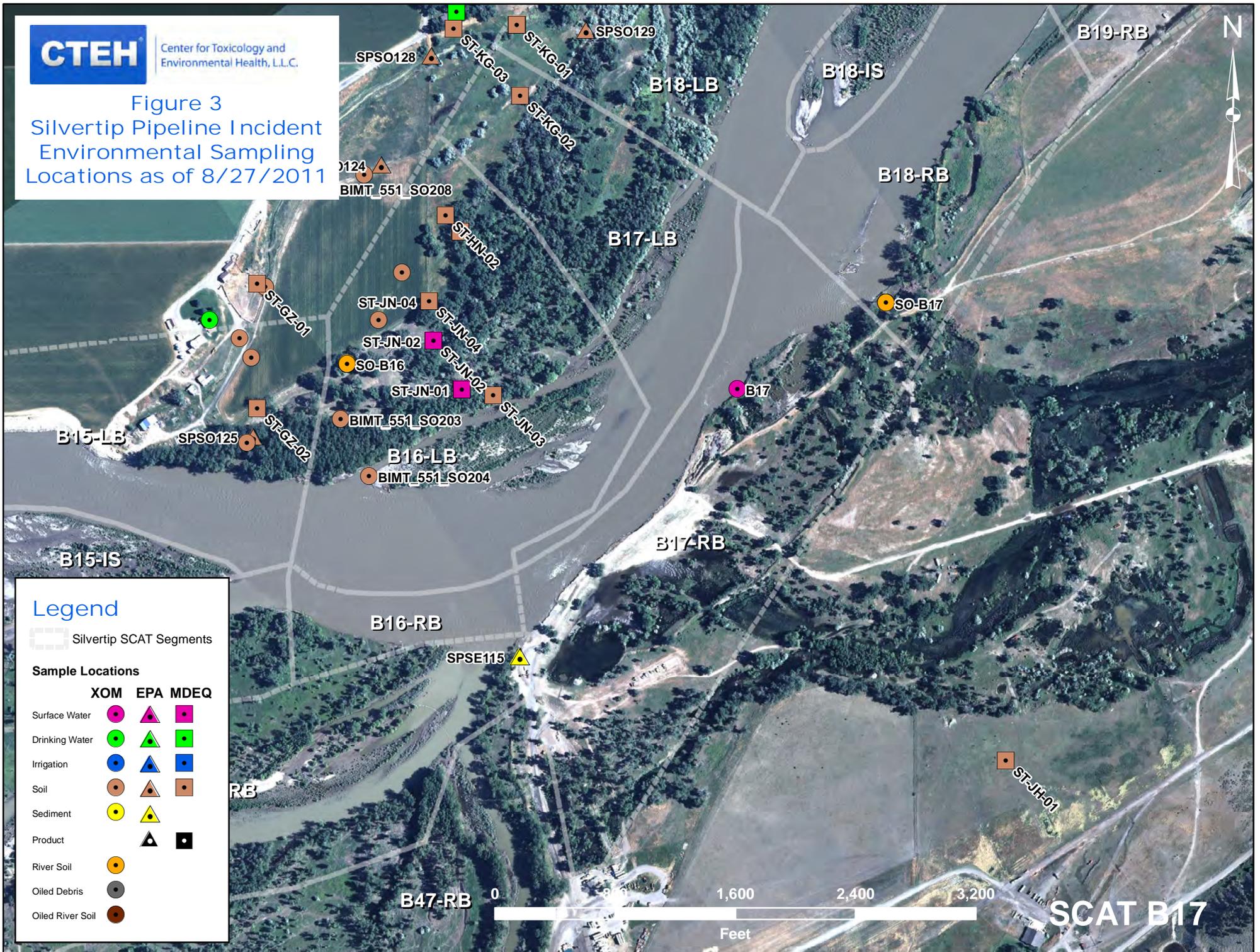


**Figure 2**  
**Wildlife Resources**



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

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



### Legend

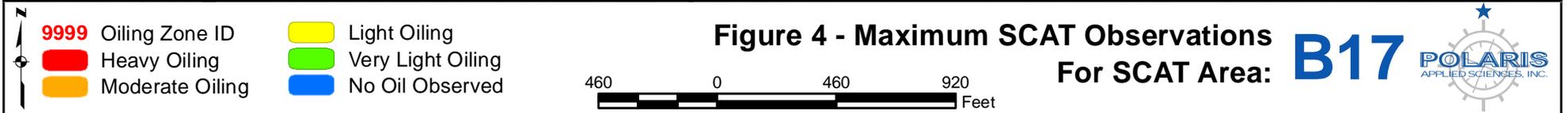
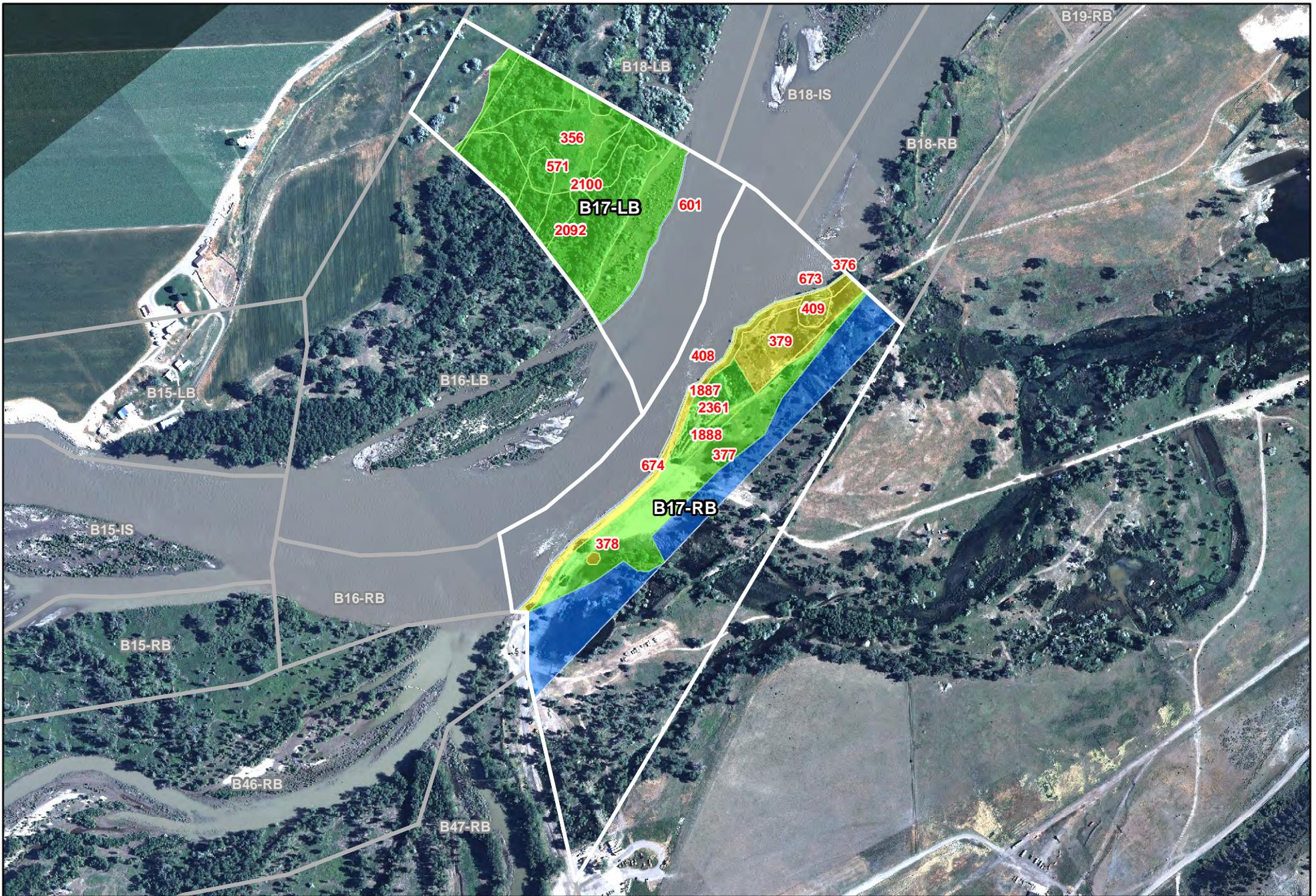
Silvertip SCAT Segments

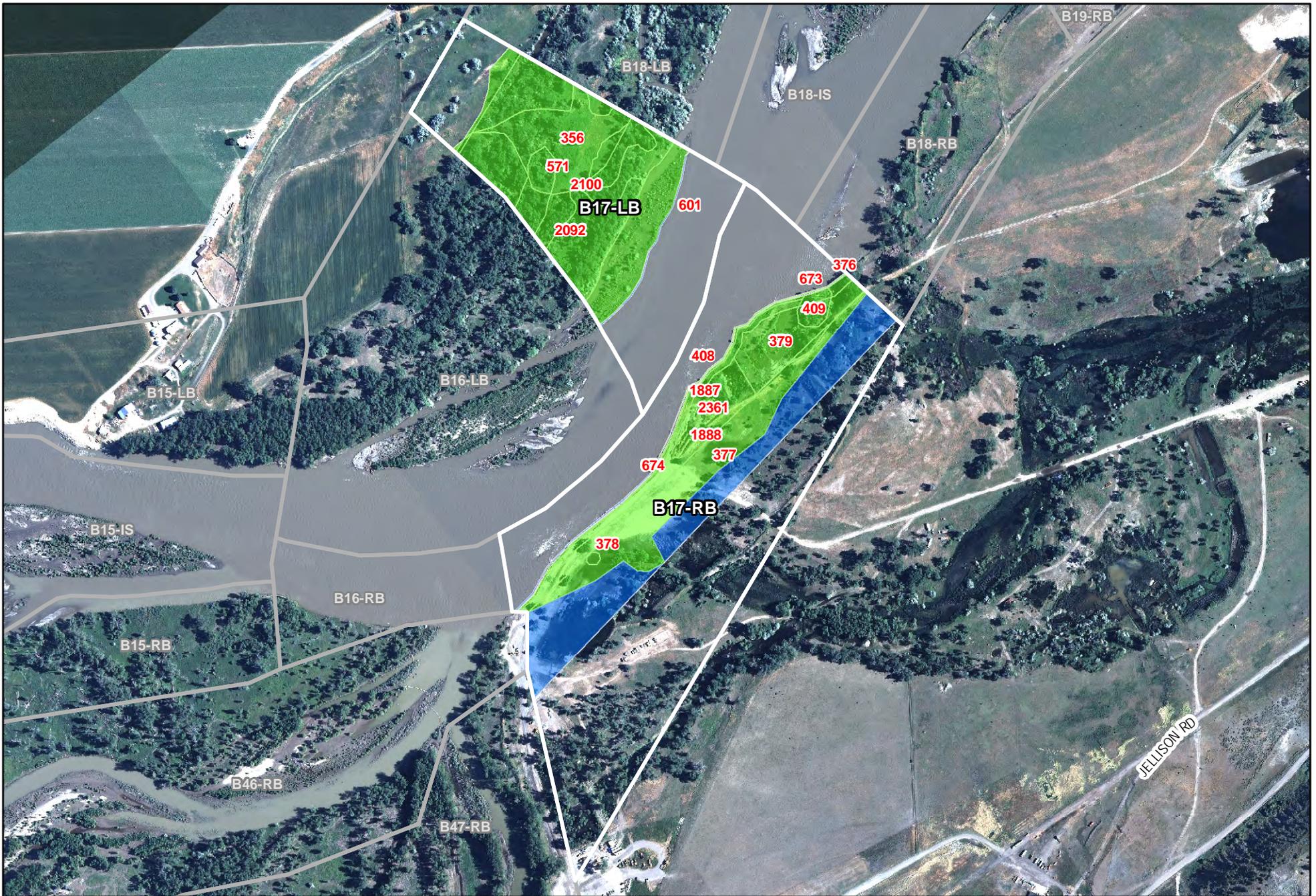
#### Sample Locations

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

0 1,600 2,400 3,200  
Feet

SCAT B17







## **Appendix A**

Sample Detections Summary



## Detections in Samples Collected in SCAT Area B17

Printed 9/7/2011

NA - Not Available

Detected Above Screening Level

Sample Num	Sample Type	Matrix	Analytical Method	Analyte	Detected	Result	Screening Level	Result Qualifier	Units	Above?
BIMT0725SW604	Field	Water_Surface	EPA 1631E	Mercury	Y	0.00000655	0.00005		mg/L	no
BIMT0725SW604	Field	Water_Surface	EPA 6020	Arsenic	Y	16.2	10		ug/L	YES
BIMT0725SW604	Field	Water_Surface	EPA 6020	Barium	Y	97.7	1000		ug/L	no
BIMT0725SW604	Field	Water_Surface	EPA 6020	Calcium	Y	34500			ug/L	no
BIMT0725SW604	Field	Water_Surface	EPA 6020	Chromium	Y	2.9	100		ug/L	no
BIMT0725SW604	Field	Water_Surface	EPA 6020	Lead	Y	2.9	15		ug/L	no
BIMT0725SW604	Field	Water_Surface	EPA 6020	Magnesium	Y	11000			ug/L	no
BIMT0725SW604	Field	Water_Surface	EPA 6020	Nickel	Y	5.2	100		ug/L	no
BIMT0725SW604	Field	Water_Surface	EPA 6020	Potassium	Y	3600			ug/L	no
BIMT0725SW604	Field	Water_Surface	EPA 6020	Sodium	Y	17900			ug/L	no
BIMT0725SW604	Field	Water_Surface	EPA 6020	Vanadium	Y	6.4			ug/L	no
BIMT0725SW604	Field	Water_Surface	SM 2540D	Total Suspended Solids	Y	72.2			mg/L	no
B11070821-001	Field	Soil_Surface	MA-VPH-MDEQ-REM	VPH Aliphatics Surrogate	Y	87			%	no
B11070821-001	Field	Soil_Surface	MA-VPH-MDEQ-REM	VPH Aromatics Surrogate	Y	94			%	no
B11070821-001	Field	Soil_Surface	NONE-MDEQ-REM	Moisture content	Y	13			% by wt	no
B11070821-002	Field	Soil_Surface	MA-VPH-MDEQ-REM	VPH Aliphatics Surrogate	Y	84			%	no
B11070821-002	Field	Soil_Surface	MA-VPH-MDEQ-REM	VPH Aromatics Surrogate	Y	88			%	no
B11070821-002	Field	Soil_Surface	NONE-MDEQ-REM	Moisture content	Y	23			% by wt	no
B11070821-010	Field	Soil_Surface	MA-VPH-MDEQ-REM	VPH Aliphatics Surrogate	Y	71			%	no
B11070821-010	Field	Soil_Surface	MA-VPH-MDEQ-REM	VPH Aromatics Surrogate	Y	79			%	no
B11070821-010	Field	Soil_Surface	NONE-MDEQ-REM	Moisture content	Y	41			% by wt	no
B11070821-011	Field	Soil_Surface	MA-VPH-MDEQ-REM	VPH Aliphatics Surrogate	Y	67			%	no
B11070821-011	Field	Soil_Surface	MA-VPH-MDEQ-REM	VPH Aromatics Surrogate	Y	74			%	no
B11070821-011	Field	Soil_Surface	NONE-MDEQ-REM	Moisture content	Y	35			% by wt	no
B11070821-032	Field	Soil_Surface	MA-VPH-MDEQ-REM	Total Purgeable Hydrocarbons	Y	22	200	D	mg/kg	no
B11070821-032	Field	Soil_Surface	MA-VPH-MDEQ-REM	VPH Aliphatics Surrogate	Y	83		D	%	no
B11070821-032	Field	Soil_Surface	MA-VPH-MDEQ-REM	VPH Aromatics Surrogate	Y	86		D	%	no
B11070821-034	Field	Soil_Surface	MA-VPH-MDEQ-REM	VPH Aliphatics Surrogate	Y	84		D	%	no
B11070821-034	Field	Soil_Surface	MA-VPH-MDEQ-REM	VPH Aromatics Surrogate	Y	87		D	%	no
ST-071411-KG1	Field	Soil_Surface	8015M-MDEQ-REM	o-Terphenyl	Y	86			%	no
ST-071411-KG1	Field	Soil_Surface	8015M-MDEQ-REM	Total Extractable Hydrocarbons	Y	126	200		mg/kg	no
ST-071411-KG1	Field	Soil_Surface	8260B	1,2-Dichloroethane-d4	Y	76			%	no
ST-071411-KG1	Field	Soil_Surface	8260B	Dibromofluoromethane	Y	81			%	no
ST-071411-KG1	Field	Soil_Surface	8260B	p-Bromofluorobenzene	Y	84			%	no
ST-071411-KG1	Field	Soil_Surface	8260B	Toluene-d8	Y	96			%	no
ST-071411-KG1	Field	Soil_Surface	8270C	2,4,6-Tribromophenol	Y	80			%	no
ST-071411-KG1	Field	Soil_Surface	8270C	2-Fluorobiphenyl	Y	78			%	no
ST-071411-KG1	Field	Soil_Surface	8270C	Nitrobenzene-D5	Y	74			%	no
ST-071411-KG1	Field	Soil_Surface	8270C	o-Fluorophenol	Y	71			%	no
ST-071411-KG1	Field	Soil_Surface	8270C	Phenol-d5	Y	75			%	no



# Detections in Samples Collected in SCAT Area B17

Printed 9/7/2011

NA - Not Available

Detected Above Screening Level

Sample Num	Sample Type	Matrix	Analytical Method	Analyte	Detected	Result	Screening Level	Result Qualifier	Units	Above?
ST-071411-KG1	Field	Soil_Surface	8270C	Terphenyl-d14	Y	80			%	no
ST-071411-KG1	Field	Soil_Surface	MA-VPH-MDEQ-REM	VPH Aliphatics Surrogate	Y	71			%	no
ST-071411-KG1	Field	Soil_Surface	MA-VPH-MDEQ-REM	VPH Aromatics Surrogate	Y	73			%	no
ST-071411-KG1	Field	Soil_Surface	NONE-MDEQ-REM	Moisture content	Y	31			% by wt	no
ST-071411-KG2	Field	Soil_Surface	8015M-MDEQ-REM	o-Terphenyl	Y	82			%	no
ST-071411-KG2	Field	Soil_Surface	8015M-MDEQ-REM	Total Extractable Hydrocarbons	Y	29	200		mg/kg	no
ST-071411-KG2	Field	Soil_Surface	8260B	1,2-Dichloroethane-d4	Y	73			%	no
ST-071411-KG2	Field	Soil_Surface	8260B	Dibromofluoromethane	Y	85			%	no
ST-071411-KG2	Field	Soil_Surface	8260B	p-Bromofluorobenzene	Y	85			%	no
ST-071411-KG2	Field	Soil_Surface	8260B	Toluene-d8	Y	97			%	no
ST-071411-KG2	Field	Soil_Surface	8270C	2,4,6-Tribromophenol	Y	75			%	no
ST-071411-KG2	Field	Soil_Surface	8270C	2-Fluorobiphenyl	Y	75			%	no
ST-071411-KG2	Field	Soil_Surface	8270C	Nitrobenzene-D5	Y	73			%	no
ST-071411-KG2	Field	Soil_Surface	8270C	o-Fluorophenol	Y	66			%	no
ST-071411-KG2	Field	Soil_Surface	8270C	Phenol-d5	Y	73			%	no
ST-071411-KG2	Field	Soil_Surface	8270C	Terphenyl-d14	Y	80			%	no
ST-071411-KG2	Field	Soil_Surface	MA-VPH-MDEQ-REM	VPH Aliphatics Surrogate	Y	73			%	no
ST-071411-KG2	Field	Soil_Surface	MA-VPH-MDEQ-REM	VPH Aromatics Surrogate	Y	73			%	no
ST-071411-KG2	Field	Soil_Surface	NONE-MDEQ-REM	Moisture content	Y	28			% by wt	no
ST-071411-KG-BACKGROUND	Field	Soil_Surface	8015M-MDEQ-REM	o-Terphenyl	Y	87			%	no
ST-071411-KG-BACKGROUND	Field	Soil_Surface	8015M-MDEQ-REM	Total Extractable Hydrocarbons	Y	23	200		mg/kg	no
ST-071411-KG-BACKGROUND	Field	Soil_Surface	8260B	1,2-Dichloroethane-d4	Y	72			%	no
ST-071411-KG-BACKGROUND	Field	Soil_Surface	8260B	Dibromofluoromethane	Y	82			%	no
ST-071411-KG-BACKGROUND	Field	Soil_Surface	8260B	p-Bromofluorobenzene	Y	80			%	no
ST-071411-KG-BACKGROUND	Field	Soil_Surface	8260B	Toluene-d8	Y	91			%	no
ST-071411-KG-BACKGROUND	Field	Soil_Surface	8270C	2,4,6-Tribromophenol	Y	82			%	no
ST-071411-KG-BACKGROUND	Field	Soil_Surface	8270C	2-Fluorobiphenyl	Y	79			%	no
ST-071411-KG-BACKGROUND	Field	Soil_Surface	8270C	Nitrobenzene-D5	Y	76			%	no
ST-071411-KG-BACKGROUND	Field	Soil_Surface	8270C	o-Fluorophenol	Y	73			%	no
ST-071411-KG-BACKGROUND	Field	Soil_Surface	8270C	Phenol-d5	Y	80			%	no
ST-071411-KG-BACKGROUND	Field	Soil_Surface	8270C	Terphenyl-d14	Y	76			%	no
ST-071411-KG-BACKGROUND	Field	Soil_Surface	MA-VPH-MDEQ-REM	VPH Aliphatics Surrogate	Y	71			%	no
ST-071411-KG-BACKGROUND	Field	Soil_Surface	MA-VPH-MDEQ-REM	VPH Aromatics Surrogate	Y	75			%	no
ST-071411-KG-BACKGROUND	Field	Soil_Surface	NONE-MDEQ-REM	Moisture content	Y	21			% by wt	no
SPSO128D01_071511	Field	Soil_Surface	EPA 8270	bis(2-Ethylhexyl)phthalate	Y	593	35000		ug/kg	no



## **Appendix B**

Initial SCAT Survey Forms and  
Sketches

DB/GIS

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>B17</u>	Left Bank / <u>Right Bank</u> / Island	<u>19 / 07 / 11</u>	<u>1159</u> hrs to <u>1200</u> hrs	low - mean / <u>bankfull</u> - overbank
Operations Division: <u>B</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>35</u> deg C	

<b>2 SURVEY TEAM # 5</b>	name	organization	contact phone number
	Bob Nailon	Cardno ENTRIX	713 817 2469
	John Beach	EPA	707 364 0491
	Ken Frazer	FWP	406 247 2961

**3 SEGMENT** Total Segment/Reach Length 618 m Segment/Reach Length Surveyed 618 m

Start GPS: LATITUDE N \_\_\_\_\_ deg. \_\_\_\_\_ min. LONGITUDE W \_\_\_\_\_ deg. \_\_\_\_\_ min. Datum: WGS 84

End GPS: LATITUDE N \_\_\_\_\_ deg. \_\_\_\_\_ min. LONGITUDE W \_\_\_\_\_ 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 P Sand \_\_\_\_\_ Mixed S Pebble/Cobble S 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 S confined or leveed \_\_\_\_\_ Substrate Type: Mud

Sloped: \_\_\_\_\_ (>5°)(15°)(30°) straight P 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 3-10m >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 low 7/24/11

**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 50 bags or \_\_\_\_\_ trucks access restrictions river access likely

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	422		1						P	X										dry bank
B				X	196																			dry bank

**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												

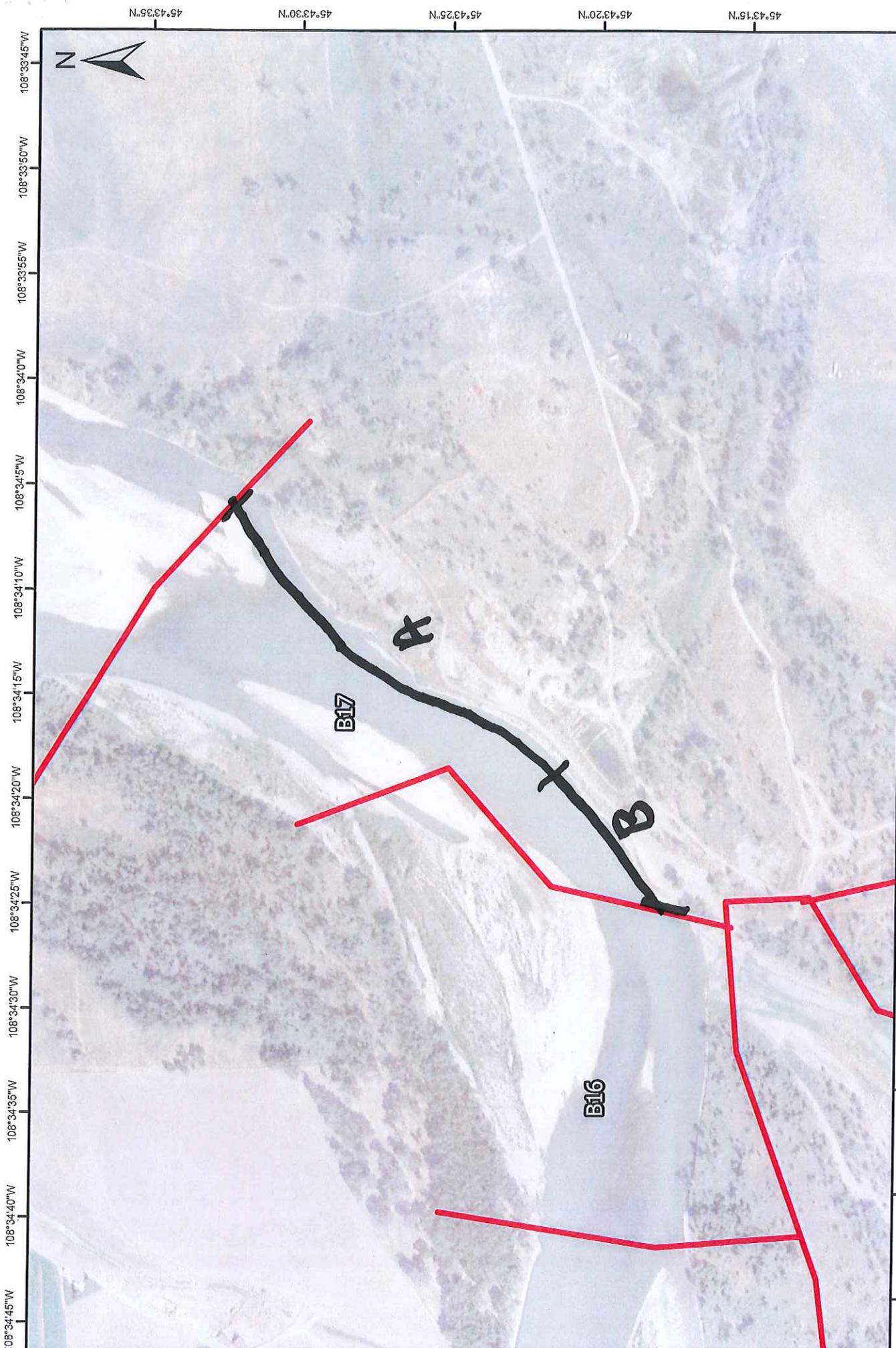
**8 COMMENTS** ecological/recreational/cultural/economic constraints - shorezone biota and wildlife observations - cleanup recommendations

OSR = 4                      OSC = unk                      SSC = unk

5282-5288

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



**B17 -** (L/R/I)??

DATE: \_\_\_\_\_

TEAM: \_\_\_\_\_

COMMENTS:

0 60 120 180 240  
Meters

PB/6/5

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

**1 GENERAL INFORMATION**

Segment/Reach ID: B17 Left Bank / Right Bank / Island  
 Operations Division: B  
 Date (dd/mm/yy): 19/07/11 Time (24h): std / daylight 0755 hrs to 0850 hrs  
 Water Level: low - mean - bankfull - overbank  
 falling - steady - rising falling - steady - rising  
 Survey by: (Foot) / ATV / Boat / Helicopter / Overlook / \_\_\_\_\_ Sun / Clouds / Fog / Rain / Snow / Windy / Calm  
 Air Temp +/- 28 deg C

**2 SURVEY TEAM #** 4

name	organization	contact phone number
<u>John Williams</u>	<u>Cardno ENTRIX</u>	<u>361 676 8138</u>
<u>Connor Kobeski</u>	<u>Cardno ENTRIX</u>	<u>847 922 5300</u>
<u>Courtney Tyrell</u>	<u>FWP</u>	<u>406 860 7814</u>
<u>Coan Piley</u>	<u>EPA</u>	<u>415 215 0690</u>

**3 SEGMENT** Total Segment/Reach Length 660 m Segment/Reach Length Surveyed 1340 m

Start GPS: LATITUDE 45° deg. 43.259 min. LONGITUDE 108 deg. 34.435 min. Datum: WGS 84  
 End GPS: LATITUDE 45 deg. 43.522 min. LONGITUDE 108 deg. 34.087 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 S  
 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

Cliff or Bluff: \_\_\_\_\_ Est Height 1 m canyon \_\_\_\_\_ manmade \_\_\_\_\_ meander \_\_\_\_\_ confined or leveed /  
 Sloped: ( ) (>5°)(15°)(30°) straight \_\_\_\_\_ braided \_\_\_\_\_ oxbow \_\_\_\_\_ flood plain valley \_\_\_\_\_  
 complete for primary  
 Substrate Type: Veg  
 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 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 OK 7/11 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	%																			
<u>376</u> A		<u>S</u>	<u>P</u>	<u>S</u>	<u>40</u>	<u>15</u>	<u>40</u>			<u>S</u>	<u>P</u>						<u>P</u>					<u>Veg</u>
<u>377</u> B				<u>P</u>	<u>660</u>	<u>160</u>	<u>0</u>													<u>P</u>		<u>Veg</u>
<u>378</u> C				<u>P</u>	<u>675</u>	<u>675</u>	<u>100</u>					<u>P</u>	<u>P</u>									<u>Pond</u>
<u>379</u> D				<u>P</u>	<u>26</u>	<u>56</u>	<u>40</u>			<u>P</u>	<u>S</u>						<u>P</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

Recommendations Zone A: Removal of oiled vegetation may erode shore line - no treatment recommended.

Recommendations Zone B: No oiling - no treatment recommended.

Zone C: Sheen on surface of temporary pond - no treatment recommended

Zone D: 6-12 in band of oil coated on tree branches - selective cutting and debris removal recommended. No overland heavy machinery

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

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

376  
377  
378  
379  
0/30  
C-378  
D-379  
A-376  
B-377



**SCAT Maximum Oiling Zones**

Area B17  
Figure 4



**Legend**

	Heavy
	Moderate
	Light
	Very Light
	No Oil Observed

08/6

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

<b>1 GENERAL INFORMATION</b>		Date (dd/mm/yy) 19-Jul-2011	Time (24h): std / daylight 1057 hrs to 1059 hrs	Water Level low - mean - <u>bankfull</u> - overbank <u>falling</u> - steady - rising
Segment/Reach ID: B17 <u>Left Bank</u> / Right Bank / Island		Operations Division: B		
Survey by: Foot / ATV / <u>Boat</u> / Helicopter / Overlook / _____		<u>Sun</u> / Clouds / Fog / Rain / Snow / <u>Windy</u> / Calm		Air Temp +/- <u>31</u> deg C

<b>2 SURVEY TEAM # 1</b>	name	organization	contact phone number
Pete Lee	<u>PDL</u>	Polaris	
Larry Alheim	<u>LA</u>	MTDEQ	
Andy Johnson	<u>Andy Johnson</u>	USCG	<u>Andy Johnson</u>

**3 SEGMENT** Total Segment/Reach Length \_\_\_\_\_ m Segment/Reach Length Surveyed 324 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 70 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	RIVER BANK ZONE				OIL COVER			OIL THICKNESS					OIL CHARACTER							SUBST. TYPE(S)				
					Length	Width	Distrib.	TO	CV	CT	ST	FL	FR	MS	TB	PT	TC	SR	AP		NO			
A				X	10	1	100			X	X		X										Grass, trees, debris	
B				X	314	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	OILED ZONE	SUBSURFACE OIL CHARACTER								WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)						
							SAP	OP	PP	OR	OF	TR	NO	cm					B, R, S, N	Yes / No				
					cm	cm-cm																		

**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 band heights: Zone A - 30cm

**Treatment Recommendations:**

Zone A: Cut & remove oil coated vegetation smaller than 1" diameter. Wipe larger oil coated vegetation.  
Zone B: No oil observed; no treatment required.

\*Refer to current approved treatment methods #1 (Cutting of Vegetation), #2 (Dead Vegetation and Small Debris), #3 (Large Woody Debris), #6 (Sorbent Use), # (Unconsolidated Sediments)

Sketch Yes / No Photos Yes / No Frames 1235 (Lee)

<b>1 GENERAL INFORMATION</b>		Date (dd/mm/yy) 19-Jul-2011	Time (24h): std / daylight 57 59 10:00 hrs to 10:30 hrs	Water Level low - mean - <u>bankfull</u> - overbank falling - steady - rising
Segment/Reach ID: <u>B28</u> ( <u>Left Bank</u> / Right Bank / Island )		Operations Division: B		
Survey by: <u>Foot / ATV / Boat</u> / Helicopter / Overlook / _____		<u>Sun</u> / Clouds / Fog / Rain / Snow / <u>Windy</u> / Calm		Air Temp +/- <u>31</u> deg C

<b>2 SURVEY TEAM # 1</b>	name	organization	contact phone number
Pete Lee		Polaris	
Larry Alheim		MTDEQ	
Andy Johnson		USCG	

**3 SEGMENT** Total Segment/Reach Length \_\_\_\_\_ m Segment/Reach Length Surveyed 362 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) Ridge 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: <1 m 1-3 m 3-10 m >10 m \_\_\_\_\_ m

shoal(s) present  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  Access: Direct from backshore  Alongshore from next segment

Debris: Y/N oiled Y/N amount 70 bags or \_\_\_\_\_ trucks access restrictions

Oiled trees/shrubs Y/N 3 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)			
					Length	Width	Distrib.	TO	CV	CT	ST	FL	FR	MS	TB	PT	TC	SR	AP		NO		
ID	MS	LB	UB	OB	m	m	%																
A				X	<u>210</u>	1	100			X	<u>X</u>		X										Grass, trees, debris
B		<u>314</u>		X	<u>203</u>	1																X	Grass, trees, debris
C				X	<u>20</u>	1	100			X	<u>X</u>		X										
D				X	<u>57</u>	1																	X

**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 band heights: Zone B - 30cm  
A

**Treatment Recommendations:**  
Zone B: No oil observed; no treatment required.  
Zone A: Cut & remove oil coated vegetation smaller than 1" diameter. Wipe larger oil coated vegetation.

\*Refer to current approved treatment methods #1 (Cutting of Vegetation), #2 (Dead Vegetation and Small Debris), #3 (Large Woody Debris), #6 (Sorbent Use), # (Unconsolidated Sediments)

Sketch Yes / No Photos Yes / No Frames 1235 1205 (Lee)

B = 78 + 236



©2010 Google

Eye alt 4859 ft

Image © 2011 GeoEye

45°43'32.76" N 108°34'13.17" W elev 3162 ft

Imagery Date: 8/5/2009

A

B

B17

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

<b>1 GENERAL INFORMATION</b>		Date (dd/mm/yy) 19/07/2011	Time (24h): std / daylight 14:40 hrs to 15:50 hrs	Water Level low - mean - bankfull - <u>overbank</u> falling - steady - rising
Segment/Reach ID: B17 <u>Left Bank</u> / Right Bank/Island		Operations Division: B		
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		Polaris	<i>[Signature]</i>
Jay Watson		Montana Fish Wildlife and Parks	
Janice Witul		EPA	<i>[Signature]</i>
Rebecca Ridenour		MDEQ	<i>[Signature]</i>

**3 SEGMENT** Total Segment/Reach Length \_\_\_\_\_ m Segment/Reach Length Surveyed 215 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 \_\_\_\_\_ m 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 10 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. %	TO	CV	CT	ST	FL	FR	MS	TB	PT	TC	SR	AP		NO
A				X	220	150	L		X	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

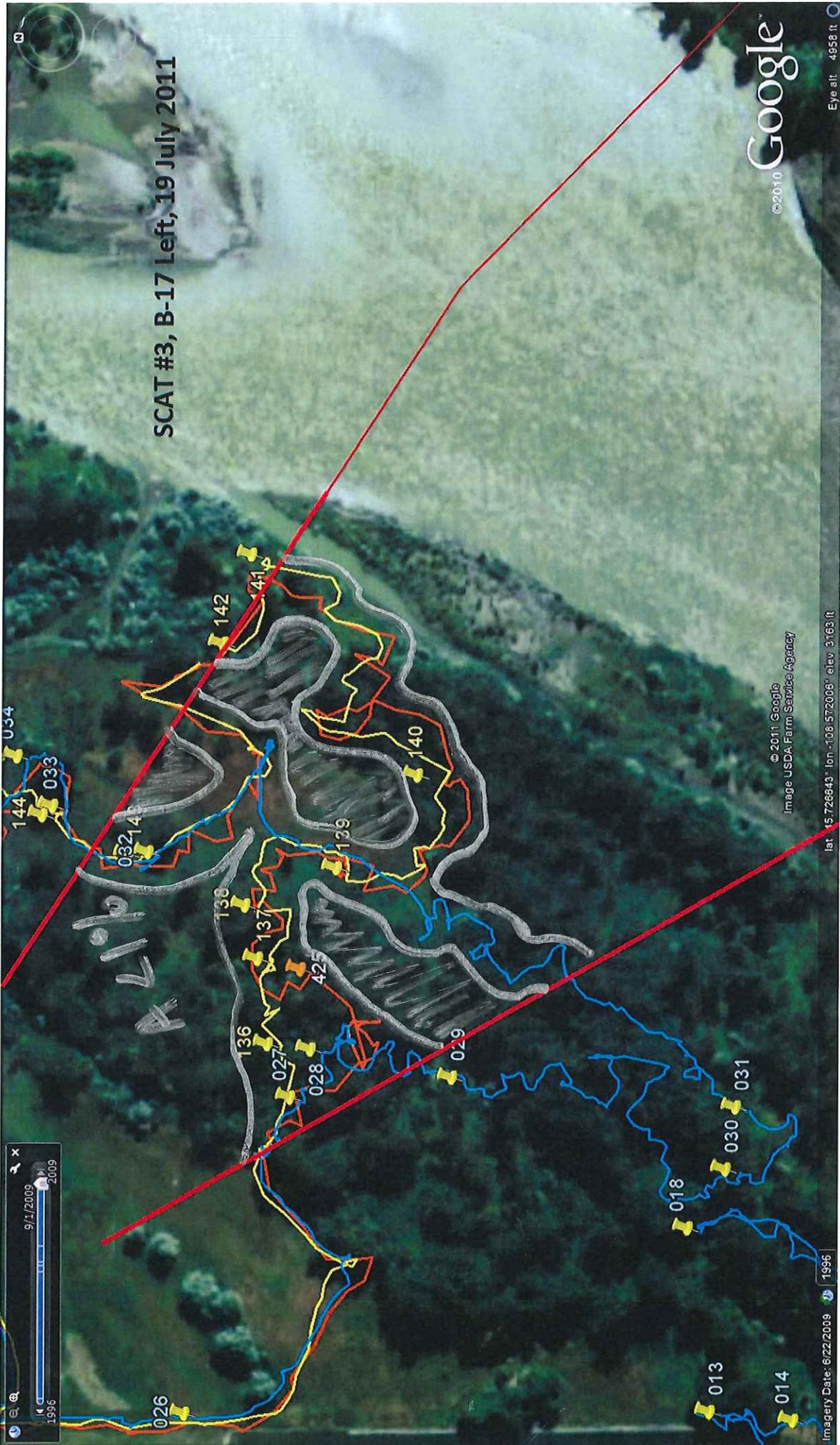
A - Intermittent trace discreet patches of oiled vegetation, primarily wood debris, bathtub rings on trees & grasses, & oil globules on tree & shrub branches. through flood drainage paths stranded at high water level.

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

356

SCAT #3, B-17 Left, 19 July 2011



©2010 Google

Eye alt. 4958 ft

© 2011 Google  
Image USDA Farm Service Agency

lat 45.728843° lon -108.572009° elev 3163 ft

9/1/2009 2009

1996

Imagery Date: 6/22/2009 1996

B17L

ZONE A

typical oiled veg & wood debris patch.



typically under brush & at base of trees at high water line.

06/G

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>B17</u>	Left Bank / Right Bank / Island	<u>23/07/11</u>	<u>0900</u> hrs to <u>1600</u> hrs	low - mean - bankfull - overbank
Operations Division:		<u>(Sun)</u> Clouds / Fog / Rain / Snow / Windy / Calm		falling - steady - rising
Survey by: <u>Foot / ATV / Boat / Helicopter / Overlook /</u>				Air Temp +/- <u>27</u> deg C

<b>2 SURVEY TEAM # <u>233</u></b>	Name	Organization	Signature
	<u>Joe Boyle</u>	<u>Cardno ENTRIX</u>	<u>[Signature]</u>
	<u>ED KIELT</u>	<u>MT DEP. 706-891-5057</u>	<u>[Signature]</u>
	<u>Chanda Perry</u>	<u>Cardno ENTRIX</u>	<u>[Signature]</u>
	<u>JANICE WITUL</u>	<u>US EPA</u>	<u>[Signature]</u>
	<u>ANSTON WREST</u>	<u>USCG</u>	<u>[Signature]</u>
	<u>Nick Taylor</u>	<u>FWP</u>	<u>[Signature]</u>
	<u>JOHN BAUER</u>	<u>POLARIS</u>	<u>[Signature]</u>

**3 SEGMENT** Total Segment/Reach Length 280 m Segment/Reach Length Surveyed 280 m

Start GPS: LATITUDE 45 deg. 43'24.8" min. LONGITUDE 108 deg. 34'41.0" min. Datum: NAD83

End GPS: LATITUDE 45 deg. 43'37.85" min. LONGITUDE 108 deg. 34'15.66" 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 (S) 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 (S) confined or leveed Substrate Type: med

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 190m 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 farm land, dense veg, soft mud

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>(S)</u>	<u>(P)</u>	<u>280</u>	<u>265</u>	<u>(1)</u>			<u>(S)</u>	<u>(P)</u>											<u>veg/mud</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: isolated areas of oil stained vegetation & debris

Recommendations: cutting/trimming of oil stained veg and hand removal of debris

→ focus on areas with SCAT flagging

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

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>B17</u> Left Bank / Right Bank / Island		<u>23/07/11</u>	<u>0900</u> hrs to <u>1600</u> hrs	low - mean - bankfull - overbank
Operations Division:		<u>(S)</u> Clouds / Fog / Rain / Snow / Windy / Calm		falling - steady - rising
Survey by: <u>(Foot) / ATV / Boat / Helicopter / Overlook /</u>				Air Temp +/- <u>27</u> deg C

<b>2 SURVEY TEAM #</b> <u>233</u>	Name	Organization	Signature
	<u>Joe Boyle</u>	<u>Carolina ENTRIX</u>	<u>[Signature]</u>
	<u>(SD) KIELT</u>	<u>MT DEP. 906-891-5057</u>	<u>[Signature]</u>

**3 SEGMENT** Total Segment/Reach Length 750 m Segment/Reach Length Surveyed 280 m

Start GPS: LATITUDE 45 deg. 43'24.8" min. LONGITUDE 108 deg. 34'41.0" min. Datum: NAD83

End GPS: LATITUDE 45 deg. 43'37.85" min. LONGITUDE 108 deg. 34'15.66" 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 (S) 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 S confined or leveed Substrate Type: Wvd

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 140m 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 farmland, dense veg, soft mud

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>S</u>	<u>P</u>	<u>280</u>	<u>265</u>	<u>1</u>			<u>S</u>	<u>P</u>		<u>P</u>									<u>veg/mud</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: isolated areas of oil stained vegetation & debris

Recommendations: cutting/trimming of oil stained veg and hand removal of debris

→ focus on areas with SCAT flagging

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

DB/G

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>B17</u> Left Bank / Right Bank / Island		<u>03/07/11</u>	<u>0900</u> hrs to <u>1600</u> hrs	low - mean - bankfull - overbank
Operations Division:				falling / steady - rising
Survey by: /Foot /ATV / Boat / Helicopter / Overlook /		Sun / Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp +/- <u>27</u> deg C

2 SURVEY TEAM # <u>233</u>	Name	Organization	Signature
	<u>Joe Boyle</u>	<u>Cardno ENTRIX</u>	<u>[Signature]</u>
	<u>ED KIELT</u>	<u>MT DEQ. 906-891-5057</u>	<u>[Signature]</u>
	<u>Chuck Poir</u>	<u>Cardno ENTRIX</u>	<u>[Signature]</u>
	<u>JANICE WITUL</u>	<u>US EPA</u>	<u>[Signature]</u>
	<u>AUSTIN WEST</u>	<u>USCG</u>	<u>[Signature]</u>
	<u>Nick Taylor</u>	<u>FWP</u>	<u>[Signature]</u>
	<u>JOHN BAUER</u>	<u>POLARIS</u>	<u>[Signature]</u>

**3 SEGMENT** Total Segment/Reach Length 750 m Segment/Reach Length Surveyed 280 m

Start GPS: LATITUDE 45 deg. 43'24.8" min. LONGITUDE 108 deg. 34'41.0" min. Datum: NAD83

End GPS: LATITUDE 45 deg. 43'37.85" min. LONGITUDE 108 deg. 34'15.66" 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 (S) 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 S confined or leveed Substrate Type: med

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 190m est. water depth: <1m 1-3m 3-10m >10m m

shoal(s) present Y(N) point bar present (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 farm land, dense veg, soft mud

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)		
					Length	Width	Distrib.	TO	CV	CT	ST	FL	FR	MS	TB	PT	TC	SR	AP		NO	
ID	MS	LB	UB	OB	m	m	%															
A			S	P	280	265	41			S	P			P								veg/mud

**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)

Zone A: isolated areas of oil stained vegetation & debris

Recommendations: cutting/trimming of oil stained veg and hand removal of debris

→ focus on areas with SCAT flagging

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

<b>1 GENERAL INFORMATION</b>		Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: <u>B17</u> (Left Bank / Right Bank / Island)		<u>23/07/11</u>	<u>0900</u> hrs to <u>1600</u> hrs	low - mean - bankfull - overbank
Operations Division:		<u>(Sun)</u> Clouds / Fog / Rain / Snow / Windy / Calm		falling / steady - rising
Survey by: <u>Foot / ATV / Boat / Helicopter / Overlook /</u>				Air Temp +/- <u>27</u> deg C

<b>2 SURVEY TEAM #</b> <u>123</u>	Name	Organization	Signature
	<u>Joe Boyle</u>	<u>Carthage ENTRIX</u>	<u>[Signature]</u>
	<u>(ED) KIELT</u>	<u>MT DEP. 906-891-5057</u>	<u>[Signature]</u>

**3 SEGMENT** Total Segment/Reach Length 750 m Segment/Reach Length Surveyed 280 m

Start GPS: LATITUDE 45 deg. 43'29.8" min. LONGITUDE 105 deg. 34'41.0" min. Datum: NAD83

End GPS: LATITUDE 45 deg. 43'37.85" min. LONGITUDE 105 deg. 34'15.66" 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 (S) 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 S confined or leveed Substrate Type: Wood

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

shoal(s) present Y(N) point bar present (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 (N)

Debris: (N) oiled (N) amount bags or trucks access restrictions farmland, dense veg, soft mud

Oiled trees/shrubs (N) River Current strong (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>S</u>	<u>P</u>	<u>280</u>	<u>265</u>	<u>&lt;1</u>			<u>S</u>	<u>P</u>		<u>P</u>												<u>veg/mud</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

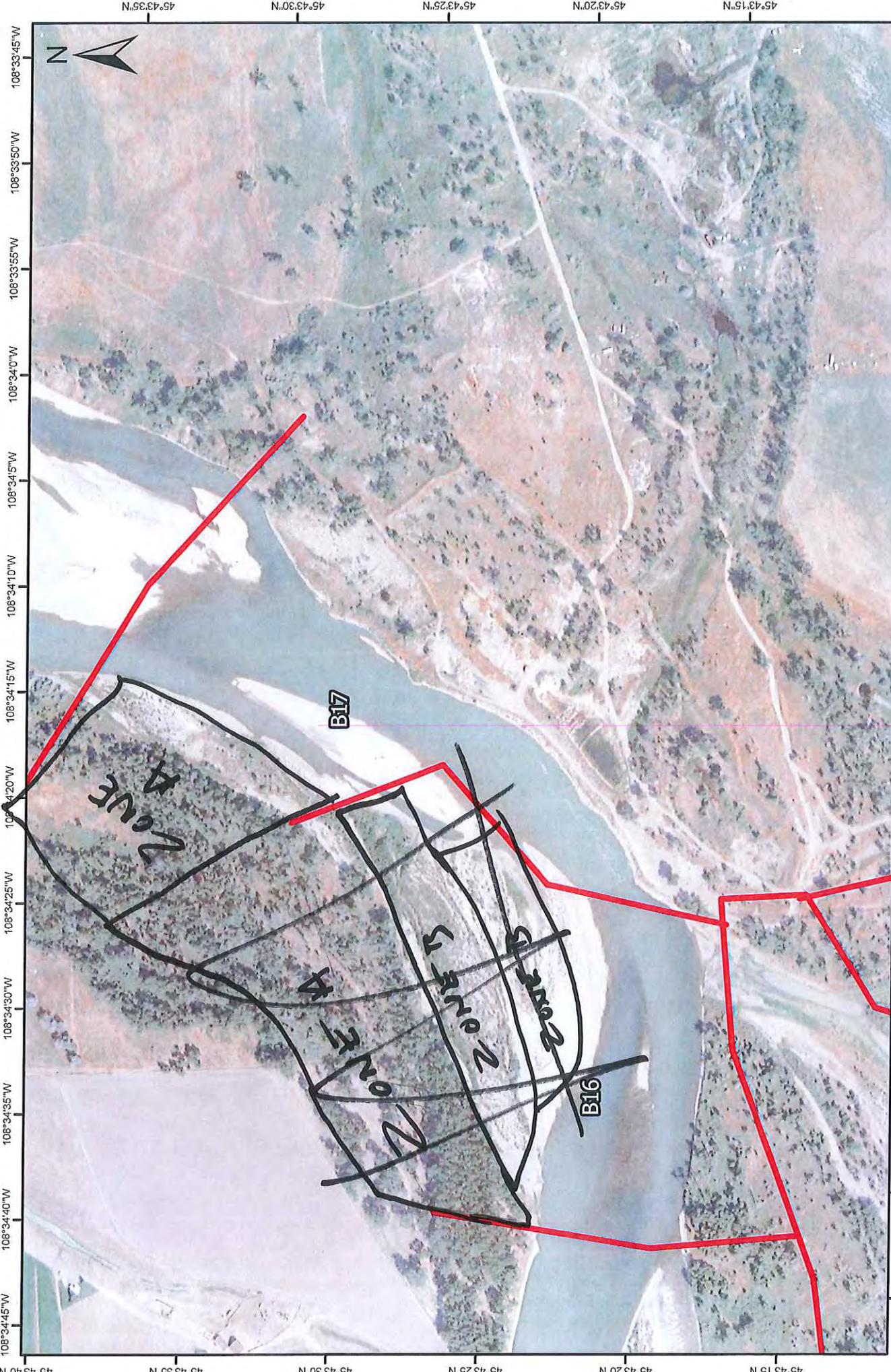
Overbank Survey Required (N) Overbank Survey Completed (N) Shoreline Survey Completed (N)

Zone A: isolated areas of oil stained vegetation & debris

Recommendations: cutting/trimming of oil stained veg and hand removal of debris

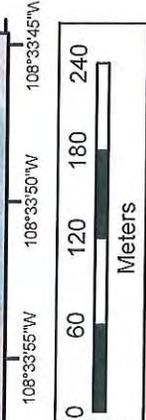
\* focus on areas with SCAT flagging

Sketch (N) / Yes / No Photos (N) / Yes / No Frames \_\_\_\_\_ Photographer \_\_\_\_\_



45°43'15"N 45°43'20"N 45°43'25"N 45°43'30"N 45°43'35"N

108°34'45"W 108°34'40"W 108°34'35"W 108°34'30"W 108°34'25"W 108°34'20"W 108°34'15"W 108°34'10"W 108°34'05"W 108°34'00"W 108°33'55"W 108°33'50"W 108°33'45"W



COMMENTS:

DATE: 07/23/11  
 TEAM: J & B

**B17** - (L/R)??

DB16

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

Page \_\_\_\_\_ of \_\_\_\_\_

<b>1 GENERAL INFORMATION</b>		Date (dd/mm/yy) 07/20/2011	Time (24h): std / daylight 1325      1400 hrs to      hrs	<b>Water Level</b> low - mean <u>bankfull</u> - overbank falling - steady - rising
Segment/Reach ID: B17      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 + / - _____ deg C

<b>2 SURVEY TEAM #</b> <u>2</u>	<b>name</b>	<b>organization</b>	<b>contact phone number</b>
	Bruce Kvam	Polaris Applied Sciences, LLC	(206)-953-6904
	Aaron Anderson	MTDEQ	(406) 431-2583
	Patrick Kriske	USCG	(415) 596-6587
	<u>EDWARD KIRBY</u>		

**3 SEGMENT**      Total Segment/Reach Length 654 m      Segment/Reach Length Surveyed 654 m

Start GPS: LATITUDE 45 \_\_\_\_\_ deg. 4317 \_\_\_\_\_ min.      LONGITUDE 108 \_\_\_\_\_ deg. 3427 \_\_\_\_\_ min.      Datum: WGS 84

End GPS: LATITUDE 45 \_\_\_\_\_ deg. 4332 \_\_\_\_\_ min.      LONGITUDE 108 \_\_\_\_\_ deg. 3406 \_\_\_\_\_ 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: S      Wooded Upland: (P)

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

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

est. width: <1m 1-10m 10-100m >100m 114 m      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 10 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	104	0.5	30			(X)	X		X									Small woody debris, grass, trees
B				X	550	0	0														X	

**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

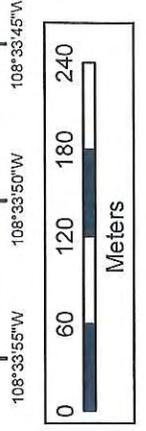
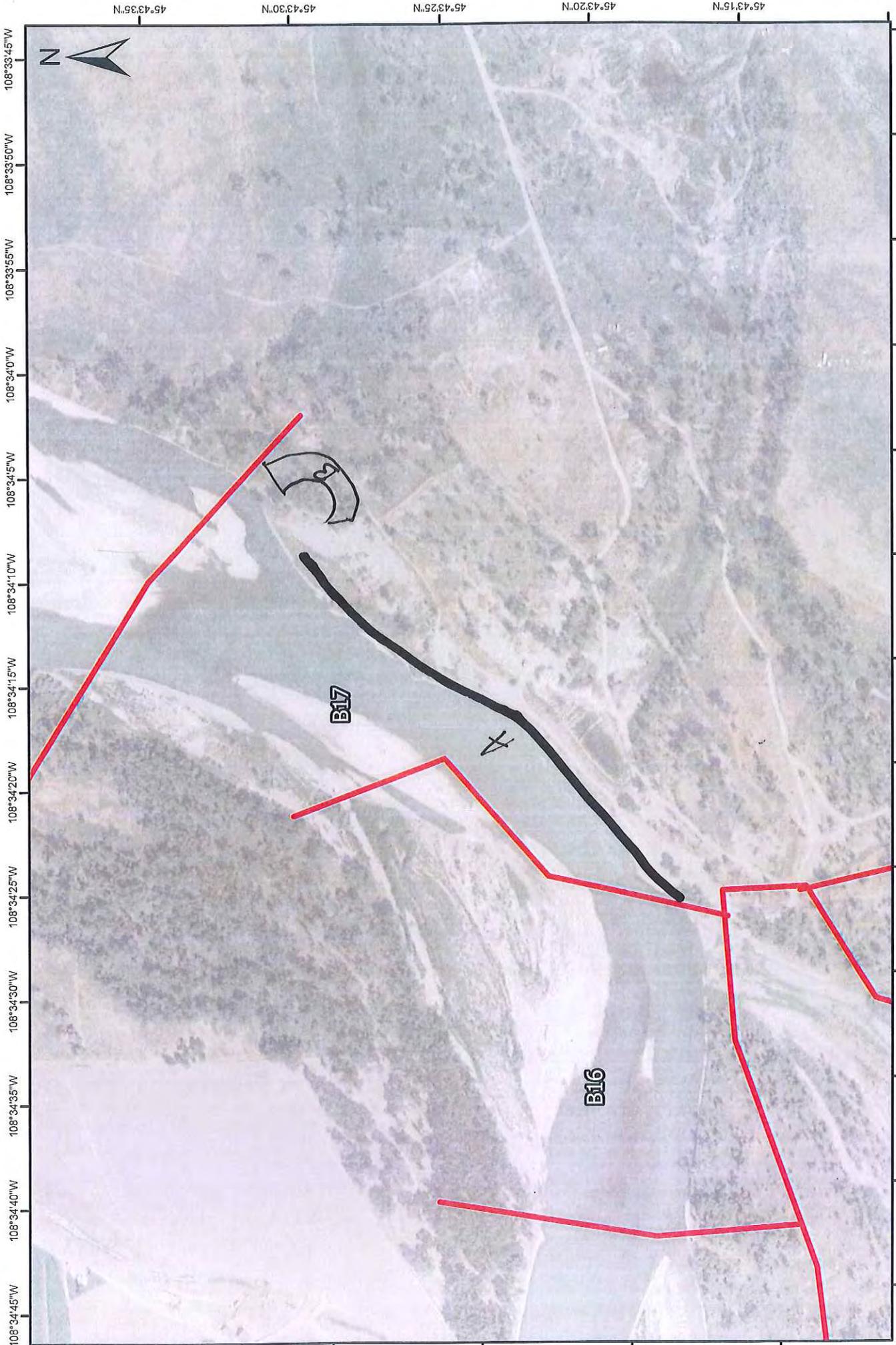
Oil band height: 16 cm

**Treatment Recommendations:**

Zone A: Cut and remove oil coated vegetation smaller than 1" diameter. Remove oil coated debris smaller than 4" diameter.

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



COMMENTS:

DATE: 7/20/2011

TEAM: 2

**B17** - (L01)??



Segment B17, Zone B.



## **Appendix C**

Pre-Inspection Survey Transmittal

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

---

Survey Date: 24 AUG 2011

Segment: B-17 RB

Team: SCAT Liaison PETE PRITCHARD Signed: 

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

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

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

X  
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:



## **Appendix D**

Post-Inspection Survey Transmittal

# POST

## Post Inspection Survey Transmittal

Created by Pete Pritchard 8/29/11 - Liaison <sup>SCAT/Ops</sup>

Segment B-17 RB

Date of Survey 28 AUG 2011

**COMPLETED**

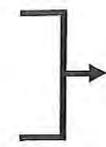
SCAT Team Member PETE PRITCHARD Signed: [Signature]

SCAT Team Member DAVID OGE Signed: \_\_\_\_\_

SCAT Team Member \_\_\_\_\_ Signed: \_\_\_\_\_

SCAT Team Member \_\_\_\_\_ Signed: \_\_\_\_\_

### Segment FAILED ReSCAT



Referred to Ops For Further Treatment

### Segment Conditionally PASSES ReSCAT

IF the Segment FAILED ReSCAT, another ReSCAT is required after treatment has been completed.  
IF the Segment Conditionally PASSES ReSCAT, a SCAT/Ops Liaison will verify treatment completion.

Describe the zone requiring further treatment. Based on the CTR(s), comment on oiling conditions, the appropriate ATMs to use, GPS waypoints, additional comments, attach a map, etc.

OILED VEGETATION REMOVED, DIRT RUBBED ONTO  
CONCRETE RIP RAP, OILED GROUND MAY  
RAKED,

Zone Dimensions: Length \_\_\_\_\_ Width \_\_\_\_\_ GPS Waypoint: Lat. \_\_\_\_\_ Long. \_\_\_\_\_  
(required) (center of zone)

The undersigned attests that the above treatment has been completed and the identified area meets the Approved Treatment Methods Target Endpoints:

[Signature] Daryl Reed / MTDEQ 9-1-11  
PE PRITCHARD / AOWA 219 29 AUG 2011  
Sign Name Print Name/ Affiliation Date

SCAT/Ops Liaison (SCAT RP Representative)



## **Appendix E**

Final SCAT Survey Forms and  
Sketches

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

<b>1 GENERAL INFORMATION</b>		Date (dd/mm/yy) 08/26/11	Time (24h): std / daylight 0830 hrs to 0935 hrs	Water Level low <u>mean</u> - bankfull - overbank falling - steady - rising
Segment/Reach ID: B17 Left Bank / <u>Right Bank</u> / Island		Operations Division: B		
Survey by: <u>Foot/PATV</u> / Boat / Helicopter / Overlook /		<u>Sun</u> / Clouds / Fog / Rain / Snow / Windy / <u>Calm</u>		Air Temp +/- 30 deg C
<b>2 SURVEY TEAM # 6</b>	Name	Organization	Signature	
	Jay Watson	MFW&P		
	David Eric Harlow	Cardno Entrix		
	Bruce Kvam	Polaris Applied Sciences, LLC		
	Marcile Sigler	MDEQ		
	Terry Tanner	USEPA		

**3 SEGMENT** Total Segment/Reach Length 675 m Segment/Reach Length Surveyed 675 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 X (type) rip-rap \_\_\_\_\_ Wetland: Swamp \_\_\_\_\_ Bog/Fen \_\_\_\_\_ Marsh \_\_\_\_\_

Sediment Bank: Clay/Mud \_\_\_\_\_ Sand \_\_\_\_\_ Mixed \_\_\_\_\_ Pebble/Cobble \_\_\_\_\_ Boulder \_\_\_\_\_ Peal/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° (>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 149m 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 4 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	Width	Distrib.	TO	CV	CT	ST	FL	FR	MS	TB	PT	TC	SR	AP		NO	
	m	m	%																			
1887 1888 A			X		60	1	10			X	X						X					Shrubs
B			X	X	615	54	<1			X	X						X					Shrubs, grass, woody 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

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

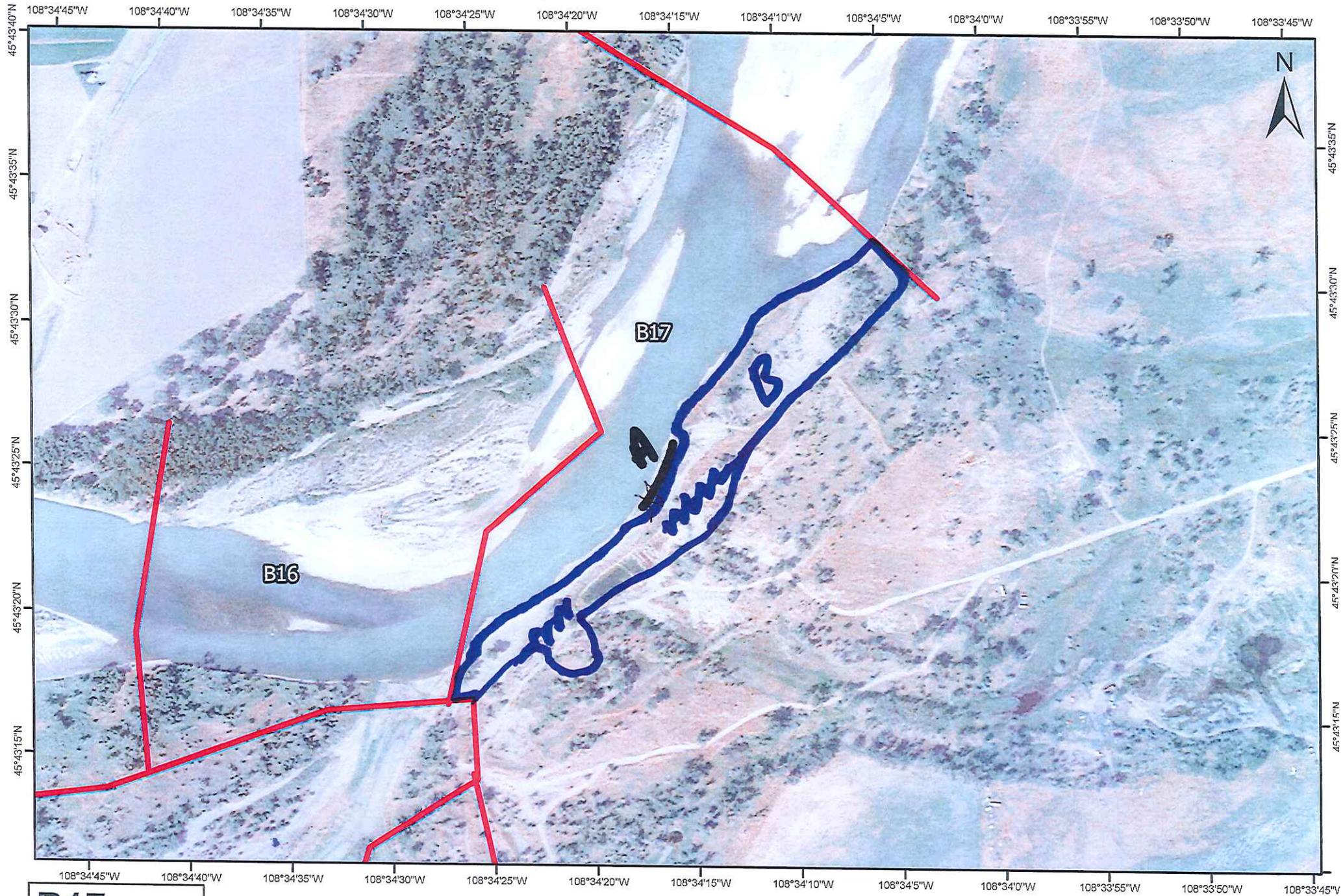
Treatment Recommendations\*:

Zone A: When flow conditions permit, cut and remove oil coated vegetation smaller than 1" diameter in upper bank using hot shot Operations team and liaison.

Zone B: Used hot shot Operations team to: 1) cut and remove oil coated vegetation smaller than 1" diameter; 2) remove oil coated debris smaller than 4" diameter; and 3) dust oil coated debris. No further treatment required.

\* Refer to current (8-24-11 version) treatment recommendations.

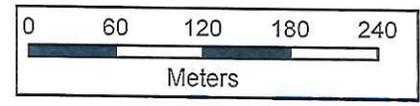
Sketch Yes / No Photos Yes / No Frames \_\_\_\_\_ Photographer \_\_\_\_\_



**B17 -**  
(L/R/I)??

DATE:  
TEAM:

COMMENTS: *Zone B NFT*



*DB/6*

<b>1 GENERAL INFORMATION</b>		Date (dd/mm/yy) 05/09/11	Time (24h): std / daylight 1115 hrs to 1445 hrs	Water Level low - <u>mean</u> - bankfull - overbank falling - steady - rising
Segment/Reach ID: B17 <u>Left Bank / Right Bank / Island</u>				Air Temp +/- 8 5 ° F
Operations Division: B				
Survey by: <u>Foot / ATV / Boat / Helicopter / Overlook /</u>		<u>Sun / Clouds / Fog / Rain / Snow / Windy / Calm</u>		

<b>2 SURVEY TEAM # 4</b>		Name	Organization	Signature
Michael Dirks			Cardno ENTRIX	<i>Michael P. Dirks</i>
Earl Radonski			MTFWP	<i>Earl Radonski</i>
Jamel Dallas			USCG	<i>Jamel H. Dallas</i>

<b>3 SEGMENT</b>	Total Segment/Reach Length _____ m	Segment/Reach Length Surveyed <u>270</u> m
Start GPS:	LATITUDE _____ deg. _____ min.	LONGITUDE _____ deg. _____ min. Datum: <u>WGS84</u>
End GPS:	LATITUDE _____ deg. _____ min.	LONGITUDE _____ deg. _____ min.

<b>4A RIVER BANK TYPE</b>		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 <u>x</u> Mixed <u>x</u> - P Pebble/Cobble <u>x</u> Boulder _____ Peat/Organic _____	Vegetated Bank: <u>S</u>		Wooded Upland: <u>P</u>
Sediment Flat: Clay/Mud _____ Sand <u>x</u> Mixed/Coarse _____	Other: _____	If snow and ice use Winter River SOS	

<b>4B RIVER VALLEY CHARACTER</b>			select as appropriate	complete for primary
Cliff or Bluff: _____ Est Height _____ m	canyon _____ manmade _____ meander <u>x</u> confined or leveed _____	Substrate Type: <u>sand</u>		
Sloped: _____ (>5°)(15°)(30°)	straight _____ braided _____ oxbow _____ flood plain valley <u>x</u> - P	Forested / Vegetated / Bare		

<b>4C RIVER CHANNEL CHARACTER</b>		circle or select as appropriate
est. width: <1m 1-10m 10-100m <u>&gt;100m</u>	est. water depth: <1m <u>1-3m</u> 3-10m >10m _____ m	
shoal(s) present <u>Y</u> / N point bar present <u>Y</u> / N	bar-shoal substrate: silt / sand / gravel / <u>cobble</u> / boulder / bedrock / debris	
seasonal water level: low / <u>mean</u> / bank full / overbank flow	est. change over next 7 days: <u>falling</u> — same — rising	

<b>5 OPERATIONAL FEATURES</b>		Suitable backshore staging <u>Y</u> / N	Access: Direct from backshore <u>Y</u> / N Alongshore from next segment <u>Y</u> / N
Debris: <u>Y</u> / N oiled <u>Y</u> / N amount _____ bags or _____ trucks	access restrictions		
Oiled trees/shrubs <u>Y</u> / N River Current strong <u>Y</u> / 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)			
					Length	Width	Distrib.																
	MS	LB	UB	OB	m	m	%	TO	CV	CT	ST	FL	FR	MS	TB	PT	TC	SR	AP		NO		
A			<u>3</u>	<u>4</u>	270	290	1			S	P						P					Sand, shrubs, grass, trees, debris piles	

**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	OILED ZONE	SUBSURFACE OIL CHARACTER								WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
							SAP	OP	PP	OR	OF	TR	NO					
					cm	cm-cm								cm	B, R, S, N	Yes / No		

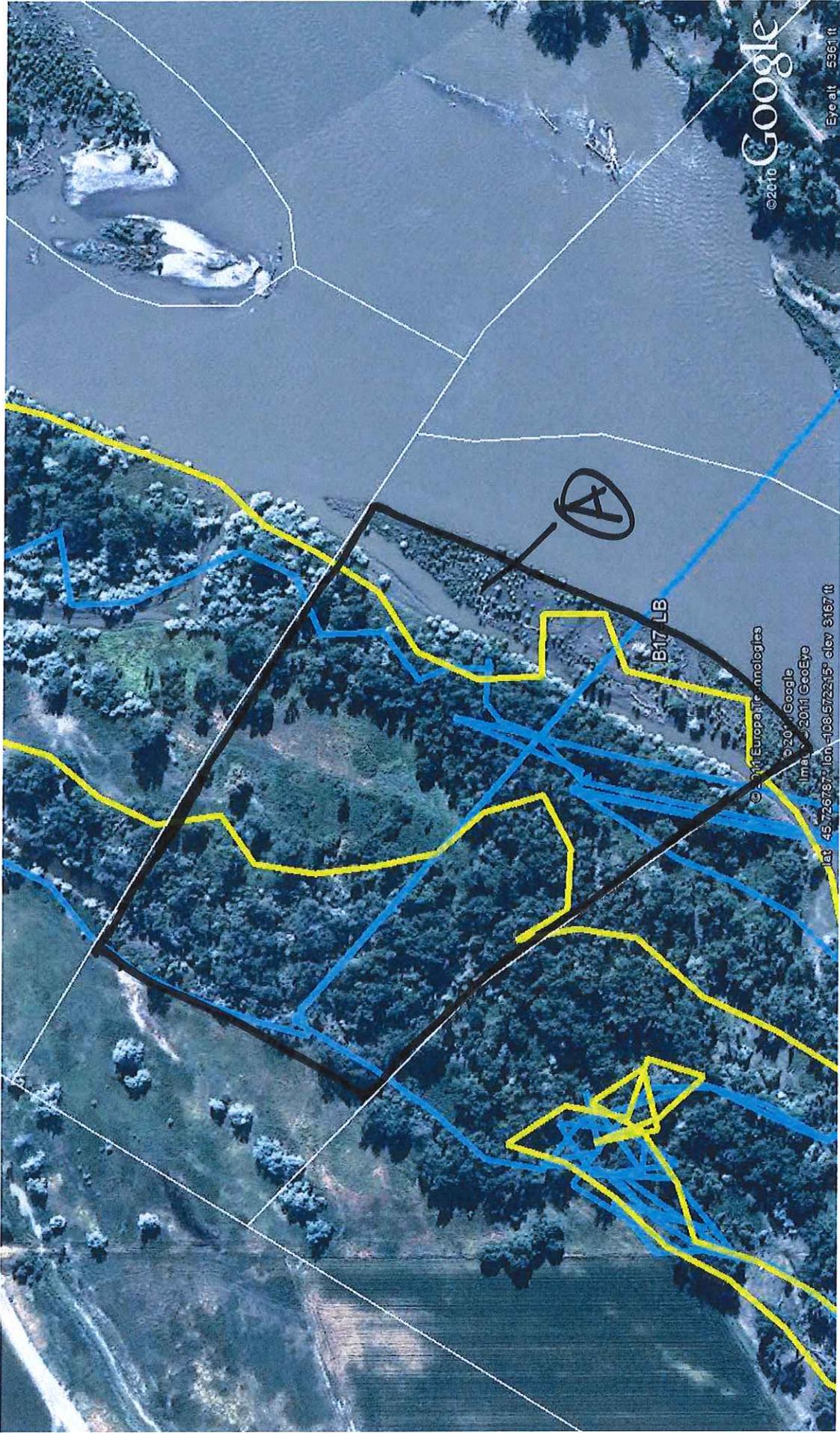
**8 COMMENTS** ecological/recreational/cultural/economic constraints - shorezone biota and wildlife observations - cleanup recommendations

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

RESCAT

Zone A: Light treatment by ops- ~~no~~ flags observed in segment from previous SCAT review. *were removed.* Scattered small stains on shrubs and vegetation were removed by Hot shot crews or dusted with natural fixative. NFT recommended.

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



ZONE A: NFT

TEAM 4  
09/05/11

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

<b>1 GENERAL INFORMATION</b>		Date (dd/mm/yy) 03/09/11	Time (24h): std / daylight 1330 hrs to 1420 hrs	Water Level low - <u>mean</u> - bankfull - overbank falling - steady - rising
Segment/Reach ID: B17 <u>Left Bank / Right Bank / Island</u>				
Operations Division: B				
Survey by: <u>Foot / ATV / Boat / Helicopter / Overlook /</u>		<u>Sun / Clouds / Fog / Rain / Snow / Windy / Calm</u>	Air Temp +/- 7.0 F deg	

<b>2 SURVEY TEAM # 4</b>	Name	Organization	Signature
Michael Dirks	Cardno ENTRIX		<i>Michael P. Dirks</i>
David Eric Harlow	Cardno ENTRIX		<i>David Harlow</i>
Larisa Leonova	EPA		<i>L. Leonova</i>
Earl Radonski	FWP		<i>Earl Radonski</i>

**3 SEGMENT** Total Segment/Reach Length 234 m Segment/Reach Length Surveyed 234 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 x \_\_\_\_\_ Mixed x P Pebble/Cobble x \_\_\_\_\_ Boulder \_\_\_\_\_ Peat/Organic \_\_\_\_\_ Vegetated Bank: S Wooded Upland: P

Sediment Flat: Clay/Mud \_\_\_\_\_ Sand x \_\_\_\_\_ 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 x confined or leveed \_\_\_\_\_ Substrate Type: sand \_\_\_\_\_

Sloped: \_\_\_\_\_ (>5°)(15°)(30°) straight \_\_\_\_\_ braided \_\_\_\_\_ oxbow \_\_\_\_\_ flood plain valley x P 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 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
<del>A</del>			<u>P</u>	<u>S</u>	265	50	N/A														NOT VISITED
<u>A1</u>				<u>P</u>	234	378	1			<u>S</u>	<u>P</u>						<u>P</u>				Sand, shrubs, grass trees, debris piles
<del>C</del>				<u>P</u>	170	205	N/A														NOT VISITED

**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				

**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

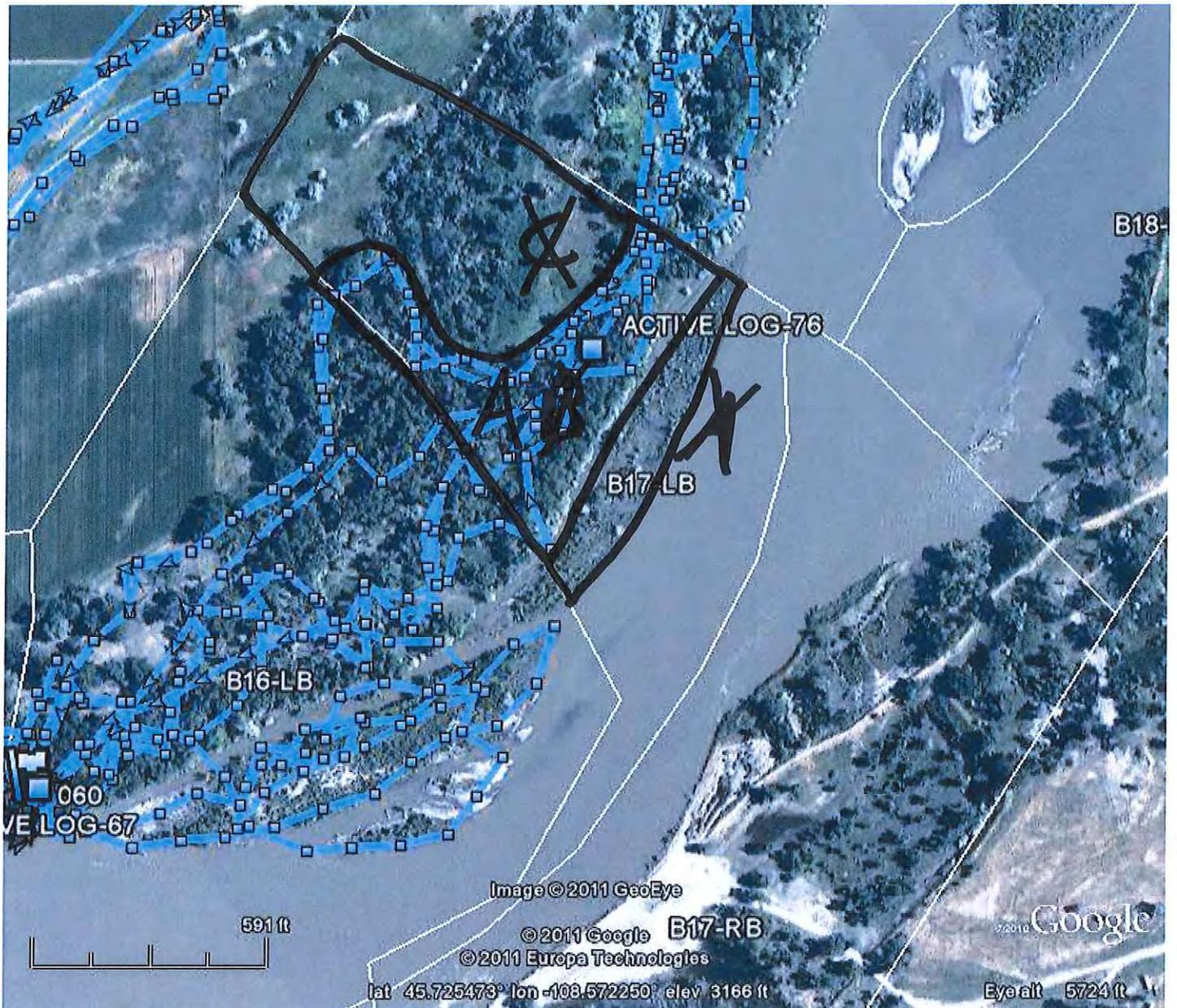
RESCAT

Zone A: Not visited during this SCAT visit.

Zone B: Light treatment by ops- no flags observed in unit from previous SCAT review. Scattered small stains on shrubs and vegetation. NFT.

Zone C: Not visited during this SCAT visit.

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



B17LB  
9/3/11  
Team 4



## **Appendix F**

Completed SCAT Segment Sign-Off  
Forms



# SCAT SEGMENT OPERATIONS COMPLETION SIGN-OFF SHEET

## SILVERTIP PIPELINE RELEASE

Segment B17 LB Date of Survey 09/05/11

Dates of Initial SCAT Assessments 19 JUL 11  
(to be filled out by SCAT Data Management)

CTR(s) Associated with SCAT Segment 18

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).*

Jamel H. Dugas JAMEL H. DUGAS 9/6/11  
 Sign Name Print Name/ Affiliation Date  
**Federal Representative (EPA/USCG)**

Earl Radenski Earl Radenski FWP 9/5/11  
 Sign Name Print Name/ Affiliation Date  
**State Representative (DEQ/FWP)**

Michael D. Dirks MICHAEL DIRKS / Cordis ENTRIX 09/05/11  
 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 B17 LB Date of Survey 09/03/11

Dates of Initial SCAT Assessments 07/23/11  
(to be filled out by SCAT Data Management)

CTR(s) Associated with SCAT Segment 18

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

Segment Assessment Complete<sup>1</sup>

Partial Segment Assessment  (50%, BAR/SHOAL NEEDS 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).*

Larisa Leonova LARISA LEONOVA 9/3/11  
Sign Name Print Name/ Affiliation Date  
**Federal Representative (EPA/USCG)**

Earl Radonski FWP Earl Radonski 9/3/11  
Sign Name Print Name/ Affiliation Date  
**State Representative (DEQ/FWP)**

Michael D. Dirks MICHAEL DIRKS / Cardinals ENTRIX 09/03/11  
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.