ARCADIS

C56

D3/G5

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

Page _____ of _____

1 GENERAL INFORMATION

Segment/Reach ID: C56 Left Bank / Right Bank / Island

Operations Division:

Date (dd/mm/yy): 13/08/11

Time (24h): std / daylight 9:00 hrs to 11:45 hrs

Water Level: low - mean - bankfull - overbank; falling - steady – rising

Survey by: Foot / ATV / Boat / Helicopter / Overlook / _____

Sun / Clouds / Fog / Rain / Snow / Windy / Calm

Air Temp + / - 32 deg C

2 SURVEY TEAM # 5

Name	Organization	Signature
LISA GERENCHER	Cardno ENTRIX	Lisa Gerencher
MARCILE SIGLER	DEQ	Marcile Sigler
RON LYNN	USCG	
MATT DE LONG	HOT SHOT	Matthew DeLong

3 SEGMENT

Total Segment/Reach Length 1900 m Segment/Reach Length Surveyed 1797 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: 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

Cliff or Bluff: ___ Est Height _____ m

Sloped: ___ (>5°)(15°)(30°)

canyon_____ manmade_____ meander X confined or leveed _____

straight_____ braided _____ oxbow_____ flood plain valley_____

complete for primary: Substrate Type: mixed; Forested / Vegetated / Bare

4C RIVER CHANNEL CHARACTER

circle or select as appropriate

est. width: < 1m 1–10 m 10–100 m >100m 160m

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 4 bags or _____ trucks access restrictions MAIN ISLAND OF THE SEGMENT

Oiled trees/shrubs Y / N River Current strong Y / N Other Features: ONLY ACCESSIBLE BY BOAT OR AMPHIBIOUS ATV

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 MS	LB	UB	OB	OIL COVER Length m	Width m	Distrib. %	OIL THICKNESS TO	CV	CT	ST	FL	OIL CHARACTER FR	MS	TB	PT	TC	SR	AP	NO	SUBST. TYPE(S)
1532	A				X	16	4	<1			X	X							X			grass
1533	B				X	135	48	<1			X	X						X	X			veg / debris
1534	C				X	7	3	<1				X	X						X			water
1535	D				X	9	6	<1					X						X			water
1536	E				X	11	6	<1			X	X						X	X			veg.
1537	F				X	1253	172														X	
1538	G				X	468	262														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 MS	LB	UB	OB	MAX. PIT DEPTH cm	OILED ZONE cm-cm	SUBSURFACE OIL CHARACTER SAP	OP	PP	OR	OF	TR	NO	WATER TABLE cm	SHEEN COLOUR B, R, S, N	CLEAN BELOW Yes / No	SUBST. TYPE(S)

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 - STAINED GRASS AND LIGHT COATING ON VEGETATION. SURFICIAL OIL ON GROUND SURFACE & ~~GRASS~~ STRAW GRASS. NATURAL ATTENUATION. NFT. NOT EASILY TRANSFERABLE

Zone B - LIGHT COATING, SPORATIC ON VEGETATION. EASILY TRANSFERABLE. ACTION RECOMENDED HOT SHOT CREW TO SURGICALLY REMOVE DEBRIS. ABOUT 2 BAGS GENERATED NFT

Zone C - LIGHT SILVER SHEEN ON BACKSLOUGH. ADJACENT STAIN STRAW GRASS, LAIN FLAT AND STAINED W/ OIL. NATURAL ATTENUATION RECOMENDED NFT

Zone D - LIGHT SILVER SHEEN ON ABOUT 1/3 OF A 3m x 3m POND. NATURAL ATTENUATION REC. NFT

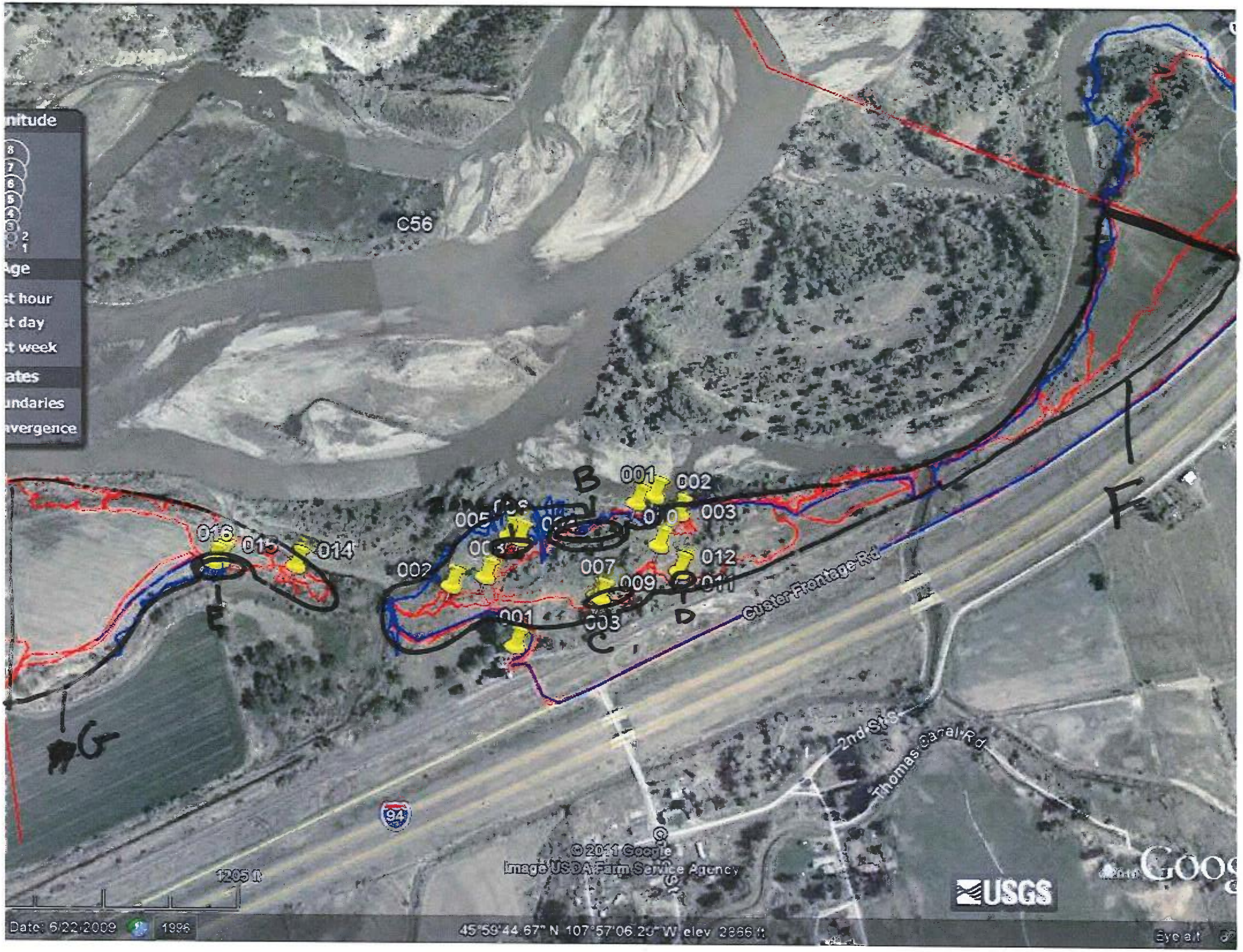
Zone E - LIGHT COAT. EASILY TRANSFERABLE ON VEGETATION LOCATED ON OBLENDER PROPERTY

Sketch Yes / No Photos Yes / No Frames _____ Photographer _____

→ HOT SHOT CREW DEPLOYED TO SURGICALLY REMOVE VEGETATION. NFT

Zone F & G NO OILING TO LIGHT STAIN. NO ACTION RECOMENDED. IF OILED NATURAL ATTENUATION REC. NFT

Ver. 04 July 2011



nitude
Age
st hour
st day
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C56
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003
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D
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F
G
Custer Frontage Rd
2nd St S
Thomas Canal Rd
94
© 2011 Google
Image USDA Farm Service Agency
1205 ft
USGS
Date: 6/22/2009
1996
45°59'44.67" N 107°57'06.20" W elev 2866 ft
Eye alt

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C 516 (Left Bank) / Right Bank / Island	25/07/11	1203 hrs to 1208 hrs (falling) steady – rising	low - mean - (bankfull) overbank
Operations Division: C			
Survey by: Foot / ATV (Boat) / Helicopter / Overlook / _____	(Sun) / Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp + / - 25 deg C

2 SURVEY TEAM # 6

Name	Organization	Signature
Chelsea Murphy	Cardno ENTRIX	[signature]
David Rouse	US Fish and Wildlife	
Jay Watson	MT Fish Wildlife and Parks	

3 SEGMENT Total Segment/Reach Length ~1,520 m Segment/Reach Length Surveyed ~1,625 m

Start GPS: LATITUDE 46 deg. 0.214 min. LONGITUDE 107 deg. 56.879 min. Datum: WGS 84

End GPS: LATITUDE 46 deg. 59.949 min. LONGITUDE 107 deg. 57.998 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: ____

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/silt

Sloped:___(>5°)(15°)(30°) | straight_____ braided P oxbow_____ flood plain valley_____ | Forested (Vegetated) Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width : < 1m 1–10 m 10–100 m (>100m) 160m | 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 _____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	
1319 A			P		1625	<1	Ø													P	reg/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	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	cm	B, R, S, N	Yes / No	

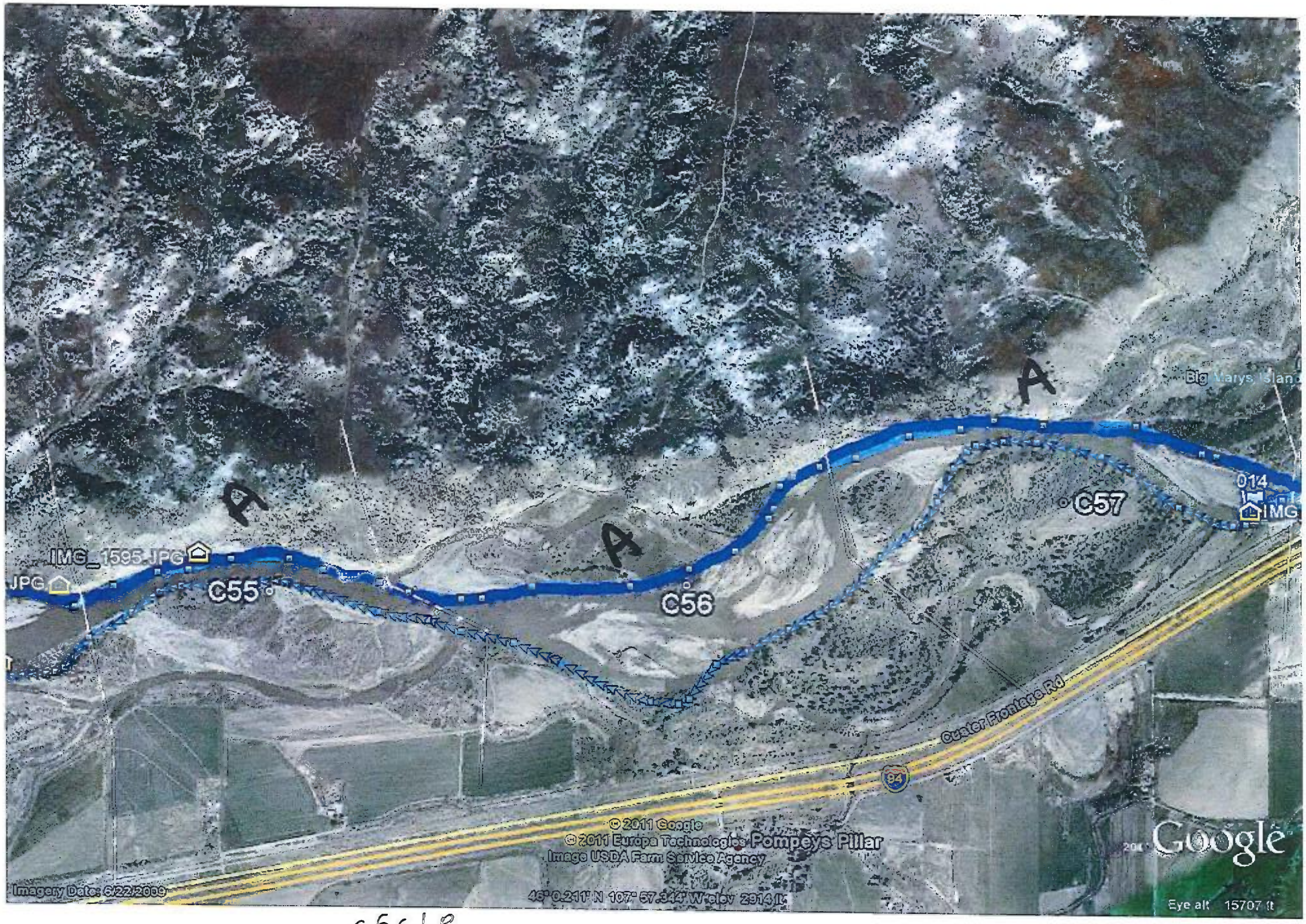
8 COMMENTS ecological/recreational/cultural/economic constraints - shorezone biota and wildlife observations - cleanup recommendations

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

Zone A - NOO - NFT

Sketch (Yes) / No Photos Yes / (No) Frames_____ Photographer_____

Ver. 04 July 2011



C56LB
Team 6
25/07/11

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 3

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C56 (Left Bank) / Right Bank / Island	18/08/11	1255 1320	low (mean) bankfull - overbank
Operations Division: C		~~1000~~ hrs to ~~10~~ hrs	falling / steady – rising
Survey by: (Foot) / ATV / (Boat) / Helicopter / Overlook / _____		(Sun) / (Clouds) / Fog / Rain / Snow / Windy / Calm	Air Temp + / - 29 deg C

2 SURVEY TEAM # 3, 4

Name	Organization	Signature
Damien Kerte	Cardno Entrix	
Daniel Elefant	Cardno Entrix	
Dusty Crowe	BLM	
Fred Left Hand	Crow Tribe THPO	
Jeffrey Herrick	DEQ	
Lance Richman	EPA	
Rachelle Thompson	EPA	

3 SEGMENT Total Segment/Reach Length 1570 m Segment/Reach Length Surveyed 1570 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 P Shelf____ | Manmade: Solid___ Permeable___ (type)____ | Wetland: Swamp____ Bog/Fen____ Marsh _____

Sediment Bank: Clay/Mud____ Sand____ Mixed S Pebble/Cobble____ Boulder____ Peat/Organic____ | Vegetated Bank: (S) | 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 50 m | canyon____ manmade____ meander ____ confined or leveed ____ | Substrate Type: Sandstone

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 1–10 m (10–100 m) >100m | 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 ____ trucks | access restrictions Steep bluffs

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 MS	LB	UB	OB	OIL COVER Length m	Width m	Distrib. %	OIL THICKNESS TO	CV	CT	ST	FL	OIL CHARACTER FR	MS	TB	PT	TC	SR	AP	NO	SUBST. TYPE(S)
1655 A			✓		260	5	0													✓	
1656 B			✓		10	5	~~10~~ <1			S	P						✓				Grass
1657 C			✓		510	70	0													✓	
1658 D			✓		30	30	<1			P	S						✓				Shrub
1659 E			✓		100	10	<1			S	P						✓				Grass
1660 F			✓		3	3	<1			P	S						✓				Debris pile
1661 G			✓		660	660	0													✓	

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

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

Zones A, C, G - NOO
Zones B, E~~H~~ Primarily stain on grass with coat, very light, NFT
Zone D - Primarily coat on shrub with stain, very light, NFT
Zone F - Primarily coat on very small debris pile with stain, very light, NFT
Zone I - NOO
Zone J - NFT - Shrub with primarily tar coat, very light
Zone K - NFT - Stain on grass Zone L - NOO

Sketch (Yes) / No Photos (Yes) / No Frames/Photographer: DK

Ver. 31 July 2011

DB

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C 56 (Left Bank / Right Bank / Island)	18/08/11	1255 hrs to 1320 hrs	low - mean - bankfull - overbank
Operations Division: C			falling - steady – rising
Survey by: Foot / ATV / Boat / Helicopter / Overlook / _____	Sun / Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp + / - 29 deg C

2 SURVEY TEAM # 3

Name	Organization	Signature
Daryl Reed	DEQ	Daryl Reed

3 SEGMENT *Total Segment/Reach Length* _____ *m* *Segment/Reach Length Surveyed* _____ *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:*_____ | *Wooded Upland:* ____

Sediment Flat: Clay/Mud_____ Sand_____ Mixed/Coarse_____ | *Other:* _____ | If snow and ice use Winter River SOS

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

Cliff or Bluff:____Est Height _____m | canyon_____ manmade_____ meander _____ confined or leveed _____ | Substrate Type: _____

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 1–10 m 10–100 m >100m **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 _____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	
1662 A H			✓		10	5	<1			S	P						✓				Grass
1692 I				X	388	150														X	
1693 J		X			3	3	<1			P	S						✓				Sryon
1694 K		X			3	3	<1				P						✓				GRASS
1695 L				X	760	190														X	

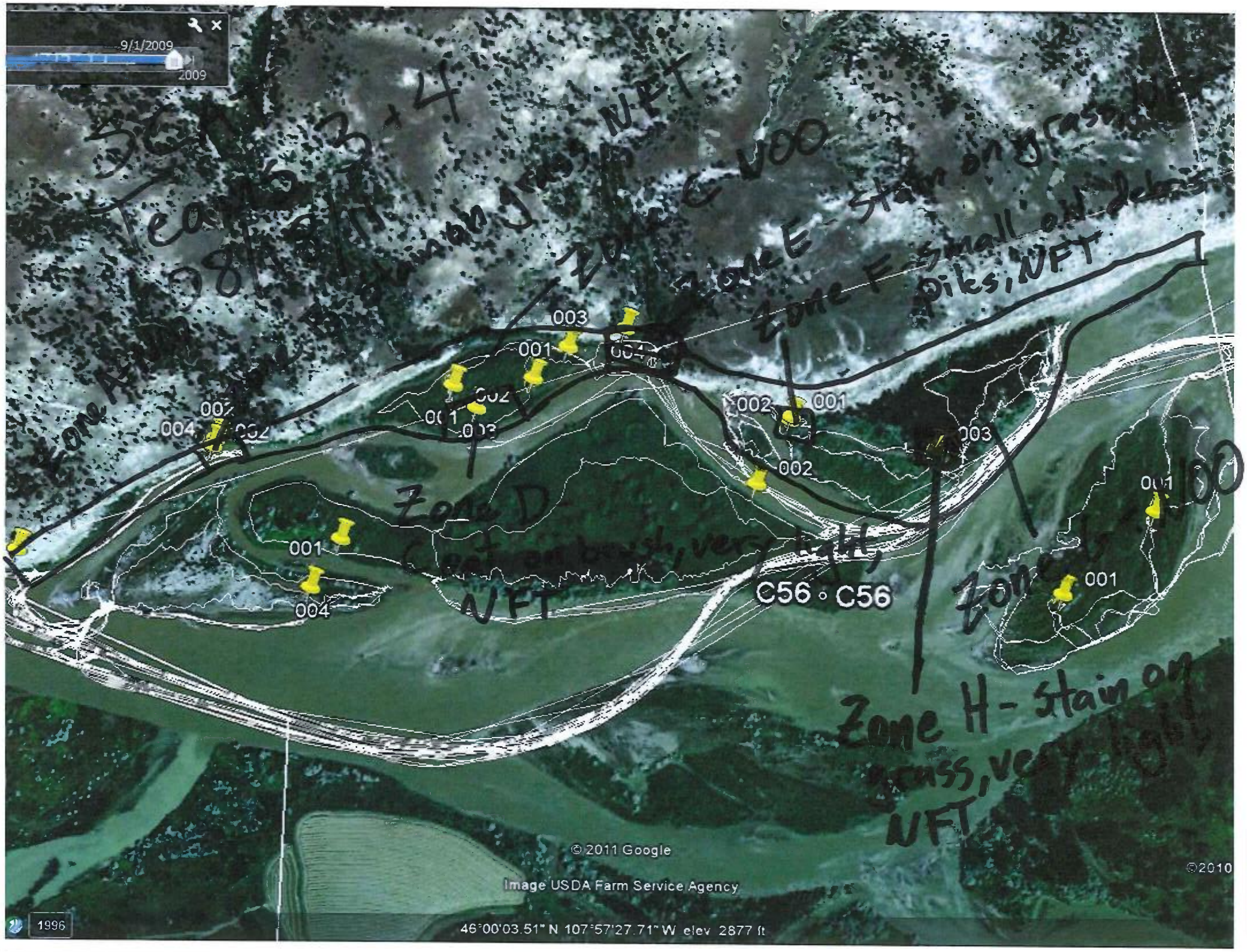
7 SUBSURFACE OILING CONDITIONS *use letter for ZONE location plus Number of pit or trench — e.g., "A1"*

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

Sketch Yes / No **Photos** Yes / No **Frames/Photographer:** _____


9/1/2009
2009
SEA
Zone C NOO
Zone E - Stain on grass
Zone F small oil debris
piles, NFT
003
001
004
002
001
002
003
002
001
004
Zone D
NFT
C56 ◦ C56
001
001
Zone H - Stain on
grass, very high
NFT
© 2011 Google
Image USDA Farm Service Agency
©2010
1996
46°00'03.51" N 107°57'27.71" W elev 2877 ft

9/1/2009
2009
003
001
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C56 • C56
ORIGINAL
© 2011 Google
Image USDA Farm Service Agency
©2010
1996
46°00'03.51" N 107°57'27.71" W elev 2877 ft

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident DB/G

Split by Segment CC 8/22/11
See Original for Signatures

1 GENERAL INFORMATION

Segment/Reach ID: C56 Left Bank / Right Bank / Island

Operations Division: C

Date (dd/mm/yy): 18/08/11

Time (24h): std / daylight 1000 hrs to 1255 hrs

Water Level: low - mean - bankfull - overbank; falling - steady – rising

Survey by: Foot / ATV / Boat / Helicopter / Overlook / _____ Sun / Clouds / Fog / Rain / Snow / Windy / Calm

Air Temp + / - 29 deg C

2 SURVEY TEAM # 3 & 4

Name	Organization	Signature
Damien Korte	Cardno ENTRIX	
Daniel Elefant	Cardno ENTRIX	
Dusty Crowe	BLM	
Fred Left Hand	Crow Tribe THPO	
Jeffrey Herrick	DEQ	
Lance Richman	EPA	
Rachelle ~~Thomas~~ Thompson	EPA	
Daryl Reed	DEQ	

3 SEGMENT

Total Segment/Reach Length _____ m Segment/Reach Length Surveyed 387 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

Cliff or Bluff:____ Est Height _____m | canyon_____ manmade_____ meander _____ confined or leveed _____

Sloped:___(>5°)(15°)(30°) | straight_____ braided ✓ oxbow_____ flood plain valley_____

complete for primary: Substrate Type: Grass; Forested / Vegetated / Bare

4C RIVER CHANNEL CHARACTER

circle or select as appropriate

est. width : < 1m 1–10 m 10–100 m >100m

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 _____ trucks | access restrictions Access by boat only

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	
1689	A				X	385	130														X	
1690	B		X			1	1	<1				P						X				Salix.
1691	C		X			1	1	<1				P						X				Salix.

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)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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

Zone A: NFT - no oiling
B: NFT - stain on willow
C: NFT - stain on willow

Sketch Yes / No Photos Yes / No Frames/Photographer: _____

C56-IS
SCAT 3+4
18 Aug 2011

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 3

ORIGINAL

1 GENERAL INFORMATION

Segment/Reach ID: C56 Left Bank / Right Bank / Island

Operations Division: C

Survey by: Foot / ATV / Boat / Helicopter / Overlook / _____

Date (dd/mm/yy): 18/08/11

Time (24h): std / daylight 1000 hrs to 1255 hrs

Water Level: low - mean - bankfull - overbank; falling - steady – rising

Sun / Cloud / Fog / Rain / Snow / Windy / Calm

Air Temp + / - 29 deg C

2 SURVEY TEAM # 3, 4

Name	Organization	Signature
Darrien Korte	Cardno Entrix	
Daniel Elefant	Cardno Entrix	
Dusty Crowe	Bill	
Fred Left Hand	Crow Tribe THPO	
Jeffrey Herrick	TEQ	
Lance Richman	ERA	
Rachelle Thompson	ERA	

3 SEGMENT

Total Segment/Reach Length 1440 m Segment/Reach Length Surveyed 1440 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 3 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 ____ m | canyon____ manmade____ meander ____ confined or leveed ____

Sloped: ___ (>5°)(15°)(30°) | straight____ braided ✓ oxbow____ flood plain valley____

complete for primary: Substrate Type: Grass | Forested / Vegetated / Bare

4C RIVER CHANNEL CHARACTER

circle or select as appropriate

est. width: < 1m 1–10 m 10–100 m >100m

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 ____ trucks

access restrictions Access by boat only

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 MS	LB	UB	OB	OIL COVER Length m	Width m	Distrib. %	OIL THICKNESS TO	CV	CT	ST	FL	OIL CHARACTER FR	MS	TB	PT	TC	SR	AP	NO	SUBST. TYPE(S)
A		✓			1440	200	∅													✓	
B		✓			3	3	<1			P	S						✓				SHRUB
C		✓			3	3	<1				P						✓				Grass
D		✓			1	1	<1				P						✓				Salix
E		✓			1	1	<1				P						✓				Salix

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

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 - NFT, NOO
B - NFT, SHRUB Primary tarsh coat, very light
C - NFT, stain on grass,
D - NFT, stain on willow
E - NFT, stain on willow

Sketch Yes / No Photos Yes / No Frames/Photographer: DE

Ver. 31 July 2011

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 2 of 3

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C56 Left Bank / Right Bank / Island	18/08/11	1000 hrs to 1255 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 + / - 29 deg C

2 SURVEY TEAM # 3,4

Name	Organization	Signature
Daryl Reed	DEQ	Daryl Reed

3 SEGMENT *Total Segment/Reach Length* _____ *m* *Segment/Reach Length Surveyed* _____ *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:*_____ | *Wooded Upland:* ____

Sediment Flat: Clay/Mud_____ Sand_____ Mixed/Coarse_____ | *Other:* _____ | If snow and ice use Winter River SOS

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

Cliff or Bluff:____Est Height _____m | canyon_____ manmade_____ meander _____ confined or leveed _____ | Substrate Type: _____

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 1–10 m 10–100 m >100m **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 _____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																					

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)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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

Sketch Yes / No **Photos** Yes / No **Frames/Photographer:** _____

Ver. 31 July 2011

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C56
© 2011 Google
Image USDA Farm Service Agency
©2010
1996
46°00'03.51" N 107°57'27.71" W elev 2877 ft

ARCADIS

C57

DB/G/S

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

Page _____ of _____

1 GENERAL INFORMATION

Segment/Reach ID: 057 Left Bank / Right Bank / Island

Operations Division:

Survey by: Foot / ATV / Boat / Helicopter / Overlook / _____

Date (dd/mm/yy): 13/08/11

Time (24h): std / daylight 12:45 hrs to 14:00 hrs

Sun / Clouds / Fog / Rain / Snow / Windy / Calm

Water Level: low - mean - bankfull - overbank; falling - steady – rising

Air Temp + / - 32 deg C

2 SURVEY TEAM # 5

Name	Organization	Signature
Marcile Sigler	DEQ	Marcile Sigler
LISA GERENCHERS	Cardno ENTRIX	[illegible]
RON LYNN	USCG	[illegible]
Matt DeLong	Hot Shot	Matthew DeLong

3 SEGMENT

Total Segment/Reach Length 1124 m Segment/Reach Length Surveyed 1054 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: S | Wooded Upland: [illegible]

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 X confined or leveed ____

Sloped: ____ (>5°)(15°)(30°) | straight ____ braided ____ oxbow ____ flood plain valley ____

complete for primary: Substrate Type: mixed; Forested / Vegetated / Bare

4C RIVER CHANNEL CHARACTER

circle or select as appropriate

est. width: < 1m 1–10 m 10–100 m >100m 160m

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 ____ trucks

access restrictions MAIN ISLAND OF THE SEGMENT

Oiled trees/shrubs Y / N River Current strong Y / N

Other Features: ONLY ACCESSIBLE BY BOAT

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 MS	LB	UB	OB	OIL COVER Length m	Width m	Distrib. %	OIL THICKNESS TO	CV	CT	ST	FL	OIL CHARACTER FR	MS	TB	PT	TC	SR	AP	NO	SUBST. TYPE(S)
1539 A				X	1054	334														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 MS	LB	UB	OB	MAX. PIT DEPTH cm	OILED ZONE cm-cm	SUBSURFACE OIL CHARACTER SAP	OP	PP	OR	OF	TR	NO	WATER TABLE cm	SHEEN COLOUR B, R, S, N	CLEAN BELOW Yes / No	SUBST. TYPE(S)

8 COMMENTS

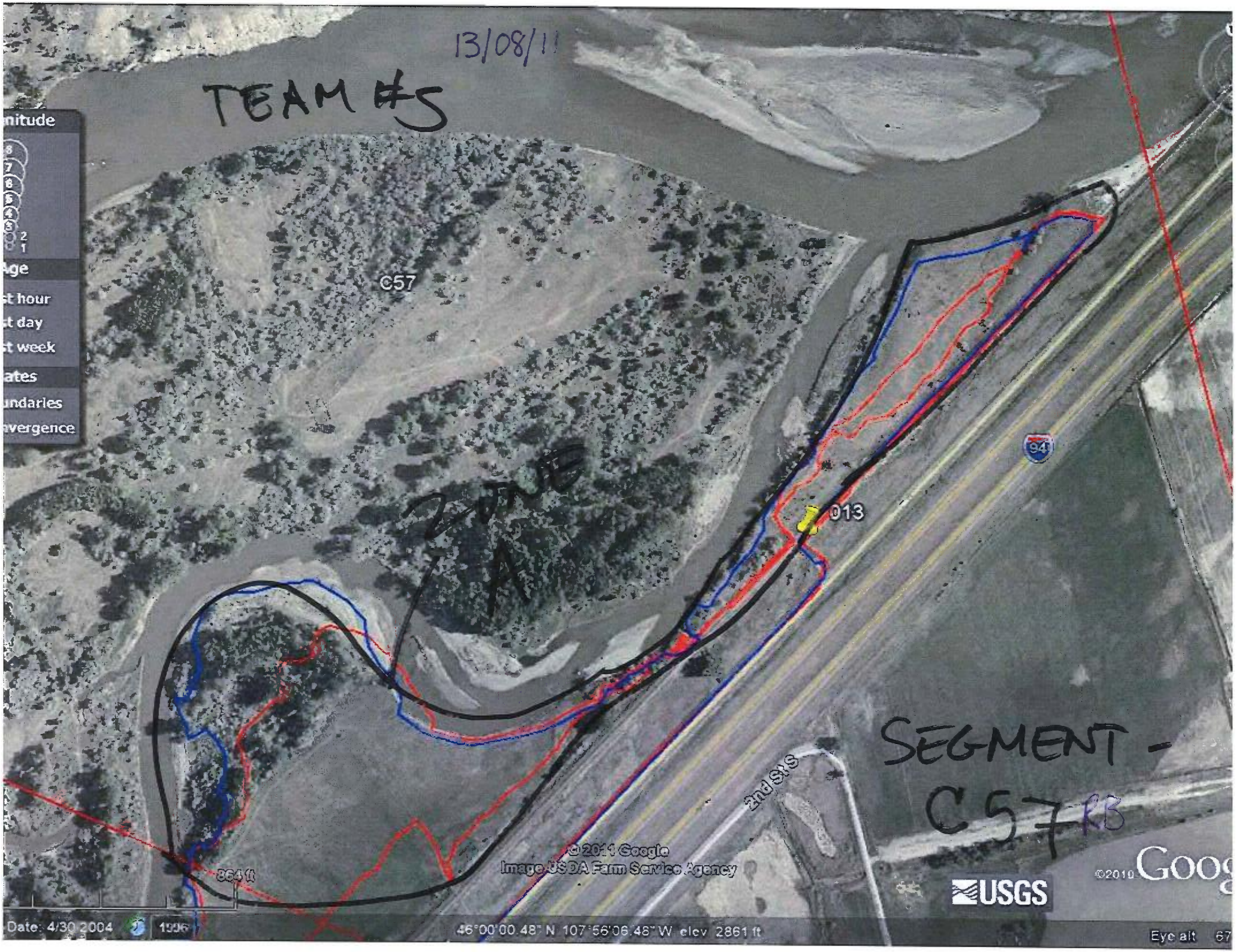
ecological/recreational/cultural/economic constraints - shorezone biota and wildlife observations - cleanup recommendations

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

Zone A - NO OILING OBSERVED ALONG SEGMENT

NO ACTION REQUIRED

Sketch Yes / No Photos Yes / No Frames _____ Photographer _____


13/08/11
TEAM #5
nitude
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C57
ZONE A
013
94
SEGMENT - C57 RB
2nd St S
© 2011 Google
Image USDA Farm Service Agency
864 ft
USGS
©2010 Goog
Date: 4/30/2004
1996
46°00'00.48" N 107°56'06.48" W elev 2861 ft
Eye alt 67

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C 57 (Left Bank) / Right Bank / Island	25/07/11	1201 hrs to ~~1200~~ 1203 hrs (falling) steady – rising	low - mean (bankfull) overbank
Operations Division: C			
Survey by: Foot / ATV (Boat) / Helicopter / Overlook / _____	(Sun) / Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp + / - 25 deg C

2 SURVEY TEAM # 6

Name	Organization	Signature
Chelsea Murphy	Cardno ENTRIX	[signature]
David Rouse	US Fish and Wildlife	
Jay Watson	MT Fish Wildlife and Parks	

3 SEGMENT Total Segment/Reach Length ~ 1,600 m Segment/Reach Length Surveyed ~ 1,700 m

Start GPS: LATITUDE 46 deg. 0.184 min. LONGITUDE 107 deg. 55.617 min. Datum: WGS 84

End GPS: LATITUDE 46 deg. 0.216 min. LONGITUDE 107 deg. 56.881 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: ____

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/silt

Sloped: ___ (>5°)(15°)(30°) | straight____ braided P___ oxbow____ flood plain valley____ | Forested (Vegetated) Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width : < 1m 1–10 m 10–100 m (>100m) 160m | 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 ____ 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	
1313 A			P		1700	<1	Ø													P	mud/veg

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

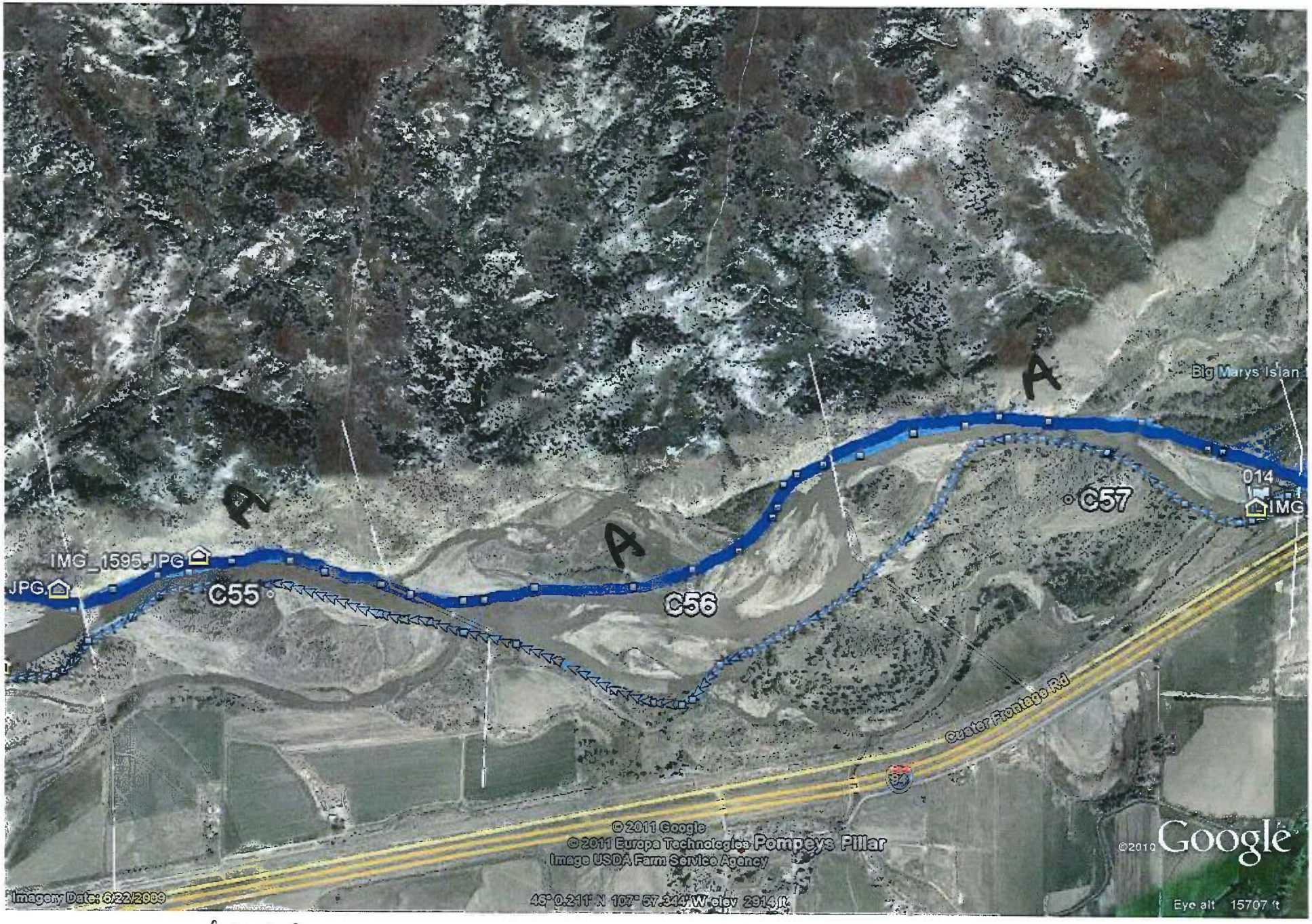
TRENCH or PIT NO.	RIVER BANK ZONE				MAX. PIT DEPTH	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	cm	B, R, S, N	Yes / No	

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

Zone A - NOO - NFT

Sketch (Yes) / No Photos Yes / (No) Frames_____ Photographer_____



C57LB
Team 6
25/07/11

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page ____ of ____

1 GENERAL INFORMATION

Segment/Reach ID: C57 (Left Bank) / Right Bank / Island

Operations Division: C

Date (dd/mm/yy): 16/08/11

Time (24h): std / daylight 0912 hrs to 1305 hrs

Water Level: low - (mean) - bankfull - overbank; (falling) - steady – rising

Survey by: (Foot) / ATV / Boat / Helicopter / Overlook / ____

(Sun) / Clouds / Fog / Rain / Snow / Windy / Calm

Air Temp + / - 26 deg C

2 SURVEY TEAM # 1 + 2

Name	Organization	Signature
Joe Busalacchi	Cardno Entrix	See
John Davis	USCG	attached
Donnie McCurry	DEQ	
Adam Bausch + Daniel Elefant	Cardno Entrix	
Rachelle Thompson	EPA	
Matthew Kent	DEQ	
Shawn Danforth	Cultural Resources	

3 SEGMENT Total Segment/Reach Length ____ m Segment/Reach Length Surveyed 600 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: S Wooded Upland: P

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

4B RIVER VALLEY CHARACTER select as appropriate complete for primary

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

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

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width: < 1m 1–10 m 10–100 m (>100m) 160m 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 ____ trucks access restrictions

Oiled trees/shrubs Y (N) River Current strong (Y) / N Other Features: Boat access

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	
9435 A				X	600	320														X	

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

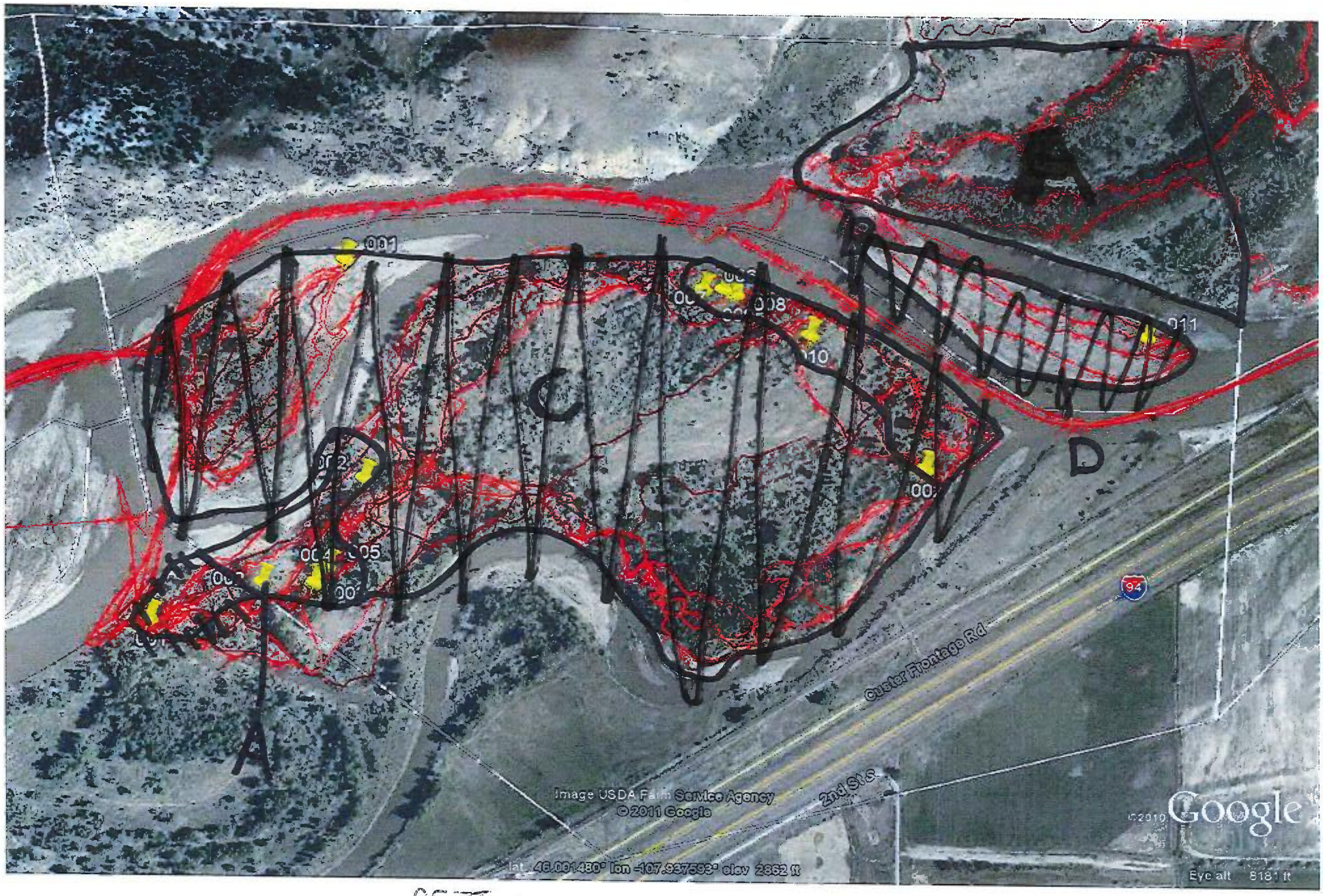
TRENCH or PIT NO.	RIVER BANK ZONE				MAX. PIT DEPTH	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	cm	B, R, S, N	Yes / No	

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

A = NOO

Sketch Yes / No Photos Yes / No Frames ____ Photographer ____



05TI
Teams 1 + 2
16/08/11

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page _____ of _____

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C57 Left Bank / Right Bank / Island	16/08/11	0912 hrs to 1305 hrs	low - mean - bankfull - overbank
Operations Division: C			falling - steady – rising
Survey by: Foot / ATV / Boat / Helicopter / Overlook / _____		Sun / Clouds / Fog / Rain / Snow / Windy / Calm	Air Temp + / - 26 deg C

2 SURVEY TEAM # 1,2

Name	Organization	Signature
Joe Busalacchi	Cardno Entrix	
John Davis	USCG	
Donnie McCurry	DEQ	
Adam Bausch	Cardno Entrix	
Daniel Elefant	Cardno Entrix	
Rachelle Thompson	EPA	
Matthew Kent	DEQ	
Shawn Danforth	Cultural Resources	

3 SEGMENT Total Segment/Reach Length 1602 m Segment/Reach Length Surveyed 2,870 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: S | Wooded Upland: P

Sediment Flat: Clay/Mud____ Sand____ Mixed/Coarse X | Other: ____ | If snow and ice use Winter River SOS

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

Cliff or Bluff: ____ Est Height ____ m | canyon____ manmade____ meander ____ confined or leveed ____ | Substrate Type: Mixed

Sloped: ____ (>5°)(15°)(30°) | straight____ braided X oxbow____ flood plain valley____ | Forested / Vegetated / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width : < 1m 1–10 m 10–100 m >100m 160m | 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 ____ trucks | access restrictions

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

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	
577 A				x	230	75	<1			X	X						X	X			Veg / Debris
578 B				x	490	100	<1			X	X						X	X		X	Veg / Debris
579 C				X	1,085	430														X	
580 D				x	975	120														X	
581 E				X	600	320														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	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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

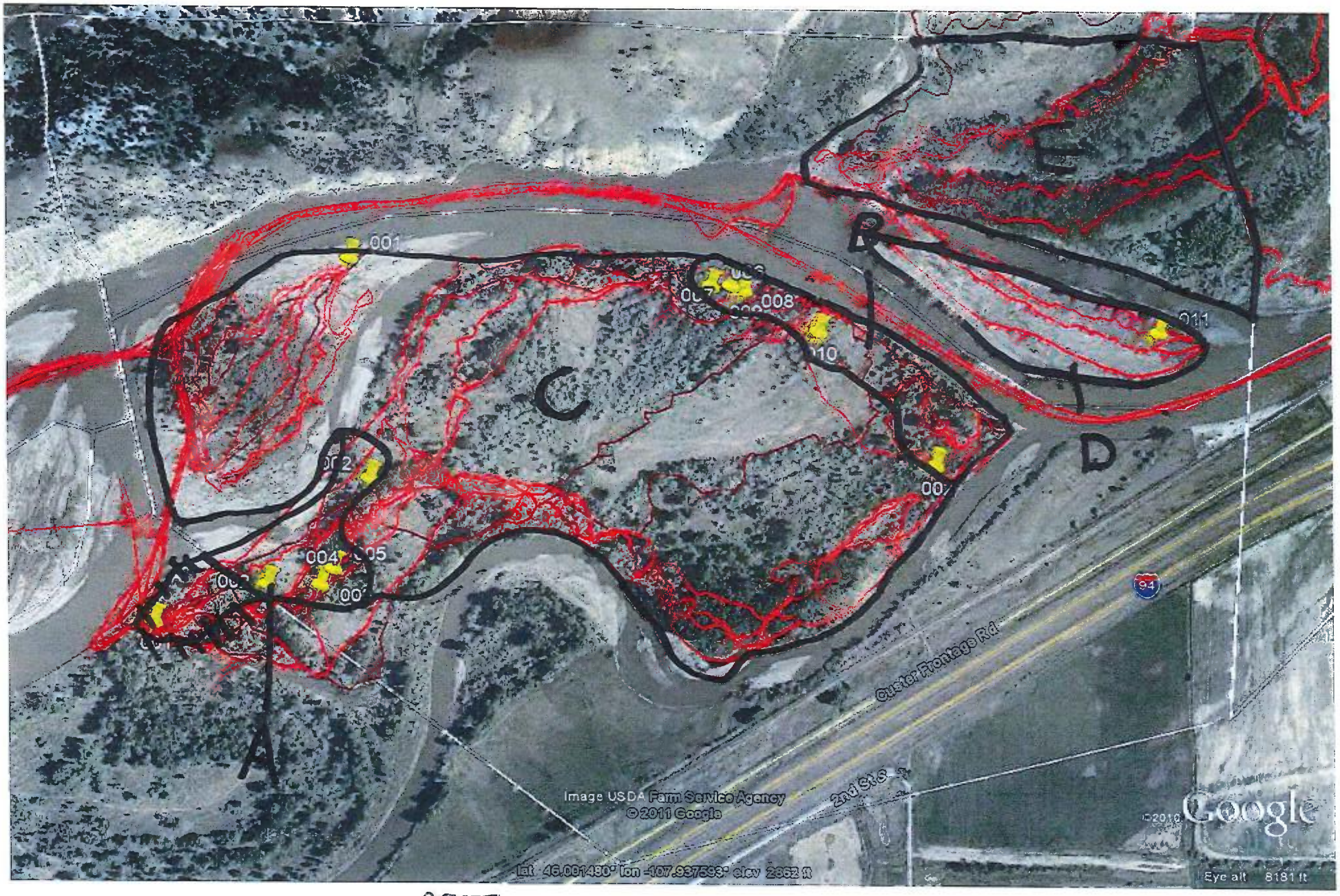
Zone A - Trace Coat / Stain on willow and other herbaceous veg.
3 small Debris areas w LT coat - NFT

Zone B - Trace Coat / Stain on willow and other
trace ~~small~~ areas of Debris w/ LT coat - NFT

Zone C - NOO Zone D - NOO Zone E - N

VOID
split into
LB + IS

Sketch Yes / No Photos Yes / No Frames _____ Photographer _____



05TI
Teams 1 + 2
16/08/11

DB 16

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 2

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C57 (Left Bank) / Right Bank / Island	18/08/11	1330 hrs to 1415 hrs	low / mean - bankfull - overbank
Operations Division: C			falling - steady – rising
Survey by: (Foot) / ATV / (Boat) / Helicopter / Overlook / _____		(Sun) / (Clouds) / Fog / Rain / Snow / Windy / Calm	Air Temp + / - 29 deg C

2 SURVEY TEAM # 3	Name	Organization	Signature
	Damien Korte	Cardno Entrix	
	Lance Richman	EPA	
	Dusty Crowe	BLM	
	Fred Left Hand	Crow Tribe THPO	
	Jeffrey Herrick	DEQ	

3 SEGMENT Total Segment/Reach Length 1560 m Segment/Reach Length Surveyed 1560 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 P Shelf ____ | Manmade: Solid ____ Permeable ____ (type) ____ | Wetland: Swamp ____ Bog/Fen ____ Marsh ____

Sediment Bank: Clay/Mud ____ Sand ____ Mixed S Pebble/Cobble ____ 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 50 m | canyon ____ manmade ____ meander ____ confined or leveed ____ | Substrate Type: Sandstone

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 1–10 m 10–100 m (>100m) | 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 ____ trucks | access restrictions steep bluff

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				✓	1560	160	0													✓	

1663

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)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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

Zone A - NOO

Sketch (Yes) / No Photos Yes / (No) Frames/Photographer: DK

Ver. 31 July 2011

9/1/2009
2009
SCAT
Team 3
04/14/11
005
Big Marys Islan
Zone 1
C57
C57
003
001
© 2011 Google
© 2011 Europa Technologies
Image USDA Farm Service Agency
94
© 2010
1996
46°00'17.61" N 107°56'16.56" W elev 2877 ft

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page ____ of ____

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C57 Left Bank / Right Bank / Island	16/08/11		low - mean - bankfull - overbank
Operations Division: C		0912 hrs to 1305 hrs	falling - steady – rising
Survey by: Foot / ATV / Boat / Helicopter / Overlook / ____	Sun / Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp + / - 26 deg C

2 SURVEY TEAM # 1,2	Name	Organization	Signature
	Joe Busalacchi	Cardno Entrix	
	John Davis	USCG	
	Donnie McCurry	DEQ	
	Adam Bausch	Cardno Entrix	
	Daniel Elefant	Cardno Entrix	
	Rachelle Thompson	EPA	
	Matthew Kent	DEQ	
	Shawn Danforth	Cultural Resources	

3 SEGMENT Total Segment/Reach Length 1602 m Segment/Reach Length Surveyed 2,870 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: S | Wooded Upland: P

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

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

Cliff or Bluff: ____ Est Height ____ m | canyon ____ manmade ____ meander ____ confined or leveed ____ | Substrate Type: Mixed

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

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width: < 1m 1–10 m 10–100 m >100m 160m | 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 ____ trucks | access restrictions

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

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	
1577 A				X	230	75	<1			X	X						X	X			Veg/Debris
1578 B				X	490	100	<1			X	X						X	X		X	Veg/Debris
1579 C				X	1,085	430														X	
1580 D				X	475	120														X	
1581 E				X	600	340														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	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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

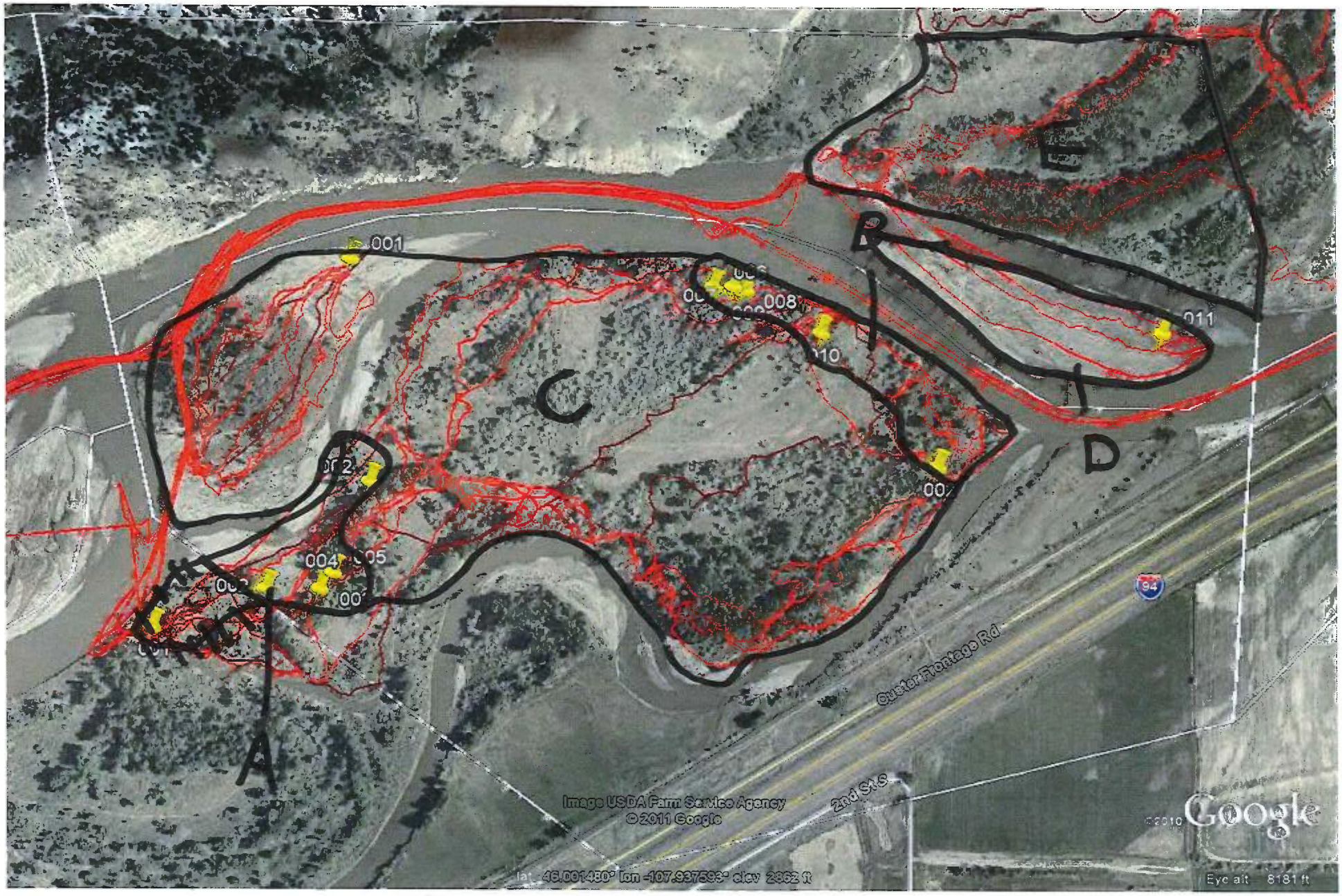
Zone A - Trace Coat / Stain on willow and other herbaceous veg.
3 small Debris areas w LT coat - NFT

Zone B - Trace Coat / Stain on willow and other herbaceous veg.
trace small areas of Debris w/ LT coat - NFT

Zone C - NOO Zone D - NOO ~~Zone E - NOO~~ Zone E moved to C57LBAA 10/09/11

Sketch Yes / No Photos Yes / No Frames ____ Photographer ____

Ver. 04 July 2011



05TI
Teams 1 + 2
16/08/11

ARCADIS

C58

DB 16

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

ORIGINAL

1 GENERAL INFORMATION

Segment/Reach ID: 58 Left Bank / Right Bank / Island

Operations Division: C

Survey by: Foot / ATV / Boat / Helicopter / Overlook / _____ Sun / Clouds / Fog / Rain / Snow / Windy / Calm

Date (dd/mm/yy): 8/19/11

Time (24h): std / daylight 940 hrs to 1050 hrs

Water Level: low - mean - bankfull - overbank; falling - steady – rising

Air Temp + / - 28 deg C

2 SURVEY TEAM # 2

Name	Organization	Signature
DANIEL ELEFANT	CARDNO - ENTRIX	[illegible]
ALICIA TAYLOR	USCG	[illegible]
JOE BOYLE	CARDNO-ENTRIX	[illegible]
LEE BUREOUGHS	FWP	[illegible]

3 SEGMENT Total Segment/Reach Length 1252 m Segment/Reach Length Surveyed 690 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 P Bog/Fen ___ Marsh ___

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

Sediment Flat: Clay/Mud S 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: VEG.

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 1–10 m 10–100 m >100m | est. water depth: <1 m 1-3m 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 ___ trucks | access restrictions RAILROAD

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 MS	LB	UB	OB	OIL COVER Length m	Width m	Distrib. %	OIL THICKness TO	CV	CT	ST	FL	OIL CHARACTER FR	MS	TB	PT	TC	SR	AP	NO	SUBST. TYPE(S)
A				✓	690	185	5	PE 8/20/11												✓	GRASS/SHRUB
B				✓	200	40	80	10		✓							✓				CATAIL
C				✓	405	50	3			✓							✓				CATAIL

1696 A
1697 B
1698 C

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

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

THE SWAMP.

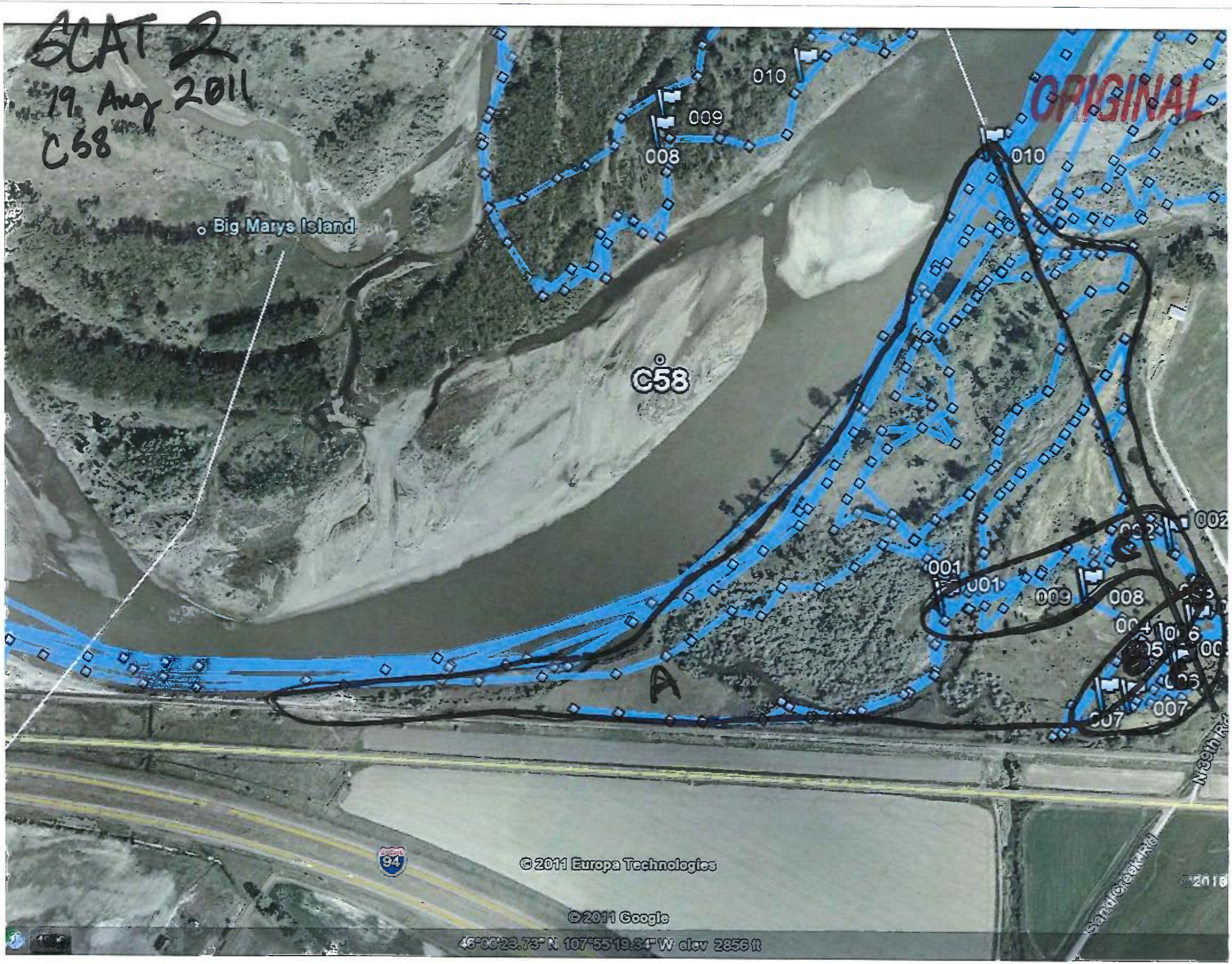
ZONE A – N.O.O. 10 PE 8/20/11

B – NFT, 30% DISTRIBUTION OVER TYPHA LATIFOLIA & SCIRPUS SPP.

C – NFT, <3% DISTRIBUTION ON T. LATIFOLIA

Sketch Yes / No Photos Yes / No Frames/Photographer: ___

Original split into segments By Connor Kobeski / Cardno ENTRIX


SCAT 2
19 Aug 2011
C58
ORIGINAL
Big Marys Island
C58
010
009
008
010
001
001
009
008
002
007
007
A
94
© 2011 Europa Technologies
© 2011 Google
46°00'23.73" N 107°55'19.34" W elev 2856 ft
Sand Creek Rd
N 39th Rd

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION

Segment/Reach ID: C 58 Left Bank / Right Bank / Island

Operations Division: C

Date (dd/mm/yy) 25/07/11

Time (24h): std / daylight 1159 hrs to 1201 hrs falling / steady – rising

Water Level: low - mean - bankfull - overbank

Survey by: Foot / ATV / Boat / Helicopter / Overlook / _____ Sun / Clouds / Fog / Rain / Snow / Windy / Calm

Air Temp + / - 25 deg C

2 SURVEY TEAM # 6

Name	Organization	Signature
Chelsea Murphy	Cardno ENTRIX	[illegible]
David Rouse	US Fish and Wildlife	
Jay Watson	MT Fish Wildlife and Parks	

3 SEGMENT Total Segment/Reach Length ~1,110 m Segment/Reach Length Surveyed ~1,277 m

Start GPS: LATITUDE 46 deg. 0.742 min. LONGITUDE 107 deg. 55.311 min. Datum: WGS 84

End GPS: LATITUDE 46 deg. 0.181 min. LONGITUDE 107 deg. 55.617 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: ____

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/silt

Sloped: ___ (>5°)(15°)(30°) straight_____ braided P oxbow_____ flood plain valley_____ Forested / Vegetated / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width: < 1m 1–10 m 10–100 m >100m 160m 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 _____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	
1314	A			P		350	<1	Ø													P	mud/veg
1315	B			P		38	<1	1%			S	P		P								"
1316	C			P		889	<1	Ø													P	"

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)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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

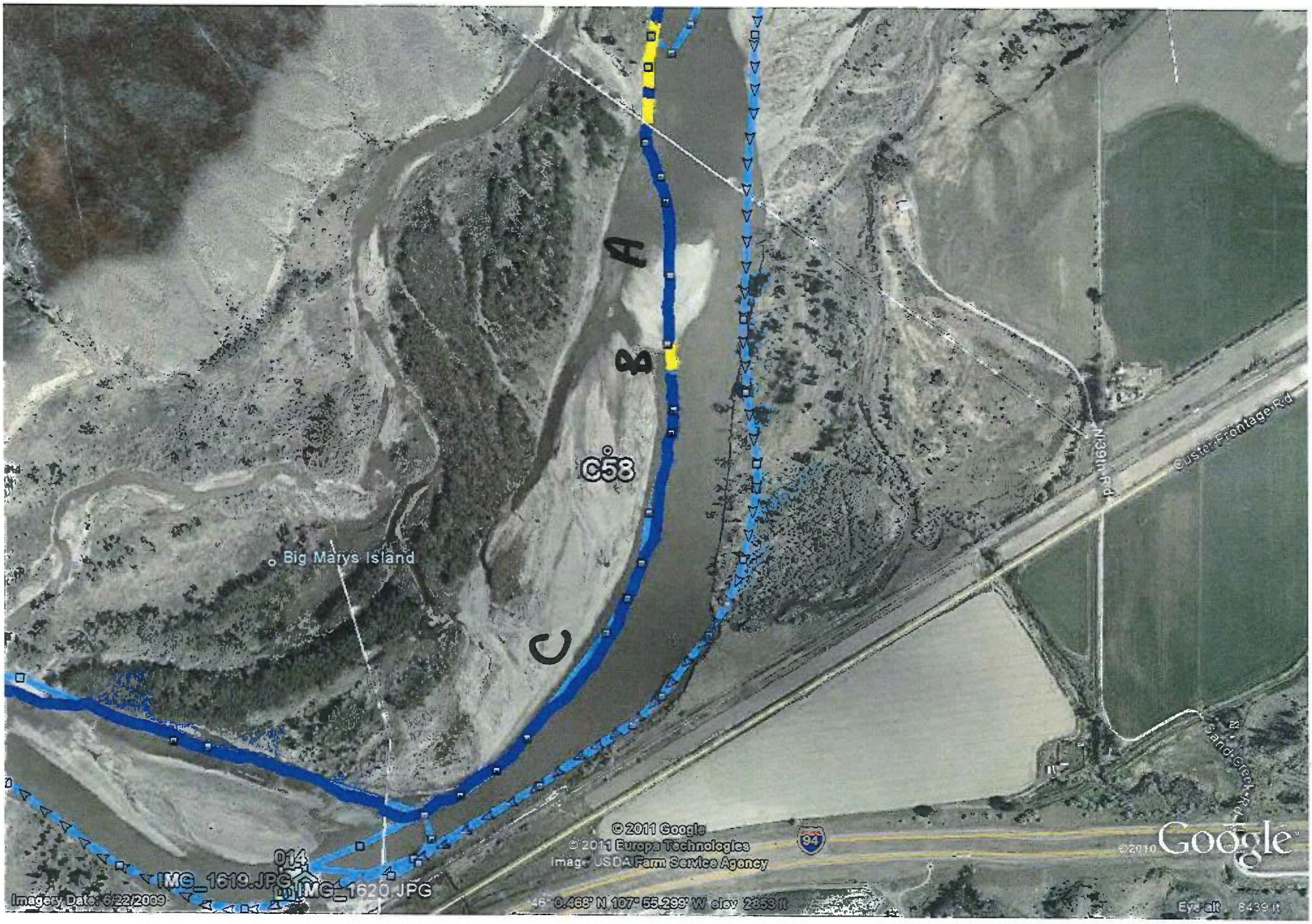
Zone A - NOO - NFT

Zone B - 3" stain - oil band - further SCAT required

Zone C - NOO - NFT

Sketch Yes / No Photos Yes / No Frames 1594 Photographer Chelsea Murphy

Ver. 04 July 2011



C58 LB
Team 6

25/07/11

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page _____ of _____

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C58 (Left Bank) / Right Bank / ~~Island~~	16/08/11		low - mean - bankfull - overbank
Operations Division: C		1306 hrs to 1455 hrs	falling - steady -- rising
Survey by: Foot / ATV / Boat / Helicopter / Overlook / _____		Sun / Clouds / Fog / Rain / Snow / Windy / Calm	Air Temp + / - 26 deg C

2 SURVEY TEAM # 1,2	Name	Organization	Signature
	Joe Busalacchi	Cardno Entrix	
	John Davis	USCG	
	Donnie McCurry	DEQ	
	Adam Bausch	Cardno Entrix	
	Daniel Elefant	Cardno Entrix	
	Rachelle Thompson	EPA	
	Matthew Kent	DEQ	
	Shawn Danforth	Cultural Resources	

3 SEGMENT Total Segment/Reach Length 1,200 m Segment/Reach Length Surveyed 1,075 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: S | Wooded Upland: P

Sediment Flat: Clay/Mud____ Sand____ Mixed/Coarse X | Other: ____ | If snow and ice use Winter River SOS

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

Cliff or Bluff:____ Est Height ____m | canyon____ manmade____ meander ____ confined or leveed ____ | Substrate Type: Mixed

Sloped:___(>5°)(15°)(30°) | straight____ braided X oxbow____ flood plain valley____ | Forested / Vegetated / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width : < 1m 1–10 m 10–100 m >100m 160m | 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 ____ trucks | access restrictions

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

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	
1587 A				X	40	40	<1			X	X						X	X			Veg
1583 B				X	1035	450														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	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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

Zone A - trace soot / stain on willow & herbaceous veg - NFT

Zone B - NOO

Sketch Yes / No Photos Yes / No Frames _____ Photographer _____

Ver. 04 July 2011

C58I
Team 1 + 2
16/08/11

D3/6

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 2

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C53 (Left Bank / Right Bank / Island)	18/08/11	1415 hrs to 1430 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 + / - 29 deg C

2 SURVEY TEAM # 3

Name	Organization	Signature
Damien Korte	Cardno Entrix	
Lance Richman	EPA	
Dusty Crowe	BLM	
Fred Left Hand	Crow Tribe THPO	
Jeffery Herrick	DEQ	

3 SEGMENT Total Segment/Reach Length 660 m Segment/Reach Length Surveyed 660 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 P Shelf ____ | Manmade: Solid ____ Permeable ____ (type) ____ | Wetland: Swamp ____ Bog/Fen ____ Marsh ____

Sediment Bank: Clay/Mud ____ Sand ____ Mixed S Pebble/Cobble ____ 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 50 m | canyon ____ manmade ____ meander ____ confined or leveed ____ | Substrate Type: Sandstone

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 1–10 m (10–100 m) >100m | 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 ____ trucks | access restrictions Steep Bluff

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 MS	LB	UB	OB	OIL COVER Length m	Width m	Distrib. %	OIL THICKNESS TO	CV	CT	ST	FL	OIL CHARACTER FR	MS	TB	PT	TC	SR	AP	NO	SUBST. TYPE(S)
1654 A				✓	660	~~660~~ 100	0													✓	

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

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 - NOO

Sketch (Yes) / No Photos Yes / (No) Frames/Photographer: DK

Ver. 31 July 2011

9/1/2009
2009
SCAT
Team 3
08/18/11
Zone A-NOO
005
Big Marys Island
© 2011 Google
© 2011 Europa Technologies
Image USDA Farm Service Agency
1996
46°00'37.38" N 107°55'39.95" W elev 2858 ft

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

1 GENERAL INFORMATION

Segment/Reach ID: 58 (Left Bank / Right Bank / Island) CK 8/22/11

Operations Division: C

Survey by: (Foot) / ATV / Boat / Helicopter / Overlook / _____

Date (dd/mm/yy): 8/19/11

Time (24h): std / daylight 1220 hrs to 1255 hrs

Water Level: low - (mean) - bankfull - overbank; (falling) - steady – rising

(Sun) / Clouds / Fog / Rain / Snow / Windy / Calm

Air Temp + / - 24 deg C

2 SURVEY TEAM # 2+4

Name	Organization	Signature
ALICIA TAYLOR	USCG	[signature]
DANIEL ELEFANT	CARDNO ENTRIX	[signature]
JOE BOYLE	CARDNO ENTRIX	[signature]
LEE BURROUGHS	FWP	[signature]
DAMIEN KORTE	CARDNO ENTRIX	[signature]
CINDY SANTIAGO	EPA	Cindy E. Santiago

3 SEGMENT

Total Segment/Reach Length 1000 m Segment/Reach Length Surveyed 1000 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 P Mixed ____ Pebble/Cobble ____ Boulder ____ Peat/Organic ____ | Vegetated Bank: (S) | 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

Cliff or Bluff: ____ Est Height ____ m | canyon ____ manmade ____ meander S confined or leveed ____

Sloped: ____ (>5°)(15°)(30°) | straight ____ braided P oxbow ____ flood plain valley ____

complete for primary: Substrate Type: Sand; Forested / (Vegetated) / Bare

4C RIVER CHANNEL CHARACTER

circle or select as appropriate

est. width: < 1m 1–10 m 10–100 m >100m 160m 120

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 ____ trucks

access restrictions Island

Oiled trees/shrubs Y / N River Current strong (Y) / N

Other Features:

6 SURFACE OILING CONDITIONS

begin with "A" in the lowest tidal zone - circle the zone/s that correspond to primary shoreline type

	OIL ZONE ID	RIVER BANK ZONE MS	LB	UB	OB	OIL COVER Length m	Width m	Distrib. %	OIL THICKNESS TO	CV	CT	ST	FL	OIL CHARACTER FR	MS	TB	PT	TC	SR	AP	NO	SUBST. TYPE(S)
1687	A		S	S	✓	1000	150	0													✓	GRAVEL
1688	B		S	S	✓	20 X CK	201 CK	10				✓						✓				GRAVEL
	~~C~~				✓	8/22/11		<1			✓							✓				DEBRIS
																					JB	08/19/11

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

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 - N.O.O.

B - STAIN on veg NFT

~~C - DEBRIS PILES~~ JB 08/19/11

Sketch (Yes) / No Photos Yes / (No) Frames DK Photographer ____

C58
SCAT 2+4
19 Aug 2011
004
011
STAIN
010
009
008
010
Big Marys Island
C58
© 2011 Europa Technologies
Image USDA Farm Service Agency
© 2011 Google
46°00'36.76" N 107°55'29.66" W elev 2856 ft
002
002

ARCADIS

C59

D13/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page _____ of _____

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C59 Left Bank / Right Bank / Island	16/08/11		low - mean - bankfull - overbank
Operations Division: C		14:30 hrs to 3:40 hrs	falling - steady – rising
Survey by: Foot / ATV / Boat / Helicopter / Overlook / _____	Sun / Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp + / - 31 deg C

2 SURVEY TEAM # 3	Name	Organization	Signature
	Lisa Gerencher	Cardno ENTRIX	
	Rich Marty	Polaris	
	Lance Richman	EPA	
	Trevor Selch	FWP	

3 SEGMENT Total Segment/Reach Length 2638 m Segment/Reach Length Surveyed 2135 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: 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°)(15°)(30°) | straight_____ braided X oxbow_____ flood plain valley_____ | Forested / Vegetated / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width : < 1m 1–10 m 10–100 m >100m 160m | 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 <1 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	
1584 A				X	10	10	3				X						X				grass
1585 B				X	2135	135														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	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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

Zone A- Light oiling observed on stained grass; 10 x 10 meter area; 3 % distribution; Natural Attenuation Recommended.

Zone B- No Oiling Observed

Sketch Yes / No Photos Yes / No Frames_____ Photographer_____

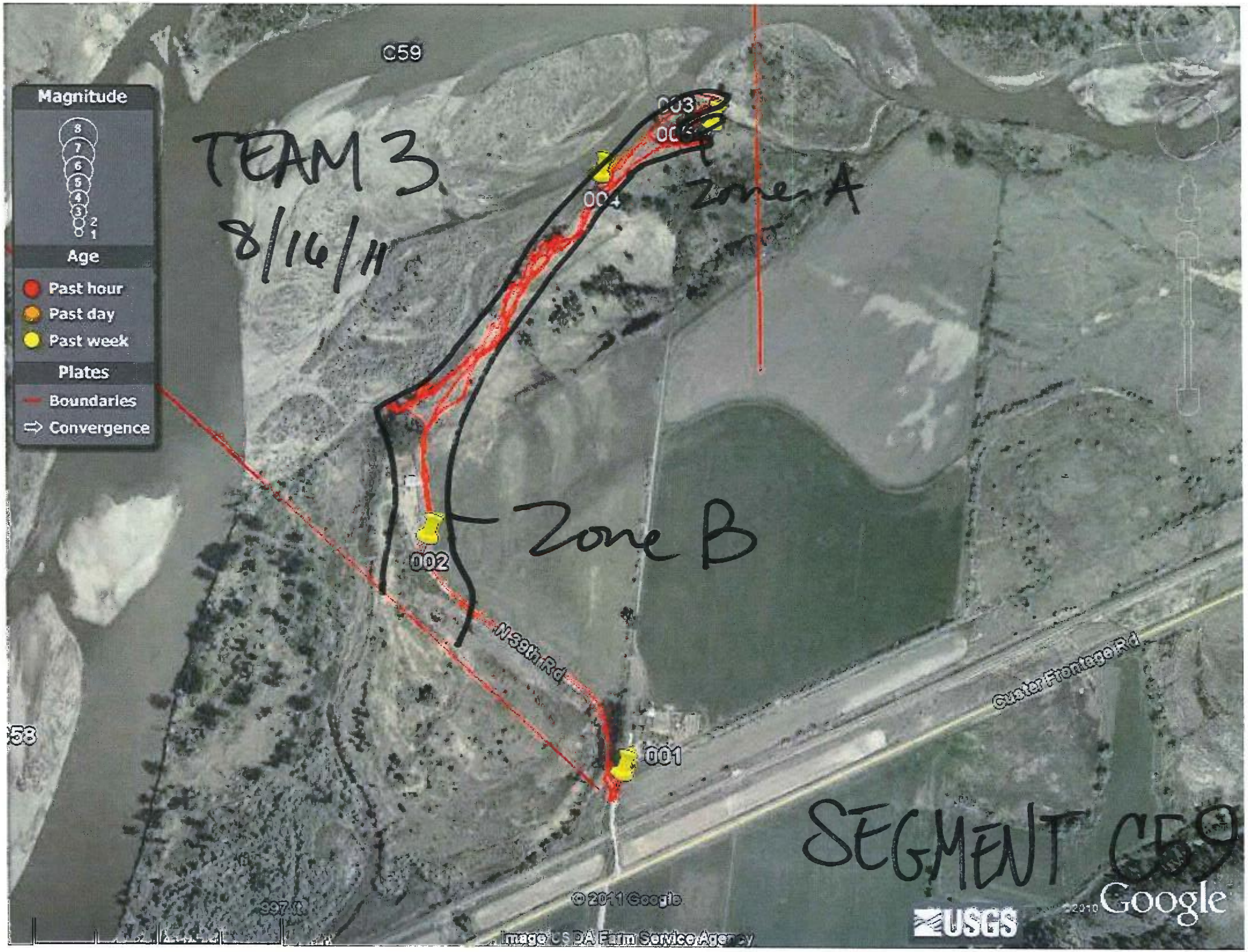

C59
Magnitude
8
7
6
5
4
3
2
1
Age
Past hour
Past day
Past week
Plates
Boundaries
Convergence
TEAM 3
8/16/11
003
004
Zone A
Zone B
002
001
N 38th Rd
Custer Frontage Rd
SEGMENT C59
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Image USDA Farm Service Agency
USGS
Google

DB 16

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

1 GENERAL INFORMATION

Segment/Reach ID: 58 & 59 Left Bank / Right Bank / Island

Operations Division: C CK 8/22/11

Date (dd/mm/yy): 8/19/11

Time (24h): std / daylight 940 hrs to 1050 hr

Water Level: low - mean - bankfull - overbank; 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 # 2

Name	Organization	Signature
DANIEL ELEFANT	CARDNO - ENTRIX	[illegible]
ALICIA TAYLOR	USCG	[illegible]
JOE BOYLE	CARDNO-ENTRIX	[illegible]
LEE BURROUGHS	FWP	[illegible]

3 SEGMENT Total Segment/Reach Length 1252 m Segment/Reach Length Surveyed ~~690~~ 600 m CK 8/22/11

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 P Bog/Fen ___ Marsh ___

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

Sediment Flat: Clay/Mud S 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 ___

Sloped: ___ (>5°)(15°)(30°) | straight ___ braided ✓ P oxbow ___ flood plain valley ___

Substrate Type: VEG.

Forested / Vegetated / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width: < 1m 1–10 m 10–100 m >100m

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 ___ trucks

access restrictions RAIL ROAD

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 MS	LB	UB	OB	OIL COVER Length m	Width m	Distrib. %	OIL THICKNESS TO	CV	CT	ST	FL	OIL CHARACTER FR	MS	TB	PT	TC	SR	AP	NO	SUBST. TYPE(S)
~~A~~				✓	~~690~~	~~185~~	~~[illegible]~~													✓	~~GRASS/SHRUB~~
~~B~~				✓	~~200~~	~~10~~	~~80~~			✓							✓				~~CATTAIL~~
~~C~~				✓	~~405~~	~~50~~	~~[illegible]~~			✓							✓				~~CARDNO~~
A					340	35														X	Grass / Shrub
B					250	35	3			X							X				Cattail

~~686~~ ~~687~~ ~~698~~ 1710 1711

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

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

THE SWAMP.

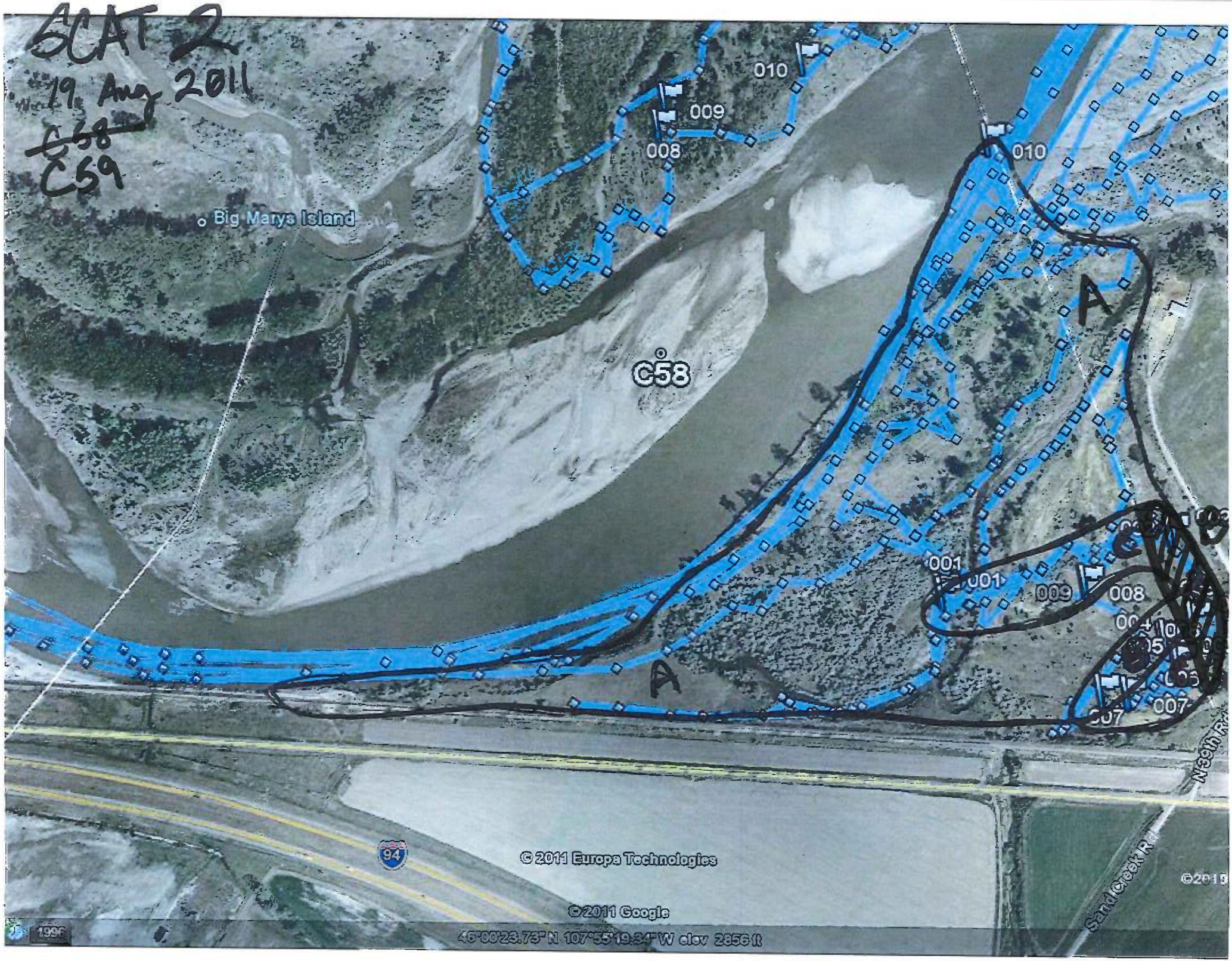
ZONE A – N.O.O. 10 DE 8/20/11

~~B – NET, 30% DISTRIBUTION OVER TYPHA LATIFOLIA + SCIRPUS SP.~~

B - NET, <3% DISTRIBUTION ON T. LATIFOLIA

Sketch Yes / No Photos Yes / No Frames/Photographer: ___

Original split into segments by Connor Kobaski / Cardno ENTRIX


SCAT 2
19 Aug 2011
~~C58~~
C59
Big Marys Island
C58
010
009
008
010
A
001
001
009
008
007
007
A
94
© 2011 Europa Technologies
©2011 Google
46°00'23.73" N 107°55'19.34" W elev 2856 ft
1996
Sand Creek Rd
N 36th Rd

DB 1G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

1 GENERAL INFORMATION

Segment/Reach ID: C 59 (Left Bank) / Right Bank / Island

Operations Division: C

Date (dd/mm/yy): 25/07/11

Time (24h): std / daylight 1156 hrs to 1158 hrs (falling) steady – rising

Water Level: low - mean - (bankfull) overbank

Survey by: Foot / ATV (Boat) / Helicopter / Overlook / _____ (Sun) / Clouds / Fog / Rain / Snow / Windy / Calm

Air Temp + / - 25 deg C

2 SURVEY TEAM # 6

Name	Organization	Signature
Chelsea Murphy	Cardno ENTRIX	[signature]
David Rouse	US Fish and Wildlife	
Jay Watson	MT Fish Wildlife and Parks	

3 SEGMENT Total Segment/Reach Length ~1,010 m Segment/Reach Length Surveyed ~1,030 m

Start GPS: LATITUDE 46 deg. 1.216 min. LONGITUDE 107 deg. 54.920 min. Datum: WGS 84

End GPS: LATITUDE 46 deg. 0.742 min. LONGITUDE 107 deg. 55.310 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: ____

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/silt

Sloped: ___ (>5°)(15°)(30°) | straight____ braided P oxbow____ flood plain valley____ | Forested (Vegetated) Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width: < 1m 1–10 m 10–100 m (>100m) 160m | 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 ____ 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 MS	LB	UB	OB	OIL COVER Length m	Width m	Distrib. %	OIL THICKNESS TO	CV	CT	ST	FL	OIL CHARACTER FR	MS	TB	PT	TC	SR	AP	NO	SUBST. TYPE(S)
1317	A			P		1683	<1	Ø													P	mud/veg
1318	B			P		1166	<1	2%			S	P		P								"
1319	C			P		25	<1	Ø													P	"
1320	D			P		101	<1	2%			S	P		P								"
1321	E			P		15	<1	Ø													P	"
1322	F			P		40	<1	2%			S	P		P								"

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

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 - NOO - NFT

Zone B - small, light oil band - further SCAT required

Zone C - NOO - NFT

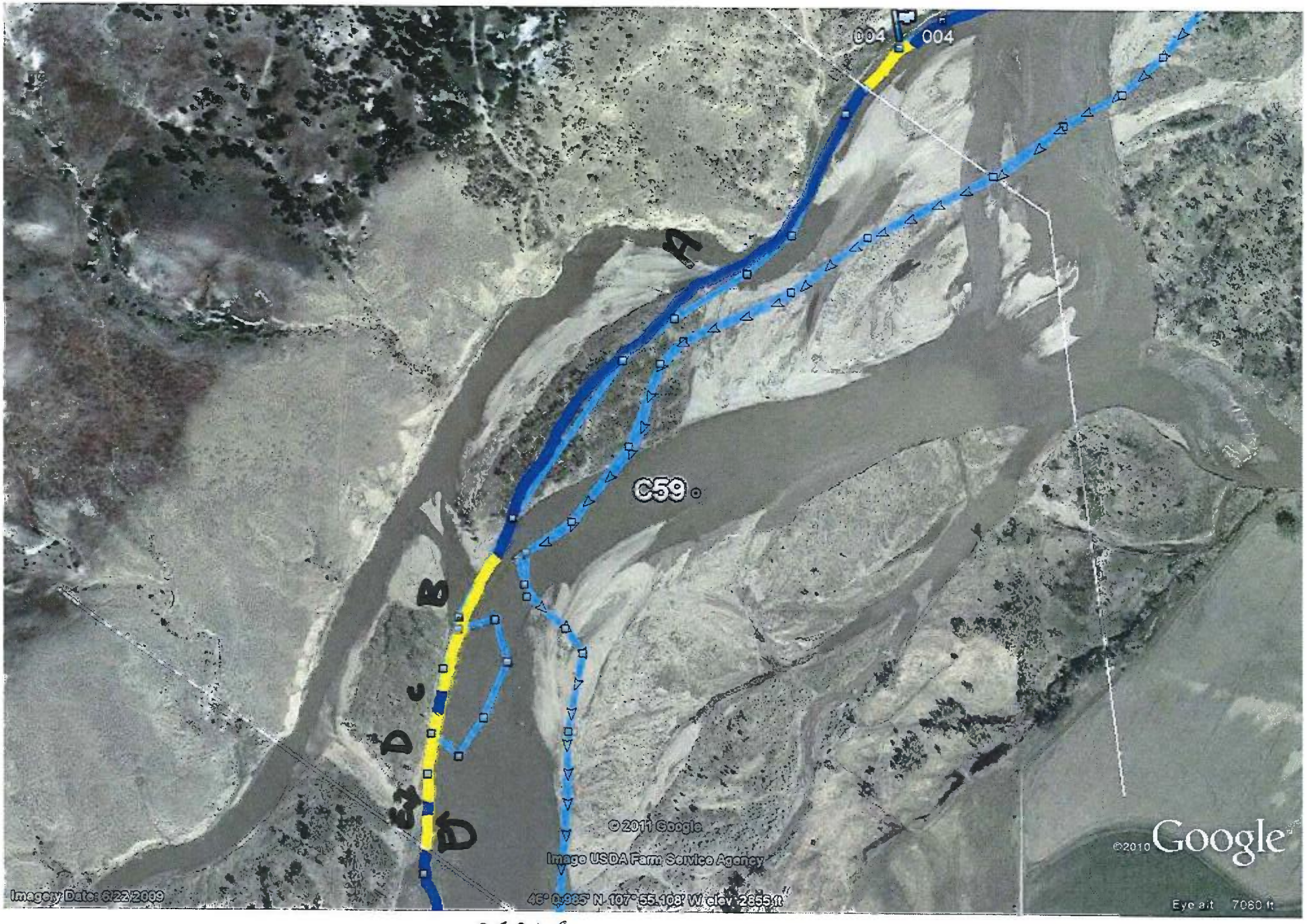
Zone D - 3" band, ~½' ~~band~~ cm above shoreline, - Further SCAT required

Zone E: NOO - NFT

Zone F: 3" band - Further SCAT required.

Sketch (Yes) / No Photos (Yes) / No Frames 1589 – 1593 Photographer Chelsea Murphy

Ver. 04 July 2011



C59LB
Team #6
25/07/11

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 2

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: 59 (Left Bank / Right Bank / Island)	8/19/11	1155 hrs to 1210 hrs	low - mean - bankfull - overbank
Operations Division: C			falling - steady – rising
Survey by: Foot / ATV / (Boat) / Helicopter / Overlook / _____		(Sun) / (Clouds) / Fog / Rain / Snow / Windy / Calm	Air Temp + / - 24 deg C

2 SURVEY TEAM # 2	Name	Organization	Signature
	DANIEL ELEFANT	CARDNO ENTRIX	[illegible]
	ALICIA TAYLOR	USCG	[illegible]
	LEE BURROUGHS	FWP	[illegible]
	JOE BOYLE	CARDNO ENTRIX	[illegible]

3 SEGMENT Total Segment/Reach Length 1000 m Segment/Reach Length Surveyed 1000 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 P 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: ____

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 30 m | canyon ____ manmade ____ meander ____ confined or leveed ____ | Substrate Type: Sandstone

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 1–10 m (10–100 m) >100m | 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 ____ trucks | access restrictions Steep bluffs

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)
					Length	Width	Distrib.														
	MS	LB	UB	OB	m	m	%	TO	CV	CT	ST	FL	FR	MS	TB	PT	TC	SR	AP	NO	
1664 A			✓		1000	5	0													✓	SANDSTONE

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)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	cm	B, R, S, N	Yes / No	

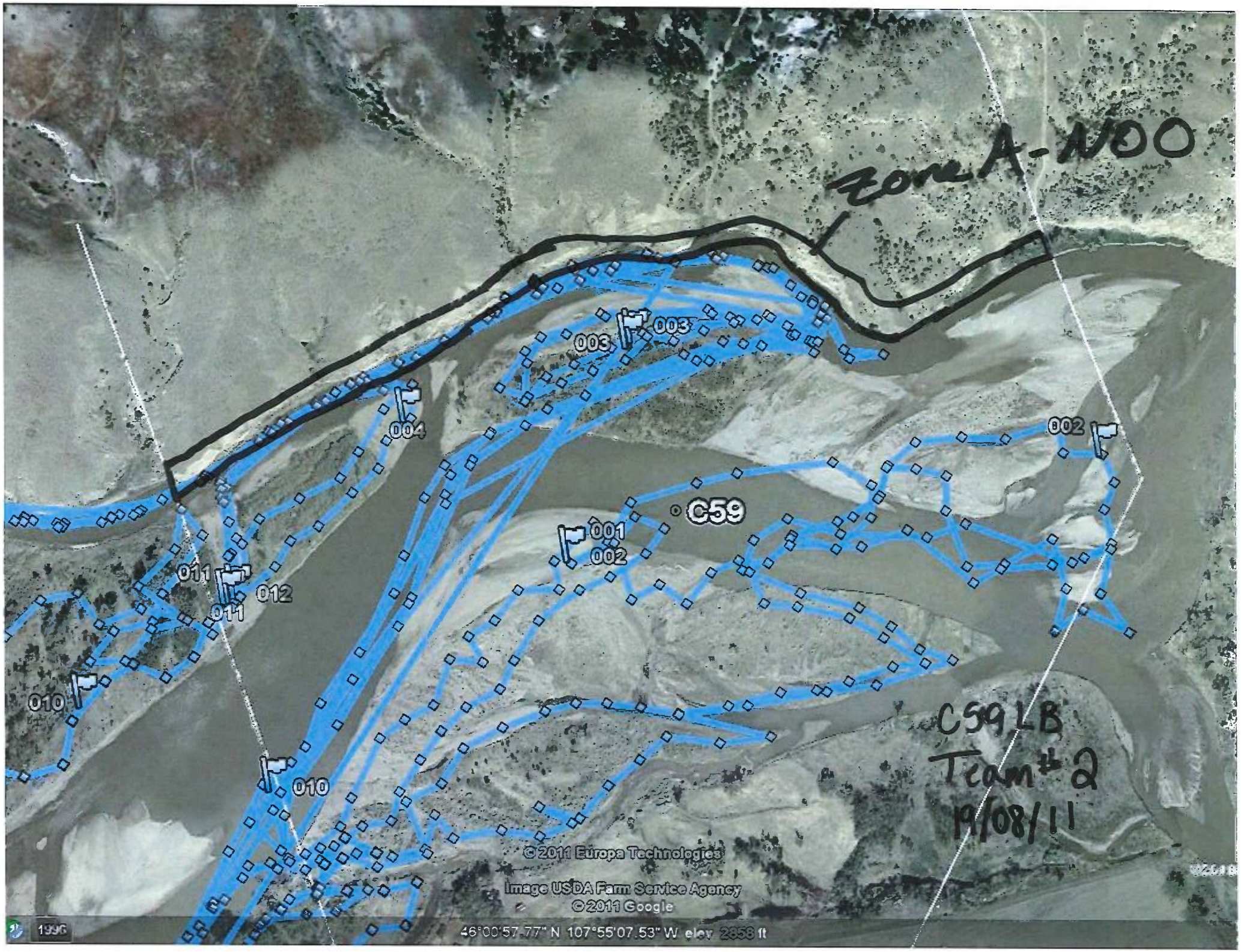
8 COMMENTS ecological/recreational/cultural/economic constraints - shorezone biota and wildlife observations - cleanup recommendations

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

Zone A — N.O.O.

Sketch (Yes) / No Photos Yes / (No) Frames/Photographer: DK

Ver. 31 July 2011


Zone A-NDO
003
003
004
002
C59
001
002
011
012
011
010
010
C59 LB
Team #2
19/08/11
© 2011 Europa Technologies
Image USDA Farm Service Agency
© 2011 Google
1996
46°00'57.77" N 107°55'07.53" W elev 2858 ft

DB/G G2

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

Page _____ of _____

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: ~~C58~~ C59 Left Bank / Right Bank / Island	16/08/11		low - mean - bankfull - overbank
Operations Division: C		1306 hrs to 1455 hrs	falling - steady – rising
Survey by: Foot / ATV / Boat / Helicopter / Overlook / _____	Sun / Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp + / - 2 6 _ deg C

2 SURVEY TEAM # 1,2

Name	Organization	Signature
Joe Busalacchi	Cardno Entrix	[signature]
John Davis	USCG	[signature]
Donnie McCurry	DEQ	[signature]
Adam Bausch	Cardno Entrix	[signature]
Daniel Elefant	Cardno Entrix	[signature]
Rachelle Thompson	EPA	[signature]
Matthew Kent	DEQ	[signature]
Shawn Danforth	Cultural Resources	

3 SEGMENT Total Segment/Reach Length DB ~~[illegible]~~ 989 m Segment/Reach Length Surveyed DB ~~[illegible]~~ 435 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: (S) Wooded Upland: (P)

Sediment Flat: Clay/Mud____ Sand____ Mixed/Coarse X Other: ____ If snow and ice use Winter River SOS

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

Cliff or Bluff:____Est Height ____m canyon____ manmade____ meander ____ confined or leveed ____ Substrate Type: Mixed

Sloped:___(>5°)(15°)(30°) straight____ braided X oxbow____ flood plain valley____ Forested / (Vegetated) / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width : < 1m 1–10 m 10–100 m (>100m) 160m 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 ____trucks access restrictions

Oiled trees/shrubs (Y) / N River Current strong (Y) / N Other Features: Boat Access

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 MS	LB	UB	OB	OIL COVER Length m	Width m	Distrib. %	OIL THICKNESS TO	CV	CT	ST	FL	OIL CHARACTER FR	MS	TB	PT	TC	SR	AP	NO	SUBST. TYPE(S)
~~[illegible]~~	~~[illegible]~~			~~X~~	~~1055~~	~~450~~	~~<1~~			~~(X)~~	~~X~~						~~(X)~~	~~X~~			~~Veg~~
~~[illegible]~~	~~[illegible]~~			~~X~~	~~40~~	~~40~~														X	
1614 A				X	50	85	<1			(X)	X						(X)	X			Veg
1615 B				X	210	125														X	
1616 C				X	175	75	<1			(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 MS	LB	UB	OB	MAX. PIT DEPTH cm	OILED ZONE cm-cm	SUBSURFACE OIL CHARACTER SAP	OP	PP	OR	OF	TR	NO	WATER TABLE cm	SHEEN COLOUR B, R, S, N	CLEAN BELOW Yes / No	SUBST. TYPE(S)

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

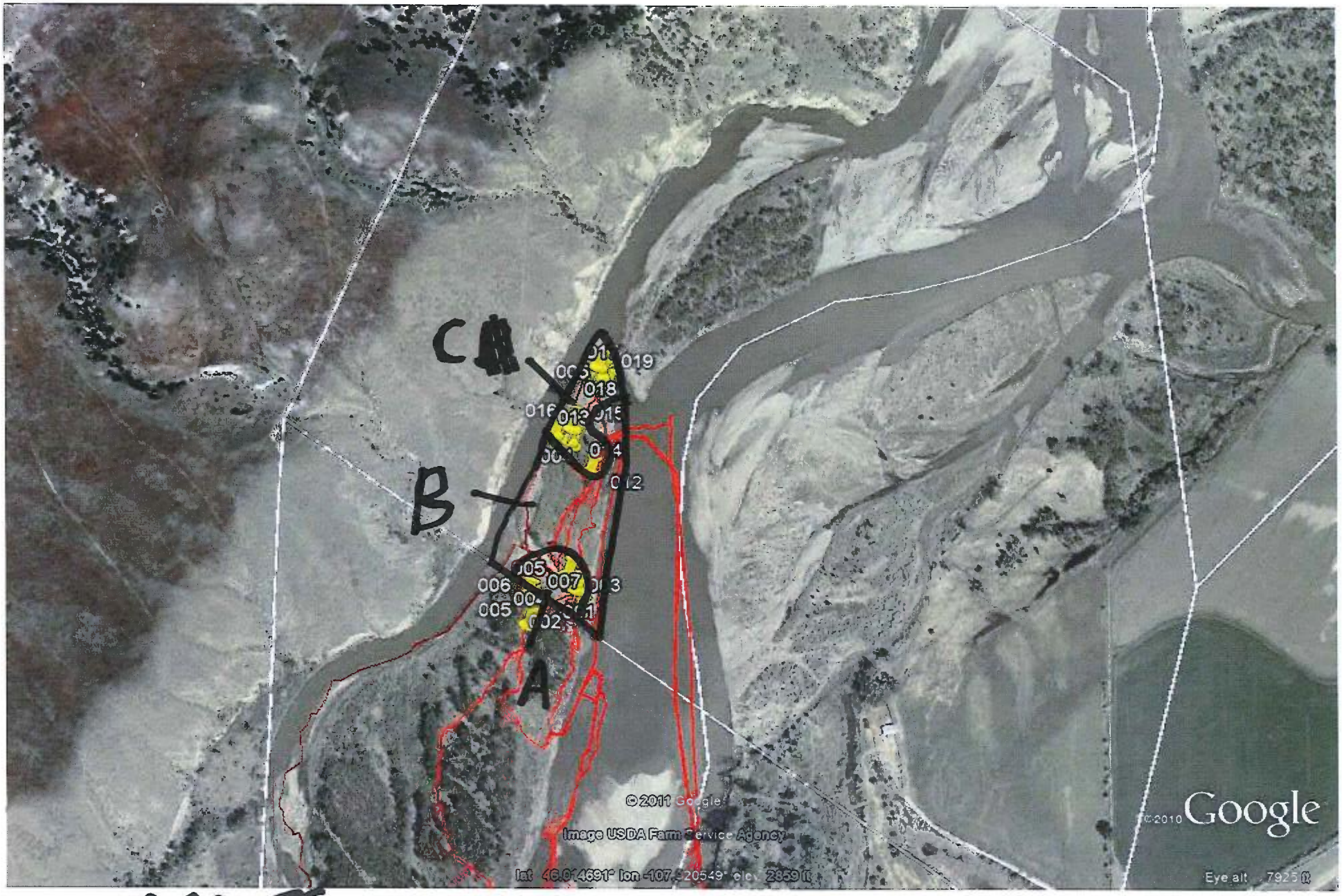
Zone A - trace coat / stain on willow & herbaceous veg - NFT

Zone B - NOO

Zone C - trace coat / stain on willow & herbaceous veg - NFT

Sketch (Yes) / No Photos (Yes) / No Frames_____ Photographer_____

Ver. 04 July 2011



C59-IS
SCAT 1+2
16 Aug 2011

DB / G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 2

ORIGINAL

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C59 Left Bank / Right Bank / (Island)	19/08/11	0920 hrs to 1300 hrs	low - (mean) - bankfull - overbank
Operations Division: C			(falling) - steady – rising
Survey by: (Foot) / ATV / (Boat) / Helicopter / Overlook / _____	(Sun) / (Clouds) / Fog / Rain / Snow / Windy / Calm		Air Temp + / - 24 deg C

2 SURVEY TEAM # 4

Name	Organization	Signature
Damien Korte	Cardno Entrix	D Korte
Daryl Reed	DFO	Daryl Reed
Cindy Santiago	EPA	Cindy E. Santiago

3 SEGMENT Total Segment/Reach Length 1000 m Segment/Reach Length Surveyed 1000 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: grass

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 1–10 m (10–100 m) >100m 160m | 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 1 bags or ____ trucks | access restrictions Boat access

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 MS	LB	UB	OB	OIL COVER Length m	Width m	Distrib. %	OIL THICKNESS TO	CV	CT	ST	FL	OIL CHARACTER FR	MS	TB	PT	TC	SR	AP	NO	SUBST. TYPE(S)
1756	A			✓		750	210	0													✓	
1757	B			✓		1	1	<1		P	S							✓				Debris
1758	C			✓		30	30	<1		S	P							✓				Willows
1759	D			✓		15	10	<1		P	S							✓				Debris
1760	E			✓		20	5	<1		S	P							✓				Willows
1761	F			✓		300	90	0													✓	
1762	G			✓		260	50	0													✓	

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

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

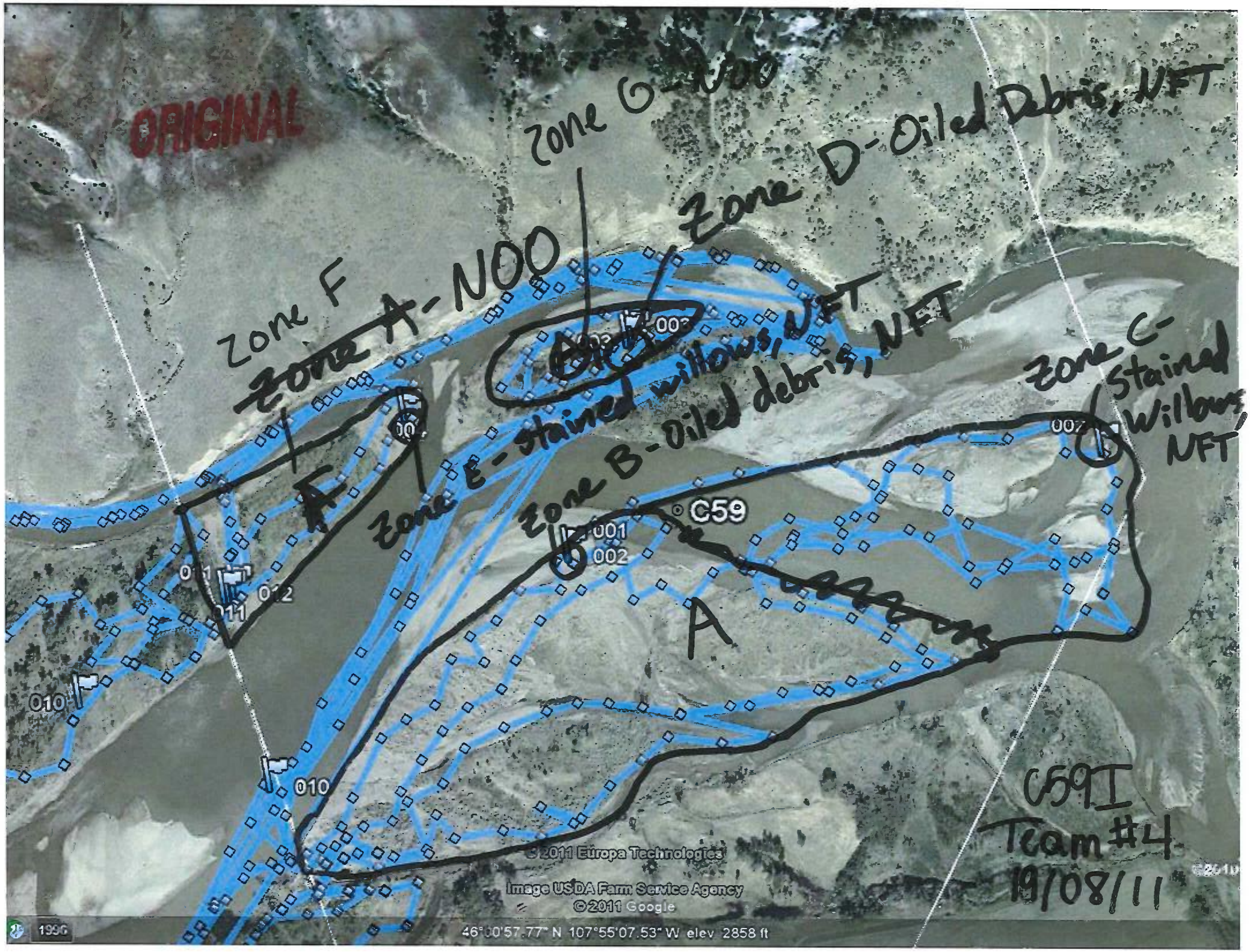
Overbank Survey Required (Y) / N Overbank Survey Completed (Y) / N Shoreline Survey Completed (Y) / N

Zone A - NOO
Zone B - Oiled debris, very small pile, <1m², NFT
Zone C - Primarily stain on willows, VL, <1%, 30 x 30m, NFT
Zone D - Oiled debris piles, VL, <1% NFT
Zone E - Primarily stain on willows, VL, <1%, NFT
Zone F - NOO
Zone G - NOO

Sketch Yes / No Photos Yes / No Frames N/A Photographer N/A

Original Split into Segments by Connor Kobeski / Cardno ENTRIX 3/22/11

Ver. 04 July 2011


ORIGINAL
Zone G-NOO
Zone D-Oiled Debris, NFT
Zone F
Zone A-NOO
Zone E-stained willows, NFT
Zone B-Oiled debris, NFT
Zone C-Stained Willows, NFT
A
A
C59
001
002
007
010
010
011
012
C59I
Team #4
19/08/11
© 2011 Europa Technologies
Image USDA Farm Service Agency
© 2011 Google
46°00'57.77" N 107°55'07.53" W elev 2858 ft

ARCADIS

C60

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C60 Left Bank / Right Bank / Island			low - mean - bankfull - overbank
Operations Division: C	09/11/11	1035 hrs to 1102 hrs	falling - steady – rising
Survey by: Foot / ATV / Boat / Helicopter / Overlook / _____	Sun / Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp + / - 26 deg C

2 SURVEY TEAM # 6	Name	Organization	Signature
	Michael Dirks	Cardno ENTRIX	Michael D. Dirks
	Ed Kiely	MTDEQ	Ed Kiely

3 SEGMENT Total Segment/Reach Length _____ m Segment/Reach Length Surveyed 340 m

Start GPS: LATITUDE _____ deg. _____ min. LONGITUDE _____ deg. _____ min. Datum: WGS84

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 x Boulder____ Peat/Organic____ | Vegetated Bank: P | Wooded Upland: S

Sediment Flat: Clay/Mud____ Sand____ Mixed/Coarse x | Other: ____ | If snow and ice use Winter River SOS

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

Cliff or Bluff:____ Est Height ____m | canyon____ manmade____ meander ____ confined or leveed ____ | Substrate Type: Mixed

Sloped:___(>5°)(15°)(30°) | straight____ braided x oxbow x - P flood plain valley x | Forested / Vegetated / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width : < 1m 1–10m 10–100m >100m — 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 0 bags or 0 trucks — access restrictions: Strobbe & Watson property surround the Crow land.

Oiled trees/shrubs Y / N — River Current strong Y / N — Other Features: No visitors or contact. Please stay off their shoreline.

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	
2269 A		S		P	340	51	0													X	Grasses & some trees OB, cobble LB

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)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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

INITIAL SCAT

Zone A: Eroded bank with an approximately 20' steep drop from overbank topography to the lower bank cobble stone channel. Overbank grass land had very minimal debris deposits, no major signs of overbank flooding. The bank displayed undercutting erosion to the lower bank channel. Water slowed and pooled in the channel with algae growth. Cobble rocks showed salt deposits. No oil observed.

Recommendations: No further treatment.

Sketch Yes / No Photos Yes / No Frames/Photographer: _____

09/11/11 SCAT TEAM 6 C60RB

ZONE A: N.O.O., N.F.T.

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C 60 (Left Bank / Right Bank / Island)	25/07/11	1151 hrs to 1156 hrs	low - mean - (bankfull) - overbank
Operations Division: C			(falling) - steady – rising
Survey by: Foot / ATV / (Boat) / Helicopter / Overlook / _____	(Sun) / Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp + / - 25 deg C

2 SURVEY TEAM # 6	Name	Organization	Signature
	Chelsea Murphy	Cardno ENTRIX	Chelsea M
	David Rouse	US Fish and Wildlife	
	Jay Watson	MT Fish Wildlife and Parks	

3 SEGMENT Total Segment/Reach Length ~1,600 m Segment/Reach Length Surveyed ~1650 m

Start GPS: LATITUDE 46 deg. 1.622 min. LONGITUDE 107 deg. 53.888 min. Datum: WGS 84

End GPS: LATITUDE 46 deg. 1.220 min. LONGITUDE 107 deg. 54.926 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: ____

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/silt

Sloped:___(>5°)(15°)(30°) | straight_____ braided P oxbow_____ flood plain valley_____ | Forested / (Vegetated) / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width : < 1m 1–10 m 10–100 m (>100m) 160m | 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 _____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 MS	LB	UB	OB	OIL COVER Length m	Width m	Distrib. %	OIL THICKNESS TO	CV	CT	ST	FL	OIL CHARACTER FR	MS	TB	PT	TC	SR	AP	NO	SUBST. TYPE(S)
1323 A			P		790	<1	0%													P	
1324 B			P		30	<1	~~20%~~ 5%			P	S		P								
1325 C			P		760	<1	0%													P	
1326 D			P		10	<1	5%			P	S		P								

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

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 - NOO

Zone B - ~3" band on vegetation ~ 1/2' off ground - Further SCAT recommended

Zone C - NOO

Zone D - (Same Recommendation as Zone B)

Sketch (Yes) / No Photos (Yes) / No Frames 1584-1586 Photographer Chelsea Murphy

Ver. 04 July 2011

C60LB
Team #6
25/07/11

DB

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

Page 1 of ____

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C60 (Left Bank) / Right Bank / Island	17/08/11	0935 hrs to 0950 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 + / - ____ deg C

2 SURVEY TEAM # 1+2

Name	Organization	Signature
Robert Nailon	Cardno Entrix	[signature]
Ashley Abdel-Hadi	Cardno Entrix	[signature]
Daniel Elefant	Cardno Entrix	
Jessica Ross	DEQ	[signature]
John Davis	USCG	[signature]
Jay Watson	MTFWP	[signature]
Todd Farrar	Polaris	[signature]

3 SEGMENT Total Segment/Reach Length ____ m Segment/Reach Length Surveyed ____ 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 5 ✓ Shelf ✓ 5 | Manmade: Solid ___ Permeable ___ (type) ___ | Wetland: Swamp ___ Bog/Fen ___ Marsh ___

Sediment Bank: Clay/Mud ___ Sand 1 Mixed ___ Pebble/Cobble ___ Boulder ___ Peat/Organic ___ | Vegetated Bank: 5 | 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 60 m | canyon ✓ manmade ___ meander ___ confined or leveed ___ | Substrate Type: Veg bank

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 1–10 m 10–100 m (>100m) 160m | 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 ___ trucks | access restrictions Road access possible

Oiled trees/shrubs (Y) / N River Current strong (Y) / N | Other Features: Boat Access recommended

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 MS	LB	UB	OB	OIL COVER Length m	Width m	Distrib. %	OIL THICKNESS TO	CV	CT	ST	FL	OIL CHARACTER FR	MS	TB	PT	TC	SR	AP	NO	SUBST. TYPE(S)
1612	A			✓		150	2	5				✓						✓				Veg bank
1613	B			✓		~~1480~~	2	—													✓	Cliffs
						1500																
						1515	NA															

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

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

NFT -
Staining less visible than 3 weeks ago
* Completed entire (L) Bank Segment *

Sketch (Yes) / No Photos (Yes) / No Frames ____ Photographer ____

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

Page 2 of _____

1 GENERAL INFORMATION

Segment/Reach ID: C60 (Left Bank) / Right Bank / Island

Operations Division: C

Date (dd/mm/yy): 17/08/11

Time (24h): std / daylight 0935 hrs to 0950 hrs

Water Level: low - mean - bankfull - overbank; falling - steady – rising

Survey by: Foot / ATV / (Boat) / Helicopter / Overlook / _____

Sun / Clouds / Fog / Rain / Snow / Windy / Calm

Air Temp + / - ____ deg C

2 SURVEY TEAM # 1+2

Name	Organization	Signature
Shawn Danforth	Crow Nation	

3 SEGMENT Total Segment/Reach Length _____ m Segment/Reach Length Surveyed _____ 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:____ | Wooded Upland: ____

Sediment Flat: Clay/Mud____ Sand____ Mixed/Coarse____ | Other: ____ | If snow and ice use Winter River SOS

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

Cliff or Bluff:____Est Height ____m | canyon____ manmade____ meander ____ confined or leveed ____ | Substrate Type: _____

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 1–10 m 10–100 m >100m 160m

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 ____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																					

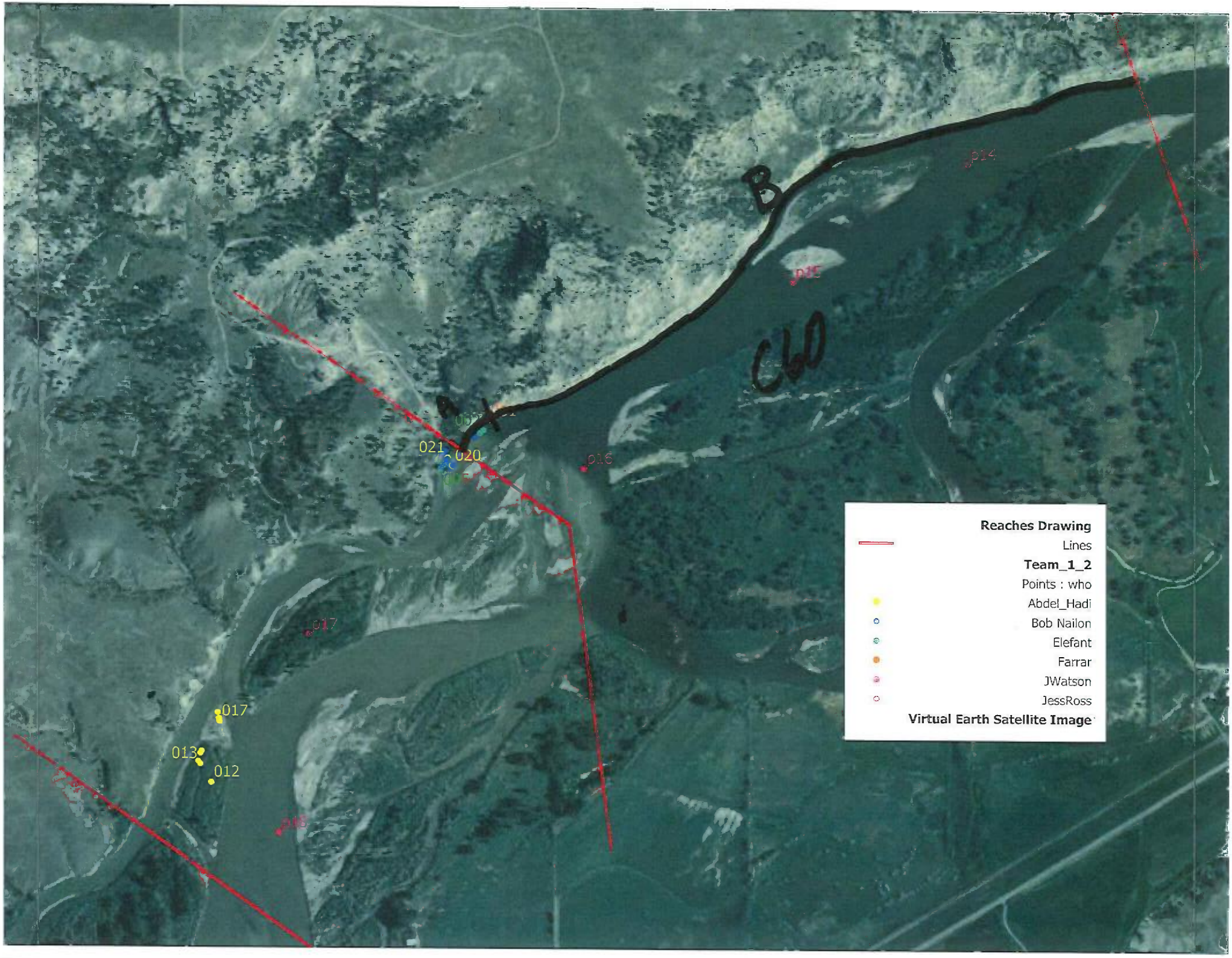
7 SUBSURFACE OILING CONDITIONS use letter for ZONE location plus Number of pit or trench — e.g., "A1"

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

Sketch Yes / No Photos Yes / No Frames_____ Photographer_____


B
A
021
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Reaches Drawing
Lines
Team_1_2
Points : who
Abdel_Hadi
Bob Nailon
Elefant
Farrar
JWatson
JessRoss
Virtual Earth Satellite Image

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 22

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C-60 Left Bank / Right Bank / Island	09/09/11	11:30 hrs to 12:30 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 + / - 26 deg C

2 SURVEY TEAM # 1

name	organization	contact phone number
Tom Freeman	Polaris	Tom Freeman
Jeffrey Herrick	MT DEQ	[illegible]

3 SEGMENT Total Segment/Reach Length 1,450 m Segment/Reach Length Surveyed 1,460 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 Pebble/Cobble X Boulder ____ Peat/Organic ____ | Vegetated Bank: Yes ____ | Wooded Upland: ____

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

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

Cliff or Bluff: ____ Est Height ____ m | canyon ____ manmade ____ meander ____ confined or leveed ____ | Substrate Type: MIXED

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 1–10 m 10–100 m >100m ____ m | 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 ____ 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	
2239 A				X	1450	550	<1				X						X				[redacted]/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)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	cm	B, R, S, N	Yes / No	

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

Zone A: Several small spots of stain were observed in association w/ debris piles. Otherwise the area was NOO.

C-60 IS 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# ____

C-60 IS SCAT TEAM 1 Sept 9, 2011

ARCADIS

C61

D13/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C61 Left Bank / **Right Bank** / Island	08/12/2011		low - mean - bankfull - overbank
Operations Division:		0840 hrs to 1008 hrs	**falling** - steady – rising
Survey by: **Foot** / ATV / Boat / Helicopter / Overlook / _____	**Sun** / Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp + / - 3 3 deg C

2 SURVEY TEAM # 6	Name	Organization	Signature
	Chris Arredondo	CardnoENTRIX	
	Lee Burroughs	FWP	
	Cindy Santiago	EPA	Cindy C Santiago
	Mark Denny	THPO Crow Tribe	

3 SEGMENT *Total Segment/Reach Length* 823 *m* *Segment/Reach Length Surveyed* 734 *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 P___ Mixed_S__ Pebble/Cobble_____ 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 1–10 m **10–100 m** >100m 160m **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 0 bags or 0 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)
					Length	Width	Distrib.														
	MS	LB	UB	OB	m	m	%	TO	CV	CT	ST	FL	FR	MS	TB	PT	TC	SR	AP	NO	
1466 A				X	734	163														X	
1467 B				X	1	1	<1			X							X				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)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	cm	B, R, S, N	Yes / No	

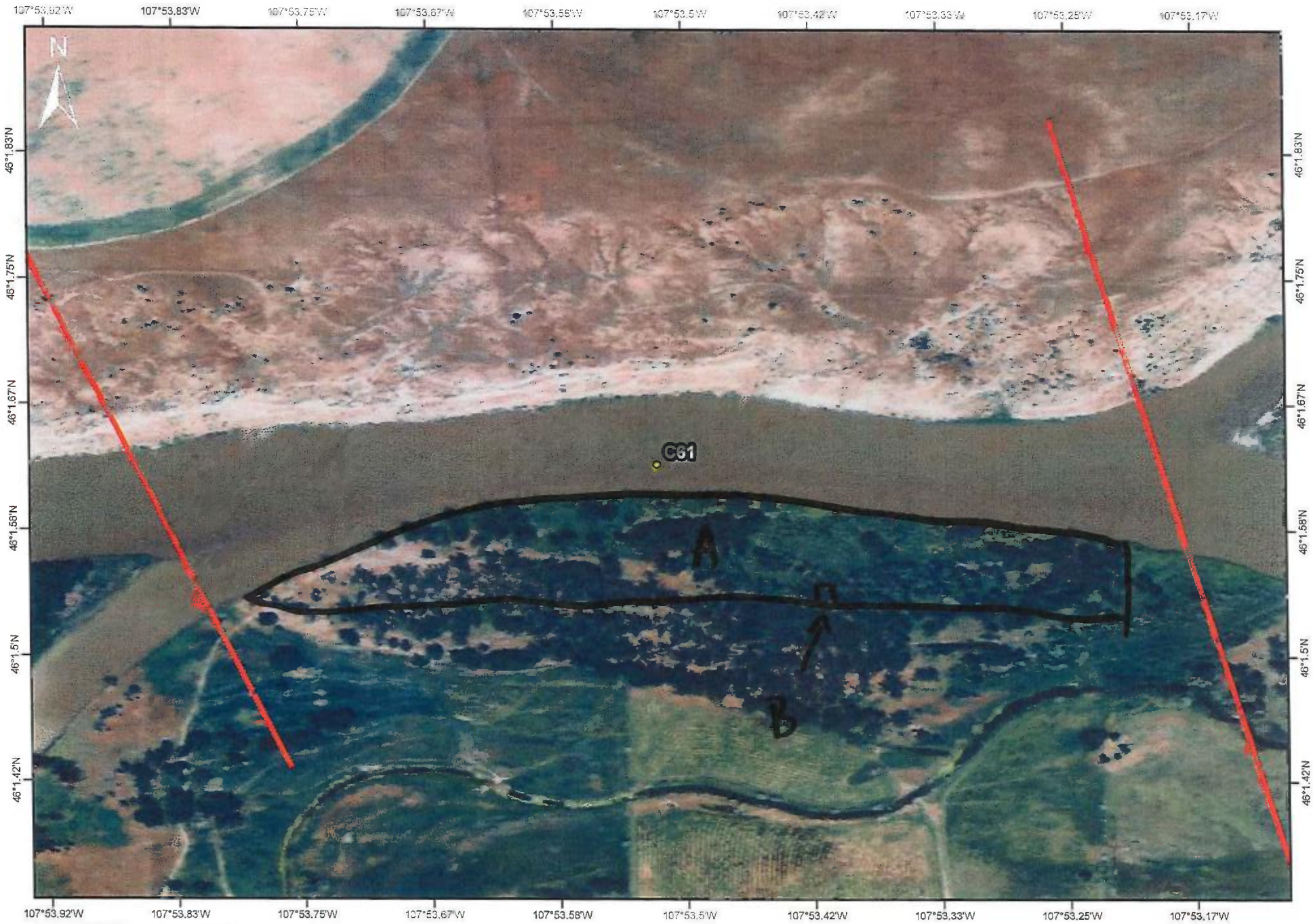
8 COMMENTS ***ecological/recreational/cultural/economic constraints - shorezone biota and wildlife observations - cleanup recommendations***

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

Zone A: No treatment required.

Zone B: Natural attenuation recommended.

Sketch Yes / No **Photos** Yes / No **Frames**_____ **Photographer** Lee Burroughs



C61- Team 6
8/12/11 (L/O/I)??

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C 101 (Left Bank) / Right Bank / Island	25/07/11		low - mean - (bankfull) - overbank
Operations Division: C		1124 hrs to 1151 hrs (falling) steady – rising	
Survey by: Foot / ATV / (Boat) / Helicopter / Overlook / _____		(Sun) / Clouds / Fog / Rain / Snow / Windy / Calm	Air Temp + / - 25 deg C

2 SURVEY TEAM # 6

Name	Organization	Signature
Chelsea Murphy	Cardno ENTRIX	[signature]
David Rouse	US Fish and Wildlife	
Jay Watson	MT Fish Wildlife and Parks	

3 SEGMENT Total Segment/Reach Length ~850 m Segment/Reach Length Surveyed ~880 m

Start GPS: LATITUDE 46 deg. 1.1060 min. LONGITUDE 107 deg. 53.210 min. Datum: WGS 84

End GPS: LATITUDE 46 deg. 1.1018 min. LONGITUDE 107 deg. 53.858 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: ____

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/silt

Sloped:___(>5°)(15°)(30°) | straight_____ braided P oxbow_____ flood plain valley_____ | Forested / (Vegetated) / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width : < 1m 1–10 m 10–100 m (>100m) 160m | 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 _____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	
1327 A			P		880	<1	Ø													P	veg/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	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	cm	B, R, S, N	Yes / No	

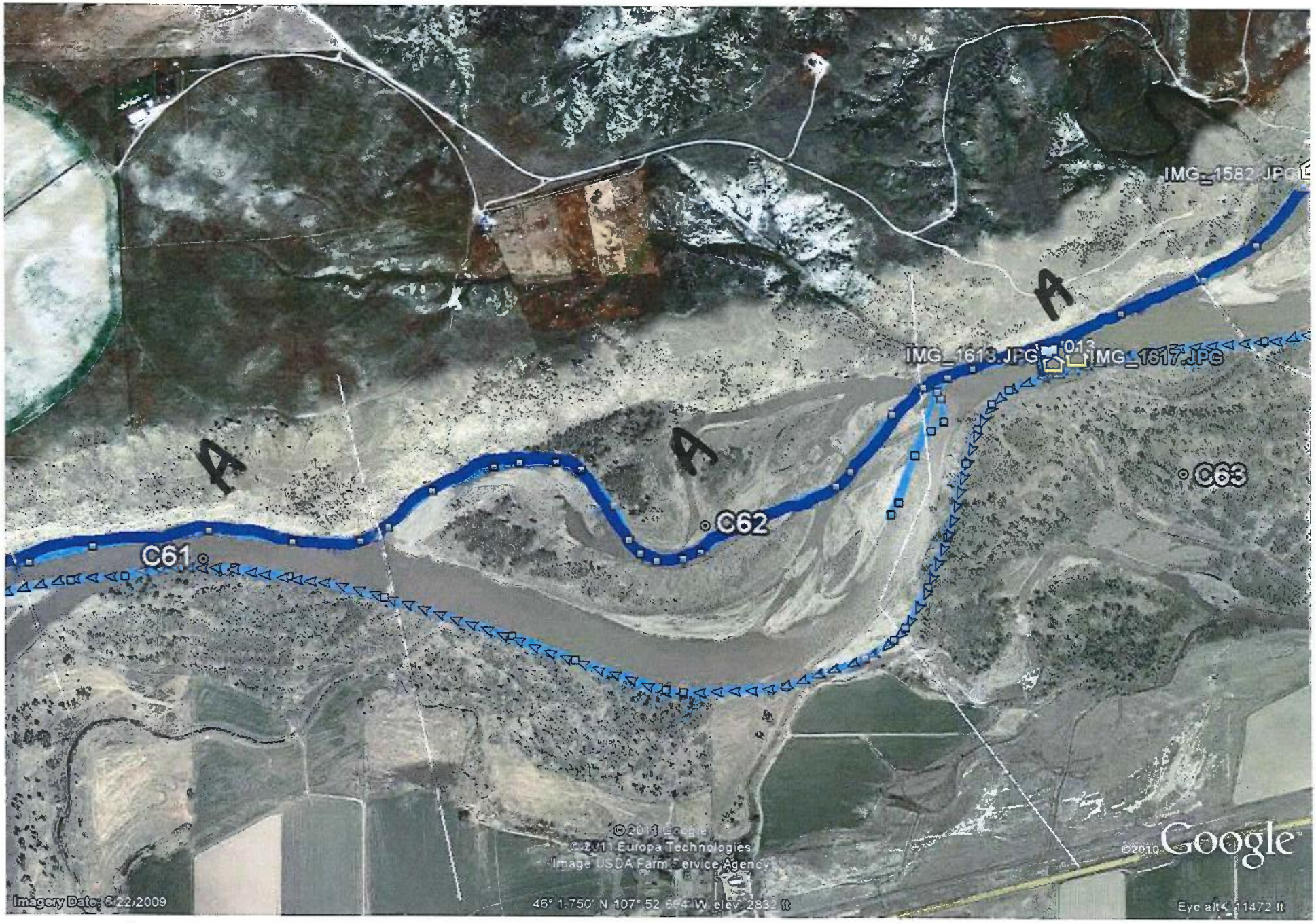
8 COMMENTS ecological/recreational/cultural/economic constraints - shorezone biota and wildlife observations - cleanup recommendations

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

Zone A - NOO

Sketch (Yes) / No Photos Yes / (No) Frames_____ Photographer_____

Ver. 04 July 2011



C61 LB
Team#6
25/07/11

DB/G/S

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C61 **Left Bank** / Right Bank / Island	08/14/2011		low - mean - bankfull - overbank
Operations Division:		1330 hrs to 1352 hrs	**falling** - steady -- rising
Survey by: **Foot** / ATV / Boat / Helicopter / Overlook / _____	**Sun** / Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp + / - 35 deg C

2 SURVEY TEAM # 6	Name	Organization	Signature
	Chris Arredondo	CardnoENTRIX	
	Matthew Kent	DEQ	
	Cindy Santiago	EPA	Cindy C. Santiago
	Shawn Dansorth	EthnoScience	

3 SEGMENT *Total Segment/Reach Length* 858 m *Segment/Reach Length Surveyed* 858 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 P Shelf ____ | *Manmade:* Solid ___ Permeable ___ (type) ____ | *Wetland:* Swamp ____ Bog/Fen ____ Marsh ____

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

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

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

Cliff or Bluff: ____ Est Height ____ m | canyon ____ manmade ____ meander ____ confined or leveed ____ | Substrate Type: **Mixed**

Sloped: ___ (>5°)(15°)(30°) | straight ____ braided X oxbow ____ flood plain valley ____ | Forested / **Vegetated** / Bare

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

est. width : < 1m 1–10 m **10–100 m** >100m 160m | **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 0 bags or 0 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	
1557 A				X	858	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	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	cm	B, R, S, N	Yes / No	

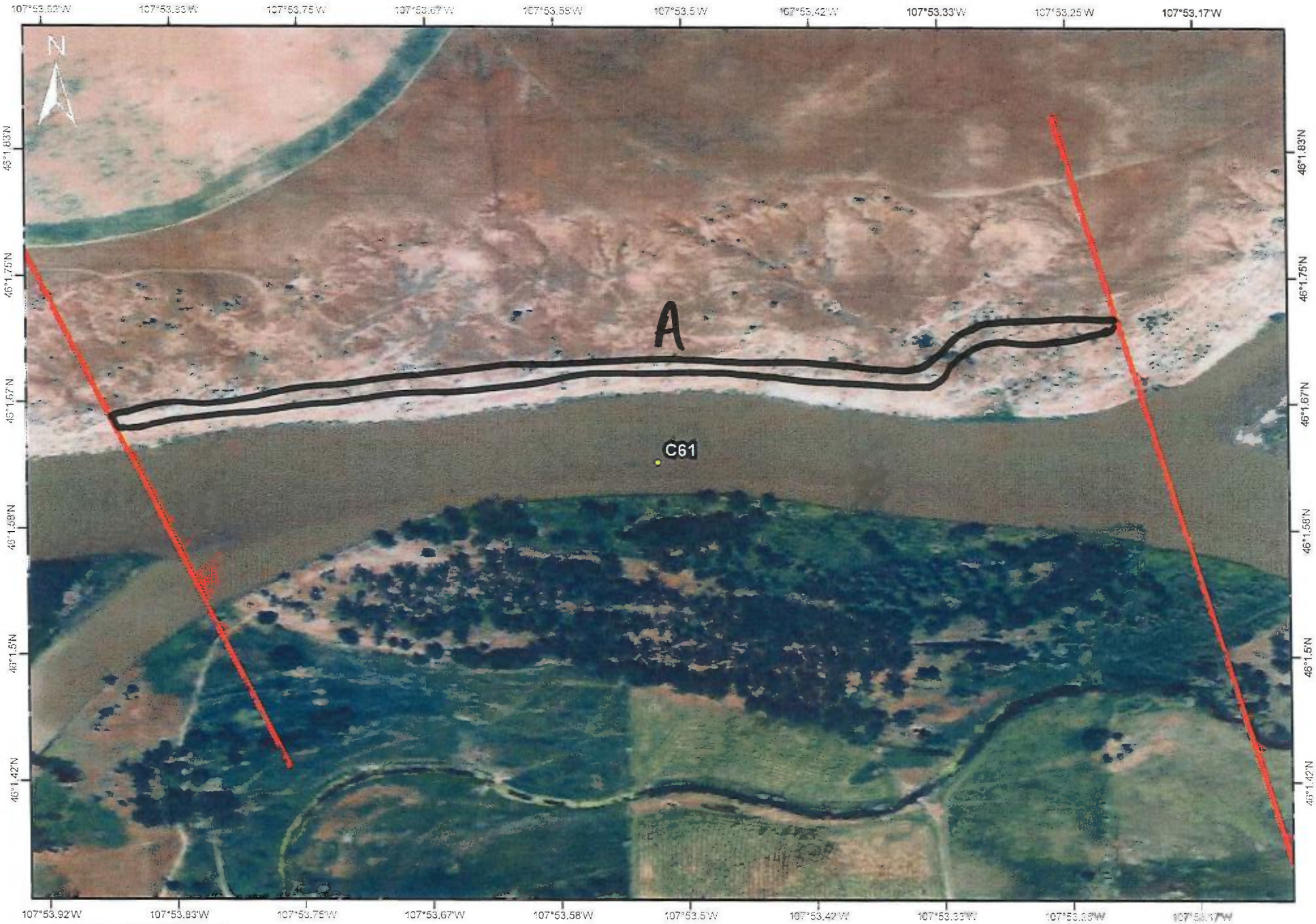
8 COMMENTS *ecological/recreational/cultural/economic constraints - shorezone biota and wildlife observations - cleanup recommendations*

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

Zone A: No treatment required.

Note: This section could not be surveyed by foot due to the presence of steep cliffs. We recommend that a boat be used to conduct a shoreline survey of this section.

Sketch **Yes** / No **Photos** Yes / **No** **Frames** _____ **Photographer**



C61- Team 6
8/14/2011 (D)R/I)??

ARCADIS

C62

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C62 Left Bank / **Right Bank** / Island	08/12/2011		low - mean - bankfull - overbank
Operations Division:		1040 hrs to 1045 hrs	**falling** - steady – rising
Survey by: **Foot** / ATV / Boat / Helicopter / Overlook / _____	**Sun** / Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp + / - 3 3 deg C

2 SURVEY TEAM # 6	Name	Organization	Signature
	Chris Arredondo	CardnoENTRIX	
	Lee Burroughs	FWP	
	Cindy	EPA	Cindy E. Santiago
	Mark Denny	THPO Crow Tribe	

3 SEGMENT *Total Segment/Reach Length* 1243 m *Segment/Reach Length Surveyed* 402 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 P Pebble/Cobble_____ Boulder_____ Peat/Organic_____ | *Vegetated Bank:*_____ | *Wooded Upland:* ____

Sediment Flat: Clay/Mud_____ Sand_____ Mixed/Coarse_____ | *Other:* _____ | If snow and ice use Winter River SOS

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

Cliff or Bluff:____Est Height _____m | canyon_____ manmade_____ meander _____ confined or leveed _____ | Substrate Type: Mixed

Sloped:___(>5°)(15°)(30°) | straight_____ braided X oxbow_____ flood plain valley_____ | Forested / Vegetated / **Bare**

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

est. width : < 1m 1–10 m **10–100 m** >100m 160m | **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 0 bags or 0 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)
					Length	Width	Distrib.														
	MS	LB	UB	OB	m	m	%	TO	CV	CT	ST	FL	FR	MS	TB	PT	TC	SR	AP	NO	
1465 A				X	402	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	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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

Zone A: No treatment required.

Sketch Yes / No **Photos** Yes / No **Frames**_____ **Photographer**

C62- Team 6
8/12/11 (L/R/I)??

0 335 670 1,340
Feet

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 2

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C62 Left Bank / Right Bank / Island	16/08/11	0905 hrs to 1105 hrs	low / mean / bankfull - overbank
Operations Division: C			falling / steady – rising
Survey by: Foot / ATV / Boat / Helicopter / Overlook / _____		Sun / Clouds / Fog / Rain / Snow / Windy / Calm	Air Temp + / - 24 deg C

2 SURVEY TEAM # 4	Name	Organization	Signature
	Bob Naylon	Cardno Entrix	Bob Naylon
	Damien Korte	Cardno Entrix	[illegible]
	Mike Ruggles	FWP	[illegible]
	Alicia Taylor	USCG	[illegible]
	Fred Left Hand	Crow Tribe THPO	[illegible]

3 SEGMENT Total Segment/Reach Length 1240 m Segment/Reach Length Surveyed 1240 m

Start GPS: LATITUDE _____ deg. _____ min. LONGITUDE _____ deg. _____ min. Datum: WGS84

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

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

Bedrock: Cliff/Ramp_____ Shelf_____ | Manmade: Solid___ Permeable___ (type)_____ | Wetland: Swamp_____ Bog/Fen_____ Marsh _____

Sediment Bank: Clay/Mud_____ Sand S Mixed_____ Pebble/Cobble_____ 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: veg bank

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 1–10 m 10–100 m >100m | 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 1 bags or _____ trucks | access restrictions Hot Shot Team picked up oily debris

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 MS	LB	UB	OB	OIL COVER Length m	Width m	Distrib. %	OIL THICKNESS TO	CV	CT	ST	FL	OIL CHARACTER FR	MS	TB	PT	TC	SR	AP	NO	SUBST. TYPE(S)
1586	A			X		300	100	<1			P	S				X						Woody debris
1587	B			X		940	300	0													X	Woody debris; veg 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 MS	LB	UB	OB	MAX. PIT DEPTH cm	OILED ZONE cm-cm	SUBSURFACE OIL CHARACTER SAP	OP	PP	OR	OF	TR	NO	WATER TABLE cm	SHEEN COLOUR B, R, S, N	CLEAN BELOW Yes / No	SUBST. TYPE(S)

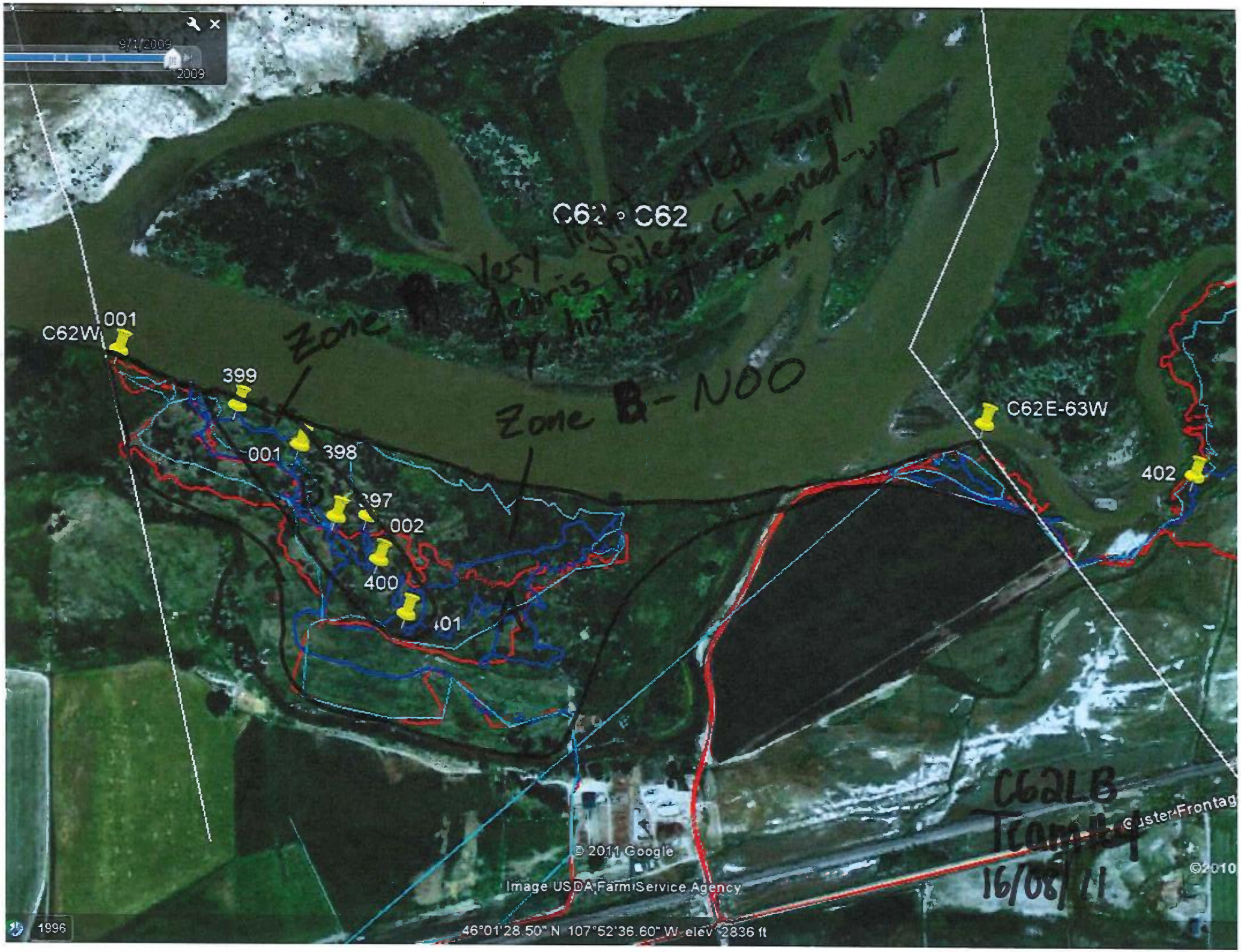
8 COMMENTS ecological/recreational/cultural/economic constraints - shorezone biota and wildlife observations - cleanup recommendations

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

Isolated patches of oiled woody debris (<0.25 meter² each) - Hot Shot team followed up later in day for pickup. Total Oiled area (300m * 100m) in size. NFT

Sketch Yes / No Photos Yes / No Frames/Photographer: Naylon / Ruggles

Ver. 31 July 2011


9/1/2009
2009
C62 • C62
Zone A - Very light oiled small debris piles. Cleaned-up by hot shot team - NFT
Zone B - NOO
C62W
001
399
001
398
397
002
400
401
C62E-63W
402
C62LB
Icom 64
16/08/11
Custer Frontag
© 2011 Google
Image USDA Farm Service Agency
©2010
1996
46°01'28.50" N 107°52'36.60" W elev 2836 ft

DB/

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION

Segment/Reach ID: C 62 Left Bank / Right Bank / Island

Operations Division: C

Date (dd/mm/yy): 25/07/11

Time (24h): std / daylight 1138 hrs to 1146 hrs

Water Level: low - mean - bankfull - overbank; falling - steady – rising

Survey by: Foot / ATV / Boat / Helicopter / Overlook / _____ Sun / Clouds / Fog / Rain / Snow / Windy / Calm

Air Temp + / - 25 deg C

2 SURVEY TEAM # 6

Name	Organization	Signature
Chelsea Murphy	Cardno ENTRIX	[illegible]
David Rouse	US Fish and Wildlife	
Jay Watson	MT Fish Wildlife and Parks	

3 SEGMENT Total Segment/Reach Length ~1,300 m Segment/Reach Length Surveyed ~1,600 m

Start GPS: LATITUDE 46 deg. 1.840 min. LONGITUDE 107 deg. 52.249 min. Datum: WGS 84

End GPS: LATITUDE 46 deg. 1.855 min. LONGITUDE 107 deg. 53.199 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: ____

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/silt

Sloped:___(>5°)(15°)(30°) | straight_____ braided P___ oxbow_____ flood plain valley_____ | Forested / Vegetated / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width : < 1m 1–10 m 10–100 m >100m 160m | 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 _____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	
1328 A			P		1,600	<1	Ø													P	

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)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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

Zone A - NOO

Sketch Yes / No Photos Yes / No Frames_____ Photographer_____

Ver. 04 July 2011

C62LB
Team #6

27/07/11

DB/GIS

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C62 **Left Bank** / Right Bank / Island	08/14/2011		low - mean - bankfull - overbank
Operations Division:		1145 hrs to 1330 hrs	**falling** - steady – rising
Survey by: **Foot** / ATV / Boat / Helicopter / Overlook / _____	**Sun** / Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp + / - 35 deg C

2 SURVEY TEAM # 6	Name	Organization	Signature
	Chris Arredondo	CardnoENTRIX	
	Matthew Kent	DEQ	
	Cindy Santiago	EPA	
	Shawn Dansorth	EthnoScience	

3 SEGMENT Total Segment/Reach Length 1309 m Segment/Reach Length Surveyed 1309 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 P Shelf ____ **Manmade:** Solid ____ Permeable ____ (type) ____ **Wetland:** Swamp ____ Bog/Fen ____ Marsh ____

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

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

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

Cliff or Bluff: ____ Est Height ____ m canyon ____ manmade ____ meander ____ confined or leveed ____ Substrate Type: **Mixed**

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

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

est. width : < 1m 1–10 m **10–100 m** >100m 160m **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 0 bags or 0 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	
1558 A				X	1309	347														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	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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

Zone A: No treatment required.

Note: A large portion of this section could not be surveyed by foot due to the presence of cliffs. We recommend that a boat be used to conduct a shoreline survey of this section.

Sketch Yes / No **Photos** Yes / No **Frames** _____ **Photographer**

C62- Teamb
8/14/2011 (L/R/I)??

0 335 670 1,340
Feet

DB / G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 3

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C62 Left Bank / Right Bank / Island	09/09/11	13:00 hrs to 14:00 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 + / - 26 deg C

2 SURVEY TEAM # 2

name	organization	contact phone number
Tom Freeman	Polaris App. Sciences	Tom Freeman
Jeffrey Herrick	MT DEQ	Jeffrey Herrick

3 SEGMENT Total Segment/Reach Length 1200 m Segment/Reach Length Surveyed 1200 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 Pebble/Cobble X Boulder____ Peat/Organic____ | Vegetated Bank: Yes | Wooded Upland: ____

Sediment Flat: Clay/Mud____ Sand____ Mixed/Coarse____ | Other: ____ | If snow and ice use Winter River SOS

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

Cliff or Bluff: ____ Est Height ____ m | canyon____ manmade____ meander ____ confined or leveed ____ | Substrate Type: MIXED

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 1–10 m 10–100 m >100m ____ m | 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 ____ 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	
2217 A				X	1200	450	<1				X						X				Veg/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)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	cm	B, R, S, N	Yes / No	

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

Zone A: rare small patches of stain on debris and willows. No transferable oil. Vast majority of area NOO.

Zone A = 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# _____

C-62 Island Team 1 Sept 9, 2011

ARCADIS

C63

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 2

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C63 Left Bank / Right Bank / Island	16/08/11	1105 hrs to 1330 hrs	low - mean - bankfull - overbank
Operations Division: C			falling - steady – rising
Survey by: Foot / ATV / Boat / Helicopter / Overlook / _____	Sun / Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp + / - 30 deg C

2 SURVEY TEAM # 4

Name	Organization	Signature
Bob Nailon	Cardno Entrix	[signature]
Damien Korte	Cardno Entrix	[signature]
Mike Ruggles	FWP	[signature]
Alicia Taylor	USCG	[signature]
Fred Left Hand	Crow Tribe THPO	[signature]

3 SEGMENT Total Segment/Reach Length 1330 m Segment/Reach Length Surveyed 1330 m

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

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

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

Bedrock: Cliff/Ramp____ Shelf____ | Manmade: Solid___ Permeable___ (type)____ | Wetland: Swamp____ Bog/Fen____ Marsh ____

Sediment Bank: Clay/Mud____ Sand S Mixed____ Pebble/Cobble____ 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 ____ confined or leveed ____ | Substrate Type: veg bank

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 1–10 m 10–100 m >100m | 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 ____ trucks | access restrictions N/A

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	
1588 A			X		1330	200														X	veg bank
B																					

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)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	cm	B, R, S, N	Yes / No	

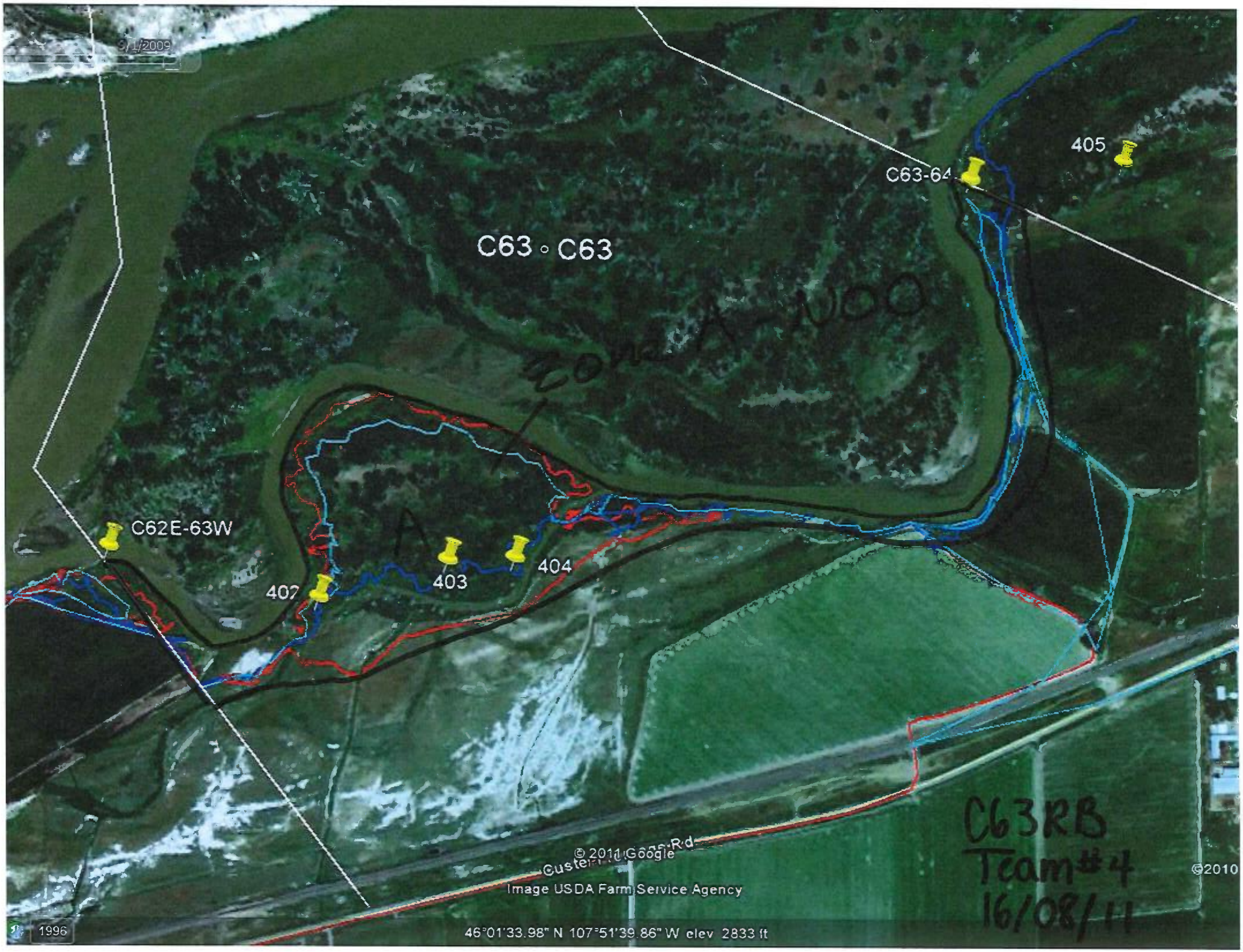
8 COMMENTS ecological/recreational/cultural/economic constraints - shorezone biota and wildlife observations - cleanup recommendations

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

NOO : entire C63 (R) bank

Sketch Yes / No Photos Yes / No Frames/Photographer: _____

Ver. 31 July 2011


9/1/2009
C63 ◦ C63
C63-64
405
C62E-63W
407
403
404
C63RB
Team #4
16/08/11
© 2011 Google
Image USDA Farm Service Agency
©2010
1996
46°01'33.98" N 107°51'39.86" W elev 2833 ft

D3

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

1 GENERAL INFORMATION

Segment/Reach ID: C 03 / Left Bank / Right Bank / Island

Operations Division: C

Date (dd/mm/yy): 25/07/11

Time (24h): std / daylight 1132 hrs to 1138 hrs

Water Level: low - mean - bankfull - overbank; falling - steady – rising

Survey by: Foot / ATV / Boat / Helicopter / Overlook / _____ Sun / Clouds / Fog / Rain / Snow / Windy / Calm

Air Temp + / - 25 deg C

2 SURVEY TEAM # 6

Name	Organization	Signature
Chelsea Murphy	Cardno ENTRIX	[signature]
David Rouse	US Fish and Wildlife	
Jay Watson	MT Fish Wildlife and Parks	

3 SEGMENT

Total Segment/Reach Length ~ 690 m Segment/Reach Length Surveyed ~ 690 m

Start GPS: LATITUDE 46 deg. 1.987 min. LONGITUDE 107 deg. 51.729 min. Datum: WGS 84

End GPS: LATITUDE 46 deg. ____ min. LONGITUDE 107 deg. 52.225 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: ____

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 S ____ confined or leveed ____

Sloped: ____ (>5°)(15°)(30°) | straight ____ braided P ____ oxbow ____ flood plain valley ____

complete for primary: Substrate Type: mud/silt ____ Forested / Vegetated / Bare

4C RIVER CHANNEL CHARACTER

circle or select as appropriate

est. width: < 1m 1–10 m 10–100 m >100m 160m

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 ____ 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	
1329 A			P		690	<1	0													P	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	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	cm	B, R, S, N	Yes / No	

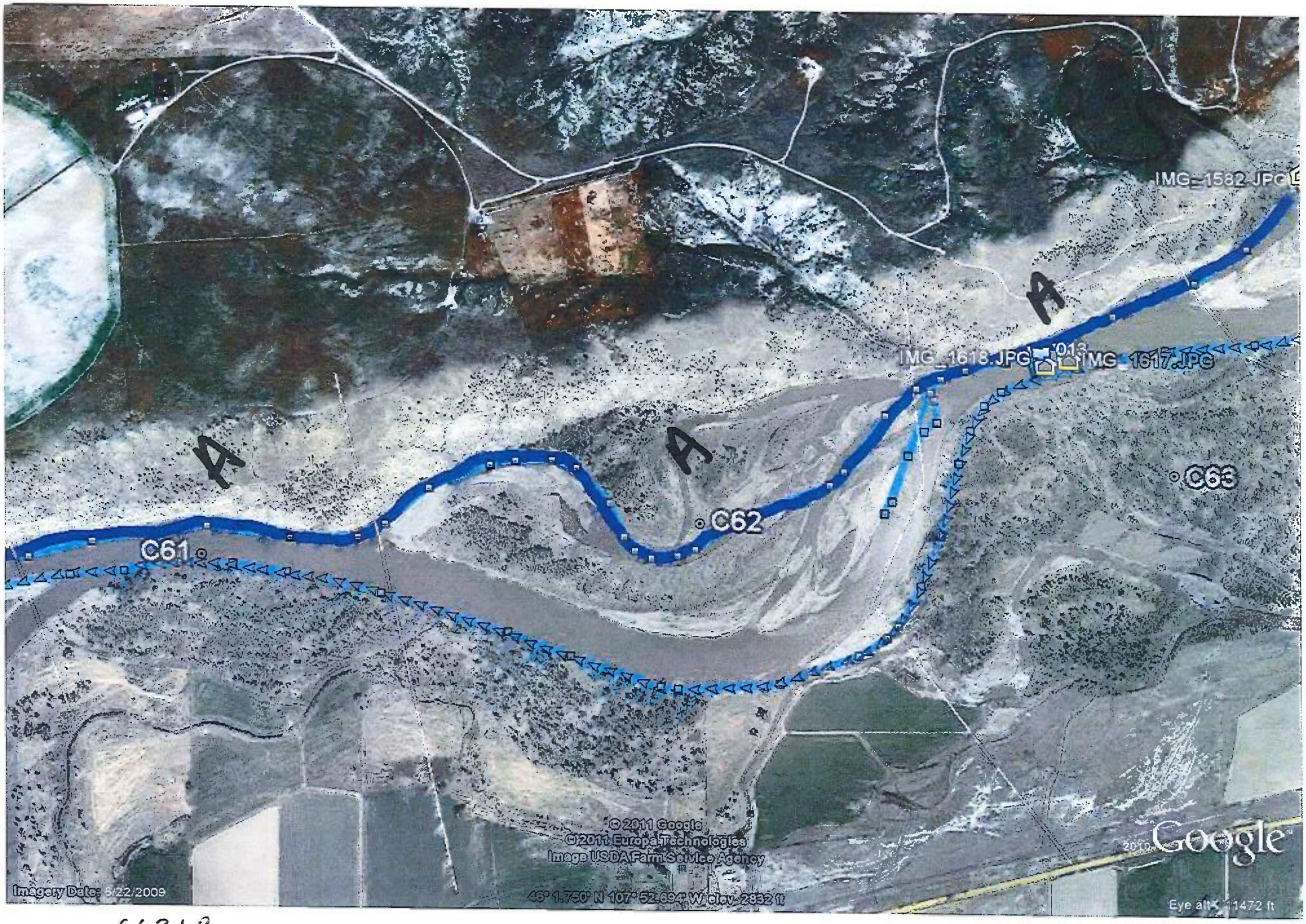
8 COMMENTS

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

Zone A - NOD

Sketch Yes / No Photos Yes / No Frames _____ Photographer _____



C63 LB
Team #6
05/07/11

DB/GIS

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C63 **Left Bank** / Right Bank / Island	08/14/2011		low - mean - bankfull - overbank
Operations Division:		1105 hrs to 1135 hrs	**falling** - steady – rising
Survey by: **Foot** / ATV / Boat / Helicopter / Overlook / _____	**Sun** / Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp + / - 3 5 deg C

2 SURVEY TEAM # 6	Name	Organization	Signature
	Chris Arredondo	CardnoENTRIX	
	Matthew Kent	DEQ	Matthew Kent
	Cindy Santiago	EPA	Cindy C. Santiago
	Shawn DanSeth	EthnoScience	

3 SEGMENT *Total Segment/Reach Length* 664 *m* *Segment/Reach Length Surveyed* 664 *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 P Shelf ____ ***Manmade:*** Solid ___ Permeable ___ (type) ____ ***Wetland:*** Swamp ____ Bog/Fen ____ Marsh ____

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

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

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

Cliff or Bluff: ____ Est Height ____ m canyon ____ manmade ____ meander ____ confined or leveed ____ Substrate Type: **Mixed**

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

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

est. width : < 1m 1–10 m **10–100 m** >100m 160m **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 0 bags or 0 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	
1564 A				X	664	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	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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

Zone A: No treatment required.

Note: None of this section could be surveyed by foot due to the presence of steep cliffs. We recommend that a boat be used to conduct a shoreline survey.

Sketch Yes / No **Photos** Yes / No **Frames** _____ **Photographer**

ExxonMobil Pipeline

N

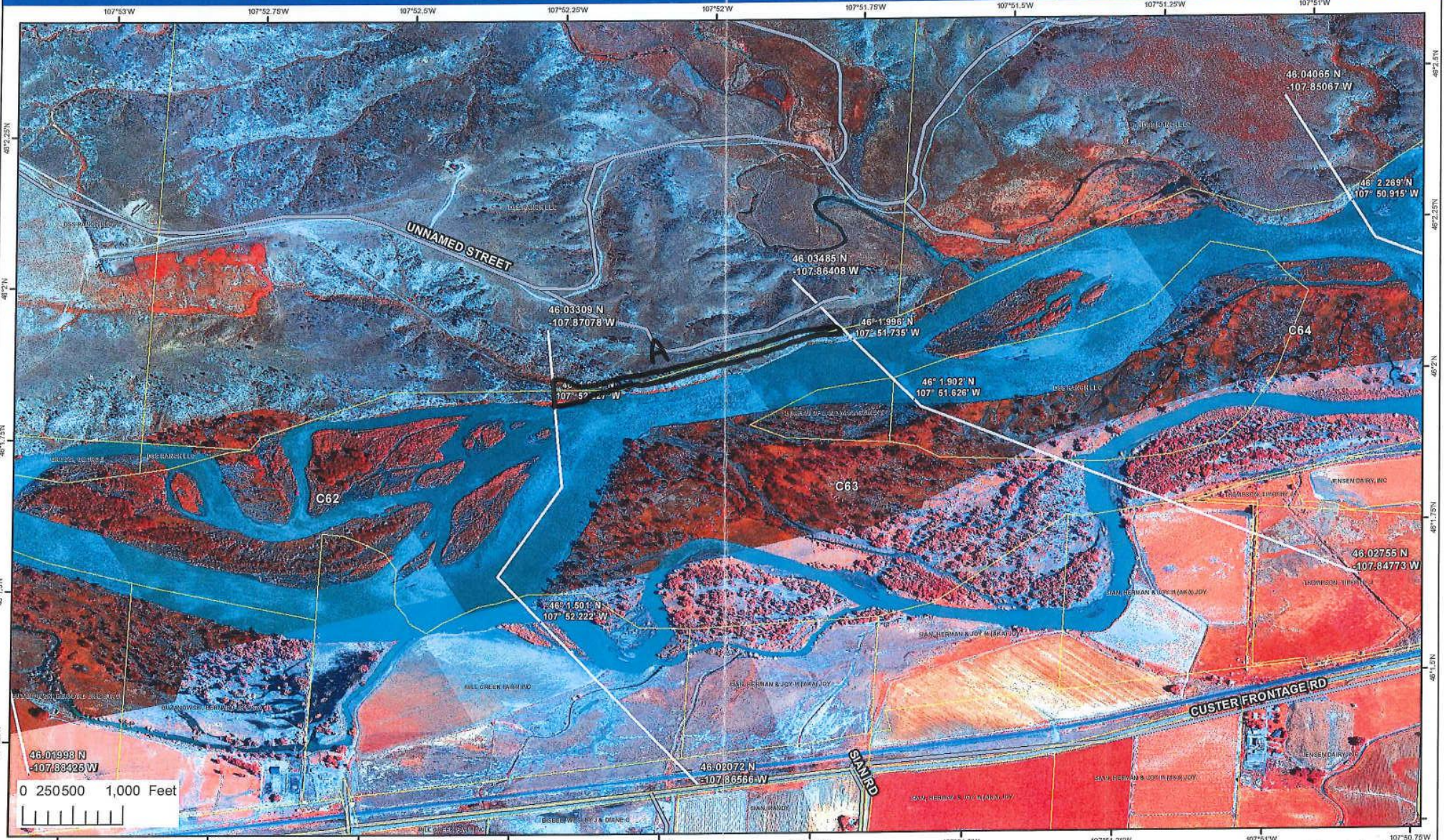
C63 Left Bank
Team 6 8/14/2011

SILVERTIP PIPELINE INCIDENT
Yellowstone River
Map 69

Date: Thursday, August 11, 2011

The Response Group
Emergency Response | Pre-Planning & Support

*Data Current through 08/09/2011



Date: 8/11/2011 Time: 4:28:02 PM

Path: Z:\GIS\MXD's\Segments_Map_11x17.mxd

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident DB/G

Page 1 of ____

1 GENERAL INFORMATION

Segment/Reach ID: C63 Left Bank / Right Bank / Island

Operations Division: C

Survey by: Foot / ATV / Boat / Helicopter / Overlook / ____

Date (dd/mm/yy): 17/08/11

Time (24h): std / daylight 1050 hrs to 1200 hrs

Sun / Clouds / Fog / Rain / Snow / Windy / Calm

Water Level: low - mean - bankfull - overbank; falling - steady - rising

Air Temp + / - 32 deg C

2 SURVEY TEAM # 1+2

name	organization	contact phone number
Robert Nailon Robt Nailon	Cardno ENTRIX	(713) 817-2469 Robt Nailon
Ashley Abdel-hadi	Cardno ENTRIX	(727) 255-9940 Ashley Abdel-hadi
Daniel Elefant	Cardno ENTRIX	(541) 740-6317 [signature]
Jessica Ross	MT DEQ	(406) 437-4780 [signature]
John ~~Rogers~~ Davis	USCG	(415) 328-8663 [signature]

3 SEGMENT Total Segment/Reach Length ____ m Segment/Reach Length Surveyed 1160 m

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

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

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

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

Sediment Bank: Clay/Mud ____ Sand S Mixed ____ Pebble/Cobble ____ 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 ____ confined or leveed ____

Sloped: ____ (>5°)(15°)(30°) straight ____ braided ✓ oxbow ____ flood plain valley ____

complete for primary: Substrate Type: Sand; Forested / Vegetated / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width: <1m 1–10 m 10–100 m >100m ____ m

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 ____ 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 MS	LB	UB	OB	OIL COVER Length m	Width m	Distrib. %	OIL THICKNESS TO	CV	CT	ST	FL	OIL CHARACTER FR	MS	TB	PT	TC	SR	AP	NO	SUBST. TYPE(S)
1631 A			✓		1160	283	<1				✓						✓				woody debris; veg. bank
1632 B			✓		1160	326														✓	woody debris veg. 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 MS	LB	UB	OB	MAX. PIT DEPTH cm	OILED ZONE cm-cm	SUBSURFACE OIL CHARACTER SAP	OP	PP	OR	OF	TR	NO	WATER TABLE cm	SHEEN COLOUR B, R, S, N	CLEAN BELOW Yes / No	SUBST. TYPE(S)

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

Oiling patterns followed depressional swales typically. Isolated sporadic woody debris piles with oil present, typically less than 0.25 meters². NFT recommended

Zone A: <1% distribution

Zone B: NOO

(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# ____

Ver. 04 July 2011

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 2 of _____

1 GENERAL INFORMATION

Segment/Reach ID: Cb3 Left Bank / Right Bank / Island

Operations Division: C

Date (dd/mm/yy)

Time (24h): std / daylight _____hrs to_____hrs

Water Level: low - mean - bankfull - overbank; falling - steady - rising

Survey by: (Foot) / ATV / Boat / Helicopter / Overlook / _____

Sun / Clouds / Fog / Rain / Snow / Windy / Calm

Air Temp + / - ____ deg C

2 SURVEY TEAM # 1 + 2

name	organization	contact phone number
Jay Watson	MtFWP	(406) 698-6240
Todd Farrar	Polaris	(225) 324-5961
Shawn Danforth	Crow Nation	

3 SEGMENT Total Segment/Reach Length _____m Segment/Reach Length Surveyed _____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:_____ 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

Sloped:___(>5°)(15°)(30°)

canyon_____ manmade_____ meander _____ confined or leveed _____

straight_____ braided _____ oxbow_____ flood plain valley_____

Substrate Type: _____

Forested / Vegetated / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width : < 1m 1–10 m 10–100 m >100m _____m

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 _____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)
					Length	Width	Distrib.														
	MS	LB	UB	OB	m	m	%	TO	CV	CT	ST	FL	FR	MS	TB	PT	TC	SR	AP	NO	
A																					

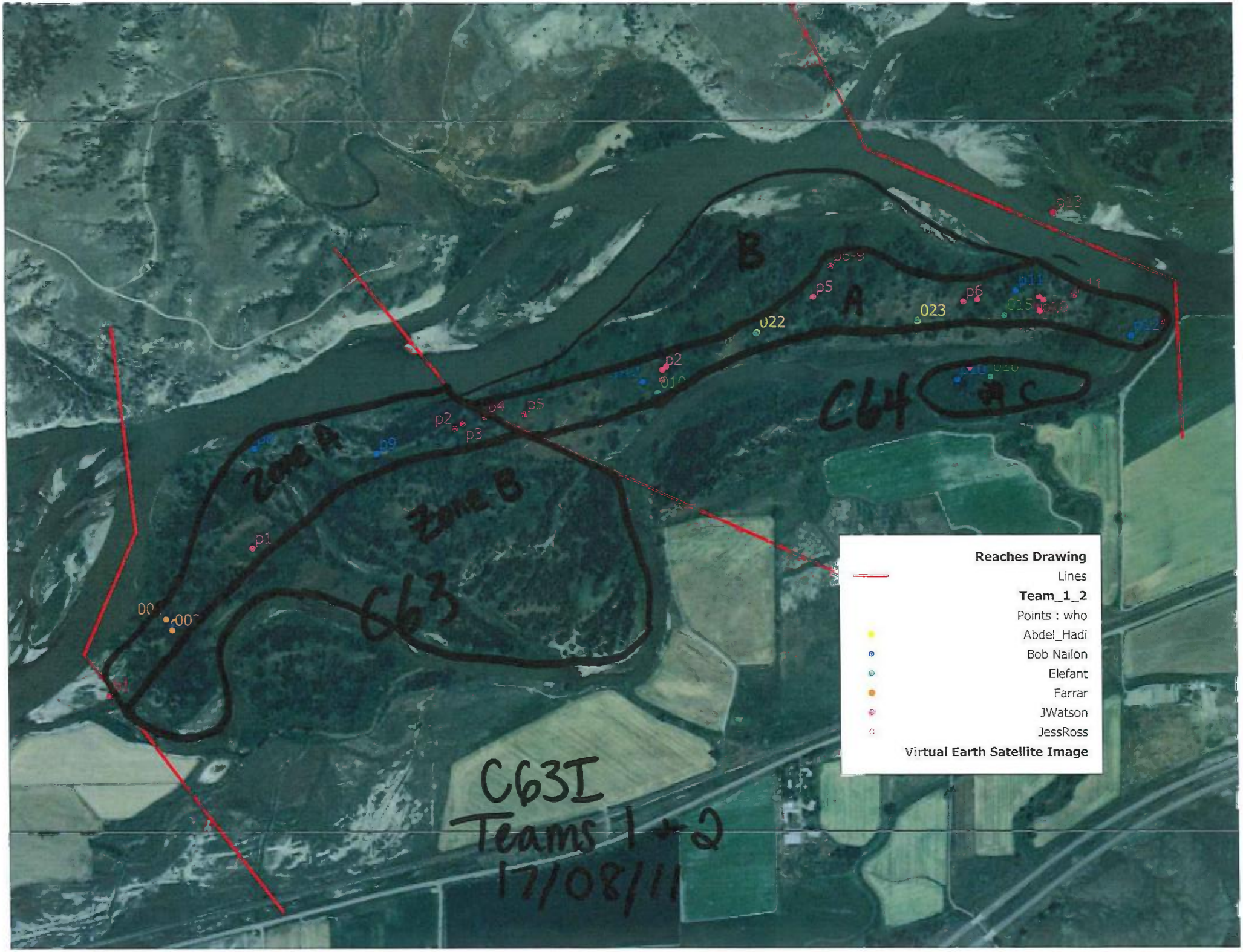
7 SUBSURFACE OILING CONDITIONS use letter for ZONE location plus Number of pit or trench — e.g., "A1"

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

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

(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#_____


Reaches Drawing
Lines
Team_1_2
Points : who
Abdel_Hadi
Bob Nailon
Elefant
Farrar
JWatson
JessRoss
Virtual Earth Satellite Image
C64
C63
Zone A
Zone B
C63I
Teams 1 + 2
17/08/11

ARCADIS

C64

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 2

1 GENERAL INFORMATION

Segment/Reach ID: C64 Left Bank / (Right Bank) / Island

Operations Division: C

Date (dd/mm/yy): 16/08/11

Time (24h): std / daylight 1410 – 1330 hrs to 1500 hrs

Water Level: low - (mean) - bankfull - overbank; (falling) - steady – rising

Survey by: (Foot) / ATV / Boat / Helicopter / Overlook / _____

(Sun) / Clouds / Fog / Rain / Snow / Windy / Calm

Air Temp + / - 24 deg C

2 SURVEY TEAM # 4

Name	Organization	Signature
Bob Nailon	Cardno Entrix	[signature]
Damien Korte	Cardno Entrix	[signature]
Mike Ruggles	FWP	[signature]
Alicja Taylor	USCG	[signature]
Fred Left Hand	Crow Tribe THPO	[signature]

3 SEGMENT Total Segment/Reach Length 1280 m Segment/Reach Length Surveyed 950 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 5 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: Grass

Sloped:___(>5°)(15°)(30°) | straight____ braided X oxbow____ flood plain valley____ | Forested / (Vegetated) / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width: <1m 1–10 m (10–100 m) >100m | 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 ____ 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	
1589 A				✓	950	130	0													✓	Veg 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	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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)

Zone A- NOO
Recommend boat/airboat for access to complete survey of C64 (R) bank.

Sketch (Yes) / No Photos Yes / (No) Frames/Photographer: [illegible]

Ver. 31 July 2011

9/1/2009
SCAT
Team 4
08/15/11
C64
C64
Randalls Island
NO
Zone X
C64E
003
004
405
C63-64
Custer Frontage Rd
© 2011 Google
© 2011 Europa Technologies
Image USDA Farm Service Agency
©2010
1996
46°01'52.78" N 107°50'52.56" W elev 2828 ft

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page _____ of _____

1 GENERAL INFORMATION

Segment/Reach ID: C64 Left Bank / Right Bank / Island

Operations Division:

Date (dd/mm/yy): 17/08/11

Time (24h): std / daylight 1210 hrs to 1515 hrs

Water Level: low - mean - bankfull - overbank; falling - steady – rising

Survey by: Foot / ATV / Boat / Helicopter / Overlook / _____

Sun / Clouds / Fog / Rain / Snow / Windy / Calm

Air Temp + / - ____ deg C

2 SURVEY TEAM # 1+2

Name	Organization	Signature
Robert Nailon - Daniel Elefant	Cardno Entrix	See attached
Ashley Abdel-Hadi	Cardno Entrix	
Jessica Ross	DEQ	
John Davis	USCG	
Jay Watson	MTFWP	
Todd Farrar	Polaris	
Shawn Danforth	Crow Nation	

3 SEGMENT Total Segment/Reach Length _____ m Segment/Reach Length Surveyed 394 m

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

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

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

Bedrock: Cliff/Ramp____ Shelf____ | Manmade: Solid___ Permeable___ (type)____ | Wetland: Swamp____ Bog/Fen____ Marsh _____

Sediment Bank: Clay/Mud____ Sand S Mixed____ Pebble/Cobble____ 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: 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 1–10 m 10–100 m >100m 160m | 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 ____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			✓		394	128	—													✓	

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)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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

C — NOO

*Moved from C64 IS 17/08/11

AA 12 Oct 2011

Sketch Yes / No Photos Yes / No Frames_____ Photographer_____

C64-IS
Randalls Island
A
C64-RB
©2011 Google
© 2011 Europa Technologies
Google

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

Page 1 of ____

1 GENERAL INFORMATION

Segment/Reach ID: C64 Left Bank / Right Bank / Island

Operations Division: C

Date (dd/mm/yy): 17/08/11

Time (24h): std / daylight 1210 hrs to 1515 hrs

Water Level: low - mean - bankfull - overbank; falling - steady - rising

Survey by: Foot / ATV / Boat / Helicopter / Overlook / ____ Sun / Clouds / Fog / Rain / Snow / Windy / Calm

Air Temp + / - ____ deg C

2 SURVEY TEAM # 1+2

Name	Organization	Signature
Robert Nailon	Cardno Entrix	[signature]
Ashley Abdel-Hadi	Cardno Entrix	[signature]
Daniel Elefant	Cardno Entrix	[signature]
Jessica Ross	DEQ	[signature]
John Davis	USCG	[signature]
Jay Watson	MTFWP	[signature]
Todd Farrar	Polaris	[signature]

3 SEGMENT Total Segment/Reach Length ____ m Segment/Reach Length Surveyed 1900 m

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

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

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

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

Sediment Bank: Clay/Mud ____ Sand S Mixed ____ Pebble/Cobble ____ 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 ____ confined or leveed ____

Sloped: ____ (>5°)(15°)(30°) straight ____ braided ✓ oxbow ____ flood plain valley ____

complete for primary: Substrate Type: Sand; Forested / Vegetated / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width: < 1m 1–10 m 10–100 m >100m 160m

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 ____ 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 MS	LB	UB	OB	OIL COVER Length m	Width m	Distrib. %	OIL THICKNESS TO	CV	CT	ST	FL	OIL CHARACTER FR	MS	TB	PT	TC	SR	AP	NO	SUBST. TYPE(S)
628 A			✓		1523	165	<1				✓						✓				Woody debris veg bank
629 B			✓		1210	222														✓	Woody debris veg bank
630 C			✓		394	128														✓	

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

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

Oiling patterns followed depressional swales typically. Isolated sporadic woody debris piles with oil present, typically less than 0.25 m²

Zone A: <1% distribution

Zone B: NOO

* Zone C moved to C64 RB

AA 12 Oct 2011

Sketch Yes / No Photos Yes / No Frames ____ Photographer ____

Ver. 04 July 2011

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

Page 2 of _____

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C64 Left Bank / Right Bank / (Island)	17/08/11		low - mean - bankfull - overbank
Operations Division:		_____ hrs to _____ hrs	falling - steady – rising
Survey by: (Foot / ATV / Boat / Helicopter / Overlook / _____	Sun / Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp + / - ____ deg C

2 SURVEY TEAM # 1+2	Name	Organization	Signature
	Shawn Danforth	Crow Nation	

3 SEGMENT — Total Segment/Reach Length _____ m — Segment/Reach Length Surveyed _____ 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:_____ | Wooded Upland: ____

Sediment Flat: Clay/Mud_____ Sand_____ Mixed/Coarse_____ | Other: _____ | If snow and ice use Winter River SOS

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

Cliff or Bluff:____Est Height _____m | canyon_____ manmade_____ meander _____ confined or leveed _____ | Substrate Type: _____

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 1–10 m 10–100 m >100m 160m — 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 _____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																					

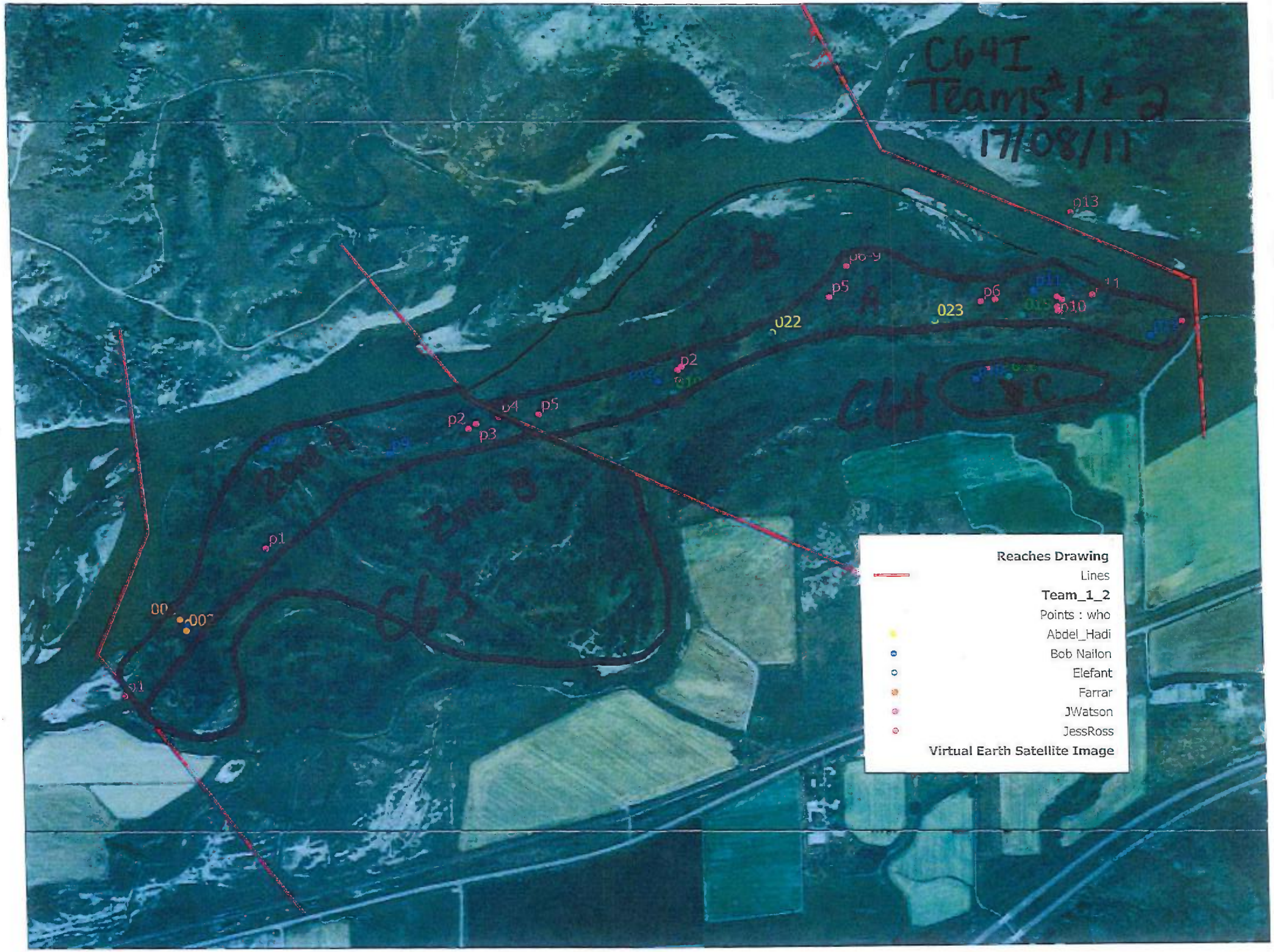
7 SUBSURFACE OILING CONDITIONS — use letter for ZONE location plus Number of pit or trench — e.g., "A1"

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

Sketch Yes / No — Photos Yes / No — Frames_____ — Photographer_____


C64I
Teams #1 + 2
17/08/11
Reaches Drawing
Lines
Team_1_2
Points : who
Abdel_Hadi
Bob Nailon
Elefant
Farrar
JWatson
JessRoss
Virtual Earth Satellite Image
C64
C63
Zone B
Zone A
p1
p2
p3
p4
p5
p6
p10
p13
022
023

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION

Segment/Reach ID: C 04 Left Bank / Right Bank / Island

Operations Division: C

Date (dd/mm/yy): 25/07/11

Time (24h): std / daylight 1131 hrs to 1132 hrs falling / steady – rising

Water Level: low - mean - bankfull - overbank

Survey by: Foot / ATV / Boat / Helicopter / Overlook / _____ Sun / Clouds / Fog / Rain / Snow / Windy / Calm

Air Temp + / - 25 deg C

2 SURVEY TEAM # 6

Name	Organization	Signature
Chelsea Murphy	Cardno ENTRIX	[illegible]
David Rouse	US Fish and Wildlife	
Jay Watson	MT Fish Wildlife and Parks	

3 SEGMENT Total Segment/Reach Length ~1,150 m Segment/Reach Length Surveyed ~1,211 m

Start GPS: LATITUDE 46.037527 deg. ___ min. LONGITUDE 101.8486346 deg. ___ min. Datum: WGS 84

End GPS: LATITUDE 46.033056 deg. ___ min. LONGITUDE 101.8618339 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 S Sand ___ Mixed ___ Pebble/Cobble ___ Boulder ___ Peat/Organic ___ Vegetated Bank: P Wooded Upland: ___

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

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

Cliff or Bluff: ___ Est Height ___ m canyon ___ manmade ___ meander S confined or leveed ___ Substrate Type: mud/silt

Sloped: 20 (>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 1–10 m 10–100 m >100m 160m 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 ___ trucks access restrictions by Cliff face

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 MS	LB	UB	OB	OIL COVER Length m	Width m	Distrib. %	OIL THICKNESS TO	CV	CT	ST	FL	OIL CHARACTER FR	MS	TB	PT	TC	SR	AP	NO	SUBST. TYPE(S)
1330	A			P		619	<1	Ø													P	
1331	B			P		252	<1	2%				P		P								
1332	C			P		340	<1	Ø													P	

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

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 - NOO

Zone B - 3 inch band stained - ~1/2 foot above shoreline - Additional SCAT recommended

Zone C - NOO

Sketch Yes / No Photos Yes / No Frames 1582 Photographer Chelsea Murphy

Ver. 04 July 2011

CGALB
Team#6
25/07/11

D3/G15

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C64 **Left Bank** / Right Bank / Island	08/14/2011		low - mean - bankfull - overbank
Operations Division:		0917 hrs to 1105 hrs	**falling** - steady – rising
Survey by: **Foot** / ATV / Boat / Helicopter / Overlook / _____		**Sun** / Clouds / Fog / Rain / Snow / Windy / Calm	Air Temp + / - 35 deg C

2 SURVEY TEAM # 6	Name	Organization	Signature
	Chris Arredondo	CardnoENTRIX	
	Matthew Kent	DEQ	
	Cindy Santiago	EPA	Cindy C. Santiago
	Shawn Dansorth	EthnoScience	

3 SEGMENT Total Segment/Reach Length 1177 m Segment/Reach Length Surveyed 905 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 S Shelf ____ **Manmade:** Solid ___ Permeable ___ (type) ____ **Wetland:** Swamp ____ Bog/Fen ____ Marsh ____

Sediment Bank: Clay/Mud ____ Sand ____ Mixed S Pebble/Cobble ____ Boulder S 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 ____ confined or leveed ____ Substrate Type: **Mixed**

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

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

est. width : < 1m 1–10 m **10–100 m** >100m 160m **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 0 bags or 0 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)
					Length	Width	Distrib.														
	MS	LB	UB	OB	m	m	%	TO	CV	CT	ST	FL	FR	MS	TB	PT	TC	SR	AP	NO	
1559 A				X	905	199														X	
1560 B				X	30	1	<1			X							X				Shrubs
1561 C				X	81	82	<1			X	(X)						X	(X)			Grass, Shrubs
1562 D				X	254	209														X	
1563 E				X	48	79	<1			X							X				Grass, Shrubs

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)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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

Zone A: No treatment required.
Zone B: Natural attenuation recommended.
Zone C: Natural attenuation recommended.
Zone D: Natural attenuation recommended.
Zone E: Natural attenuation recommended.

Note: The eastern portion of the segment could not be surveyed by foot due to cliffs. We recommend using a boat to survey the rest of the shoreline.

Sketch Yes / No **Photos** Yes / No **Frames** _____ **Photographer** Chris Arredondo/Matthew Kent

ExxonMobil Pipeline

N

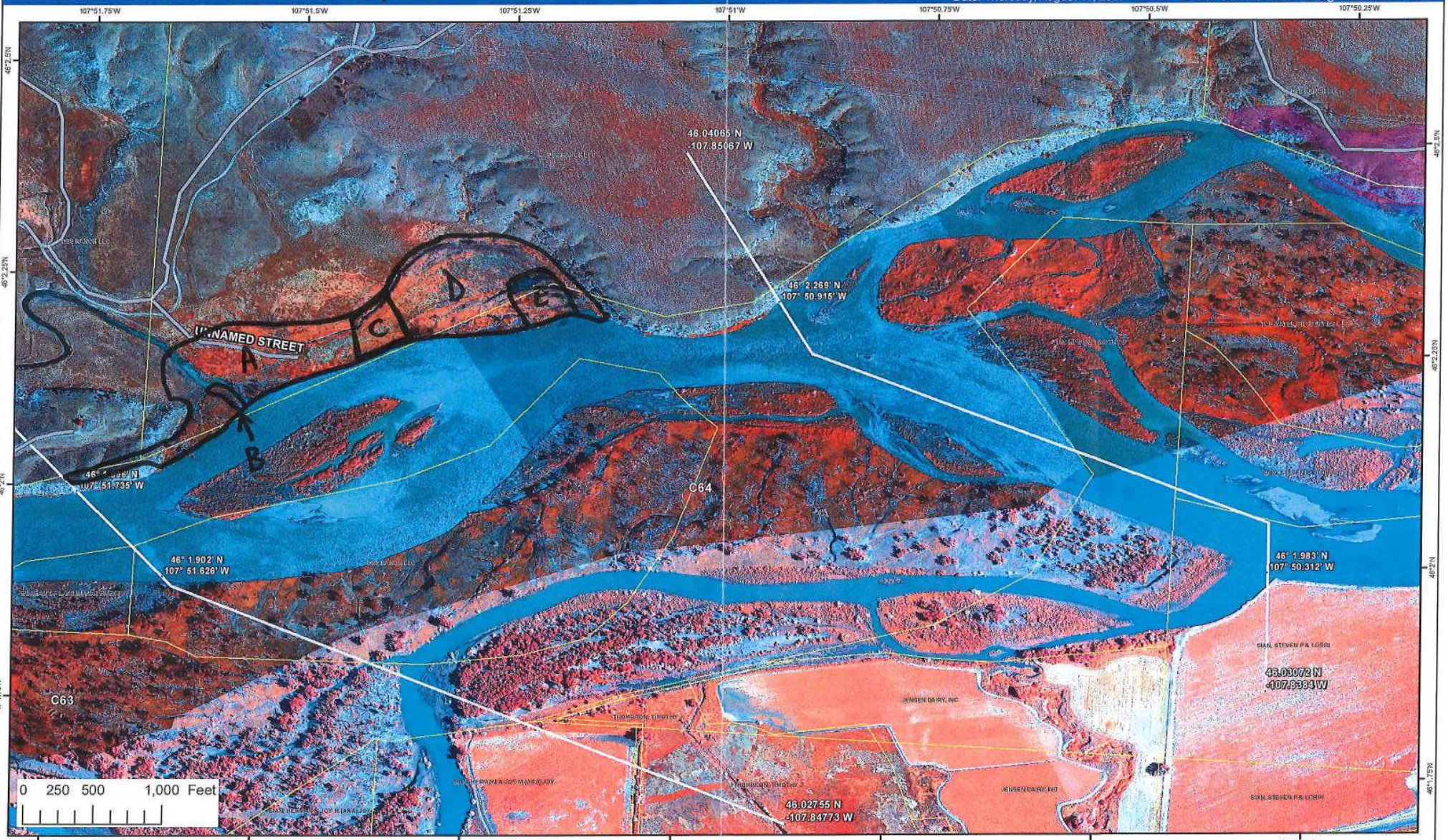
C64 Left Bank
Team 6 8/14/2011

SILVERTIP PIPELINE INCIDENT
Yellowstone River
Map 70

Date: Thursday, August 11, 2011

The Response Group
Emergency Response | Pre-Planning & Support

*Data Current through 08/09/2011



Date: 8/11/2011 Time: 4:28:36 PM

Path: Z:\GIS\MXD's\Segments_Map_11x17.mxd

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of ____

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C64 Left Bank / Right Bank / Island	17/08/11	1210 hrs to 1515 hrs	low - mean - bankfull - overbank
Operations Division: C			falling - steady – rising
Survey by: Foot / ATV / Boat / Helicopter / Overlook / ____	Sun / Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp + / - ____ deg C

2 SURVEY TEAM # 1 & 2

Name	Organization	Signature
Robert Nailon	Cardno Entrix	
Ashley Abdel-Hadi	Cardno Entrix	
Daniel Elefant	Cardno Entrix	
Jessica Ross	DEQ	
John Davis	USCG	
Jay Watson	MTFWP	
Todd Farrar	Polaris	

3 SEGMENT Total Segment/Reach Length ____ m Segment/Reach Length Surveyed 1900 m

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

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

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

Bedrock: Cliff/Ramp____ Shelf____ | Manmade: Solid___ Permeable___ (type)____ | Wetland: Swamp____ Bog/Fen____ Marsh ____

Sediment Bank: Clay/Mud____ Sand S Mixed____ Pebble/Cobble____ 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: 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 1–10 m 10–100 m >100m 160m | 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 ____ 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	
1628 A			✓		1523	165	<1				✓				✓		✓				Woody debris
1629 B			✓		1210	222														✓	Woody debris
1630 C			✓		394	128														✓	Veg 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	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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

Oiling patterns followed depressional swales typically. Isolated sporadic woody debris piles with oil present, typically less than 0.25 m²

Zone A: <1% distribution

Zone B: NOO

**Zone C moved to C64 RB

Sketch Yes / No Photos Yes / No Frames ____ Photographer ____

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 2 of _____

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C64 Left Bank / Right Bank / (Island)	17/08/11	hrs to _____ 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 + / - ____ deg C

2 SURVEY TEAM # 1+2

Name	Organization	Signature
Shawn Danforth	Crow Nation	

3 SEGMENT *Total Segment/Reach Length* _____ *m* *Segment/Reach Length Surveyed* _____ *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:*_____ | *Wooded Upland:* ____

Sediment Flat: Clay/Mud_____ Sand_____ Mixed/Coarse_____ | *Other:* _____ | If snow and ice use Winter River SOS

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

Cliff or Bluff:____Est Height _____m | canyon_____ manmade_____ meander _____ confined or leveed _____ | Substrate Type: _____

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 1–10 m 10–100 m >100m 160m | 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 _____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)
					Length	Width	Distrib.														
	MS	LB	UB	OB	m	m	%	TO	CV	CT	ST	FL	FR	MS	TB	PT	TC	SR	AP	NO	
A																					

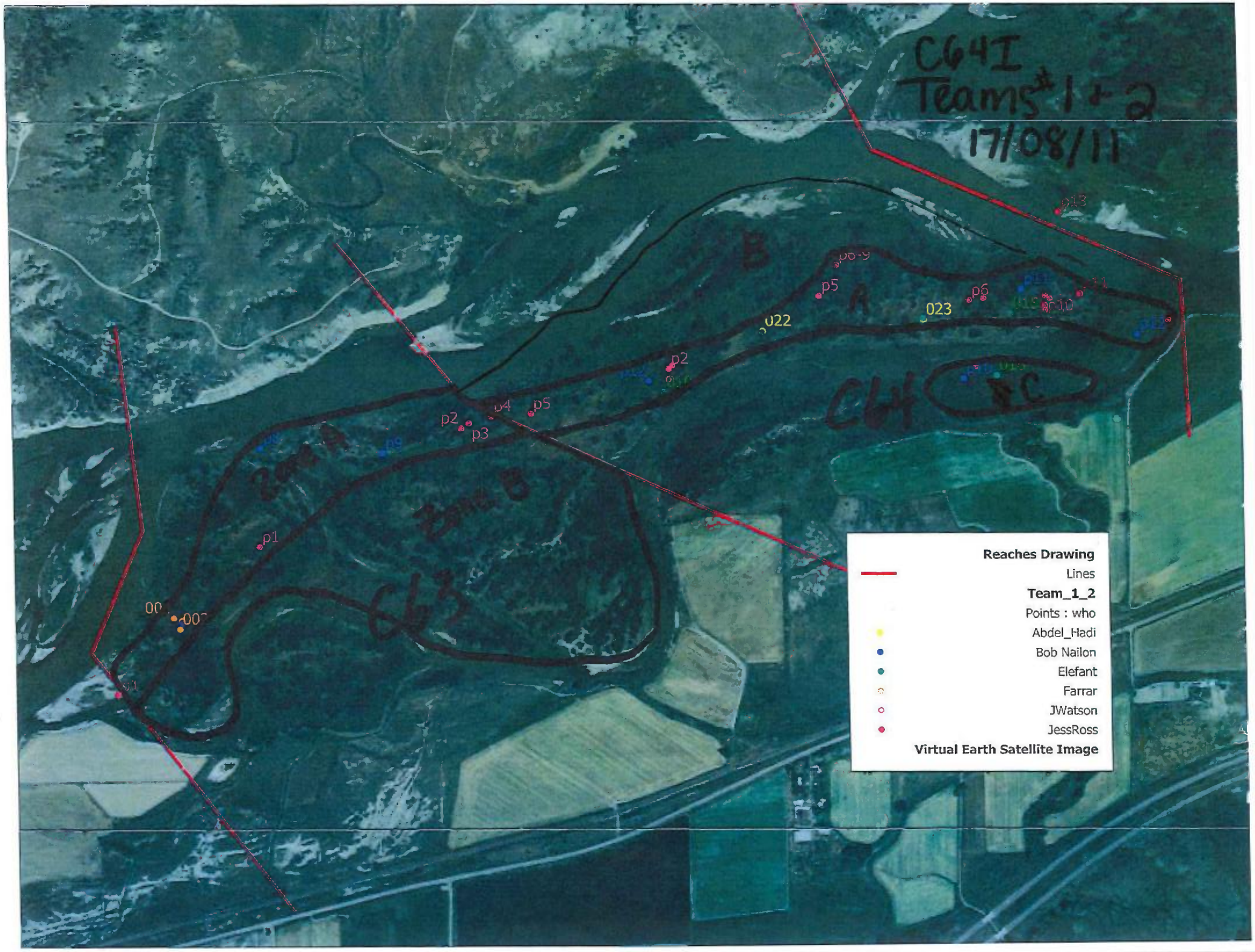
7 SUBSURFACE OILING CONDITIONS *use letter for ZONE location plus Number of pit or trench — e.g., "A1"*

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

Sketch Yes / No **Photos** Yes / No **Frames**_____ **Photographer**_____


C64I
Teams #1 + 2
17/08/11
Reaches Drawing
Lines
Team_1_2
Points : who
Abdel_Hadi
Bob Nailon
Elefant
Farrar
JWatson
JessRoss
Virtual Earth Satellite Image
C64
C63
Zone A
Zone B
A
B
C
p1
p2
p3
p4
p5
p6
p13
022
023

D/6

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 2

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C64 Left Bank / Right Bank / Island	13/09/2011	9h30 hrs to 11h00 hrs	low - mean - bankfull - overbank
Operations Division: C			falling - steady – rising
Survey by: Foot / ATV / Boat / Helicopter / Overlook / _____	Sun / Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp + / - 21 deg C

2 SURVEY TEAM # 2	Name	Organization	Signature
	Merlo Gauvreau	Polaris	
	Donnie McCurry	DEQ	
	Ed Kiely	DEQ	

3 SEGMENT Total Segment/Reach Length 1154 m Segment/Reach Length Surveyed 453 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____ 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 X manmade____ meander ____ confined or leveed ____ | Substrate Type: Mixed

Sloped:___(>5°)(15°)(30°) | straight____ braided X oxbow____ flood plain valley____ | Forested / Vegetated / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width: < 1m 1–10 m 10–100 m >100m | 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 ___ 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	
2240 A				X	139	35	<1				X							X			Tree
2241 B				X	453	120														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	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	cm	B, R, S, N	Yes / No	

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

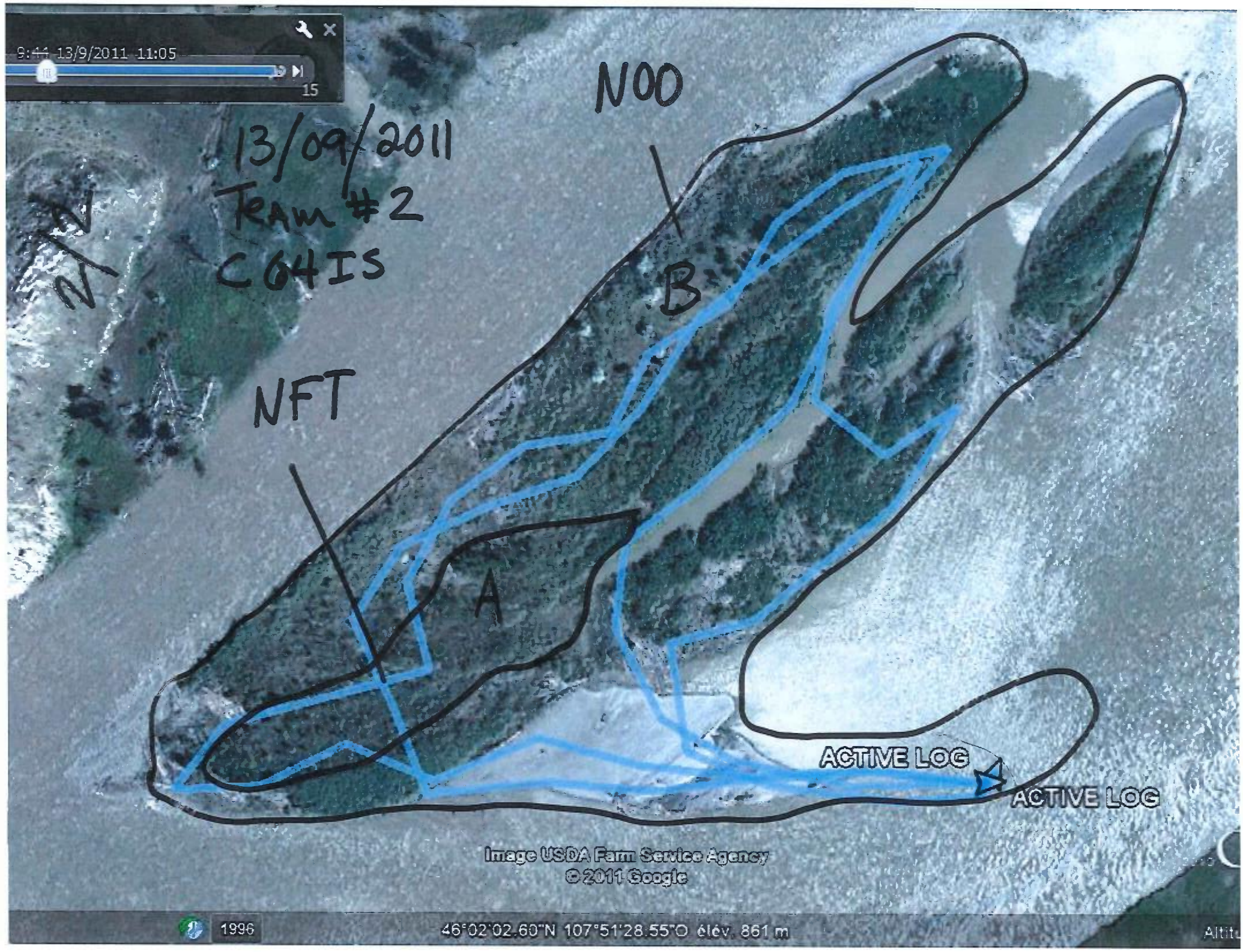
Overbank Survey Required Y / N Overbank Survey Completed Y / N Shoreline Survey Completed Y / N

A: Original SCAT; Stain on trees < 1%, NFT

B: NOO

Sketch Yes / No Photos Yes / No Frames/Photographer: _____

Ver. 31 July 2011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15
13/09/2011
TEAM #2
C64IS
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A
ACTIVE LOG
ACTIVE LOG
Image USDA Farm Service Agency
© 2011 Google
1996
46°02'02.60"N 107°51'28.55"O élév. 861 m

SCAT Segment Operations Completion Sign-Off Sheet

Silvertip Pipeline Release

Segment C64 IS Date of Survey 13/09/2011

Dates of Initial SCAT Assessments _____
(to be filled out by SCAT Data Management)

CTR(s) Associated with SCAT Segment _____

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

Segment Assessment Complete[1] ☒

Partial Segment Assessment ☐

Wasn't a ReSCAT

The undersigned are in agreement that the above segment c
Approved Treatment Methods Target En

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.

Sign Name | Print Name/ Affiliation | Date
Federal Representative (EPA/USCG)

EDWARD E. KIZY 9/13/11

Sign Name | Print Name/ Affiliation | Date
State Representative (DEQ/FWP)

Merlo Gauvreau, Polaris 13/09/2011

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.

[1] 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.

ARCADIS

C65

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C65 Left Bank / **Right Bank** / Island	06/08/11		low - mean - **bankfull** - overbank
Operations Division:		1200 hrs to 1220 hrs	**falling** - steady – rising
Survey by: **Foot** / ATV / Boat / Helicopter / Overlook /	**Sun / Clouds** / Fog / Rain / Snow / Windy / Calm		Air Temp + / - 25 - 35 deg C

2 SURVEY TEAM # 5	Name	Organization	Signature
	Josh Hofkes	Cardno ENTRIX	
	Ron Lynn	USCG	
	Mark Peterson	DEQ	Mark Peterson

3 SEGMENT *Total Segment/Reach Length* _____ *m* *Segment/Reach Length Surveyed* 433 *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 S

Sediment Bank: Clay/Mud S Sand S Mixed (S) Pebble/Cobble S Boulder____ Peat/Organic P | *Vegetated Bank:* (X) | *Wooded Upland:* X

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: organic

Sloped:___(>5°)(15°)(30°) | straight____ braided ____ oxbow____ flood plain valley P | **Forested** / **Vegetated** / Bare

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

est. width : < 1m 1–10 m 10–100 m **>100m** | **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 NA bags or NA 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)
					Length	Width	Distrib.														
	MS	LB	UB	OB	m	m	%	TO	CV	CT	ST	FL	FR	MS	TB	PT	TC	SR	AP	NO	
1243 A				X	0.5	0.5	<1			S	P						S				vegetative
1244 B				X	0.5	0.5	<1			P	S						S				mix
1245 C				X	433	115														X	mix

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)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	cm	B, R, S, N	Yes / No	

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

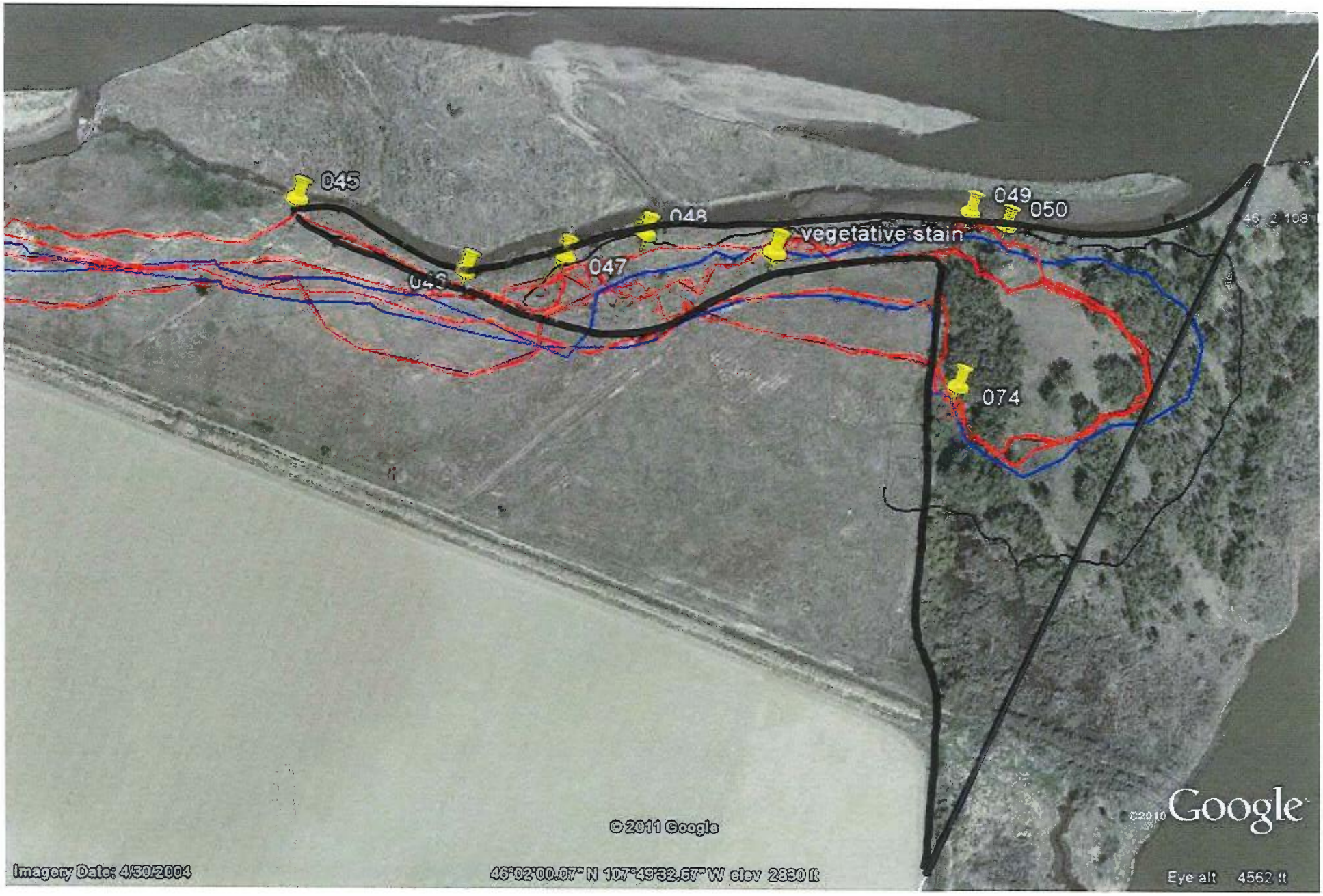
Overbank Survey Required Y / N Overbank Survey Completed Y / N Shoreline Survey Completed Y / N

Zone A: Isolated stain on vegetative. No further treatment (NFT) recommended.

Zone B: Isolated trace oil coat on vegetative debris. No further treatment (NFT) recommended.

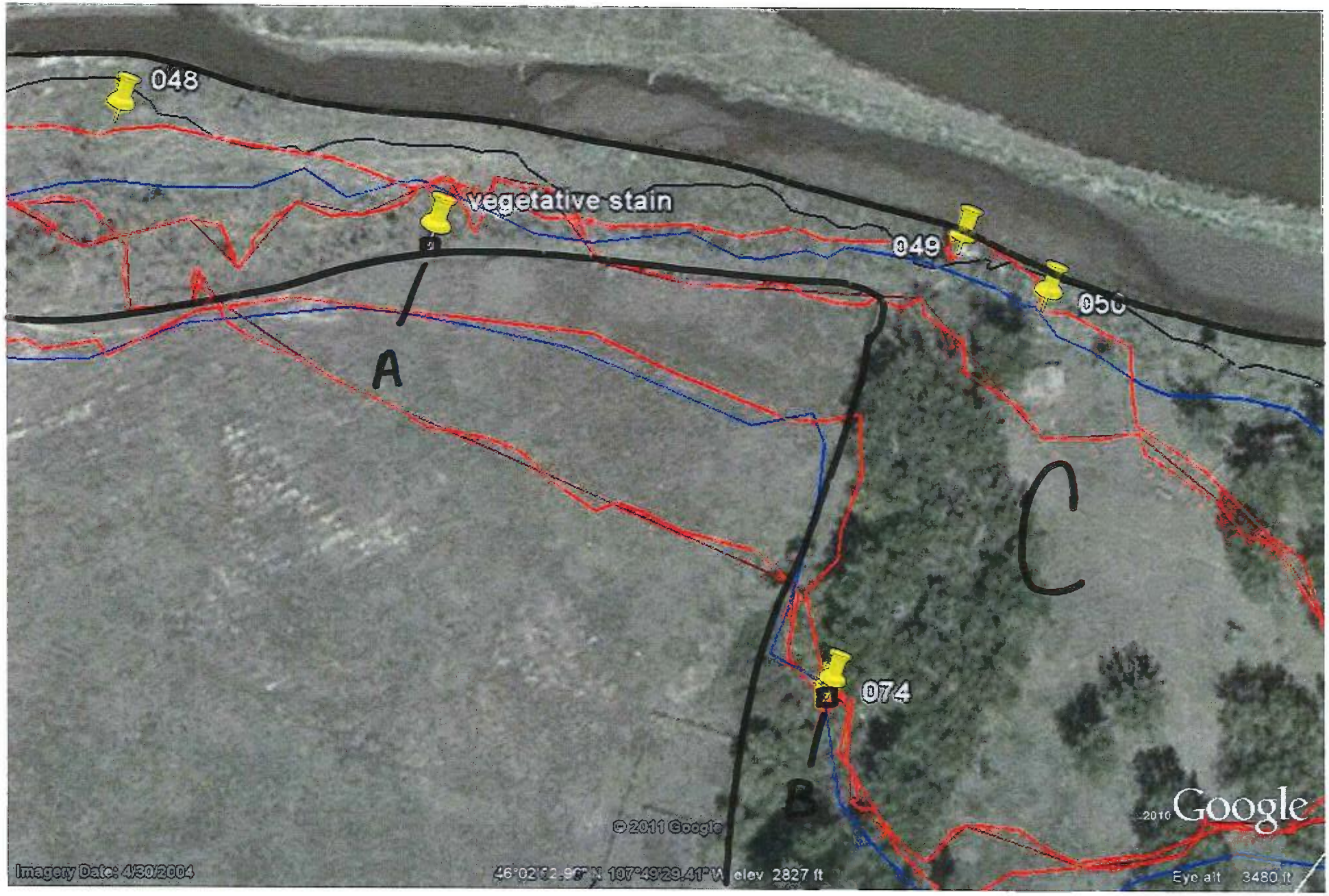
Zone C: No oiling observed. No further treatment (NFT) recommended.

Sketch Yes / No Photos Yes / No **Frames/Photographer:** _____



August 6, 2011

TEAM 5 C 65 RB 1 of 2



August 6, 2011
TEAM 5 C65 RB 2 of 2

D13/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION

Segment/Reach ID: C 105 (Left Bank) / Right Bank / Island

Operations Division: C

Date (dd/mm/yy): 25/07/11

Time (24h): std / daylight 1130 hrs to 1131 hrs (falling) steady – rising

Water Level: low - mean - (bankfull) overbank

Survey by: Foot / ATV / (Boat) / Helicopter / Overlook / _____ (Sun) / Clouds / Fog / Rain / Snow / Windy / Calm

Air Temp + / - 25 deg C

2 SURVEY TEAM # 6

Name	Organization	Signature
Chelsea Murphy	Cardno ENTRIX	[signature]
David Rouse	US Fish and Wildlife	
Jay Watson	MT Fish Wildlife and Parks	

3 SEGMENT Total Segment/Reach Length ~2,025 m Segment/Reach Length Surveyed ~2,170 m

Start GPS: LATITUDE 46.037949 deg. — min. LONGITUDE 107.823185 deg. — min. Datum: WGS 84

End GPS: LATITUDE 46.037527 deg. — min. LONGITUDE 107.848636 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 S___ Sand____ Mixed____ Pebble/Cobble____ Boulder____ Peat/Organic____ | Vegetated Bank: (P) | Wooded Upland: ____

Sediment Flat: Clay/Mud____ Sand____ Mixed/Coarse____ | Other: ____ | If snow and ice use Winter River SOS

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

Cliff or Bluff: ____ Est Height ____ m | canyon____ manmade____ meander S___ confined or leveed____ | Substrate Type: mud/silt

Sloped: 70 (>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 1–10 m 10–100 m (>100m) 160m | 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 ___ trucks | access restrictions Along steep LB cliff

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 MS	LB	UB	OB	OIL COVER Length m	Width m	Distrib. %	OIL THICKNESS TO	CV	CT	ST	FL	OIL CHARACTER FR	MS	TB	PT	TC	SR	AP	NO	SUBST. TYPE(S)
1333	A			P		2090	<1	Ø													P	
1334	B			P		30	<1	1%				P		P								
1335	C			P		150	<1	Ø													P	

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

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 - NOO

Zone B - 3" band in vegetation on UB - Light stain - Fleither SCAT Recommended

Zone C - NOO

Sketch (Yes) / No Photos (Yes) / No Frames 1MG — 1581 Photographer Chelsea Murphy

Ver. 04 July 2011

C65LB
Team #6
25/07/11

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C65 **Left Bank** / Right Bank / Island	08/05/2011		low - mean - **bankfull** - overbank
Operations Division:		0835 hrs to 0945 hrs	**falling** - steady – rising
Survey by: **Foot** / ATV / Boat / Helicopter / Overlook / _____	**Sun** / **Clouds** / Fog / Rain / Snow / Windy / Calm		Air Temp + / - 3 2 deg C

2 SURVEY TEAM # 4	Name	Organization	Signature
	Bruce Kvam	Polaris	Bruce Kvam
	Chris Arredondo	CardnoEntrix	
	Mike Ruggles	FWP	
	John Davis	USCG	

3 SEGMENT *Total Segment/Reach Length* 2250 *m* *Segment/Reach Length Surveyed* 2250 *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 P___ Sand_____ Mixed_____ Pebble/Cobble S___ Boulder S___ Peat/Organic_____ ***Vegetated Bank:*** P___ ***Wooded Upland:*** (S)

Sediment Flat: Clay/Mud_____ Sand_____ Mixed/Coarse_____ ***Other:*** _____ If snow and ice use Winter River SOS

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

Cliff or Bluff:____Est Height _____m canyon_____ manmade_____ meander _____ confined or leveed _____ Substrate Type: Clay/Mud

Sloped:___(>5°)(15°)(30°) straight_____ braided X oxbow_____ flood plain valley_____ Forested / **Vegetated** / Bare

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

est. width : < 1m 1–10 m **10–100 m** >100m 160m **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 0 bags or 0 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)
					Length	Width	Distrib.														
	MS	LB	UB	OB	m	m	%	TO	CV	CT	ST	FL	FR	MS	TB	PT	TC	SR	AP	NO	
1222 A				X	1924	1														X	
1223 B				X	326	90	<1				X						X				Grass, Shrub, 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	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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

Zone A: No treatment required.

Zone B: No treatment recommended.

Sketch Yes / No **Photos** Yes / No **Frames**_____ **Photographer**: Bruce Kvam/Chris Arredondo

ExxonMobil Pipeline

N

SILVERTIP PIPELINE INCIDENT
Yellowstone River
Map 71

The Response Group
Emergency Response | Pre-Planning & Support

*Data Current through 7/30/2011

Date: 7/31/2011 Time: 11:55:49 AM

Path: Z:\GIS\MXD's\Segments_Map_11x17.mxd

G65L - Team #4 - 08/05/11

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C65 Left Bank / Right Bank / Island	09/09/11		low - MEAN - bankfull - overbank
Operations Division:		____hrs to____hrs	falling - STEADY - rising
Survey by: Foot / ATV / Boat / Helicopter / Overlook / ____	Sun / Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp + / - 26 deg C

2 SURVEY TEAM # 1	name	organization	contact phone number
	Tom Freeman	Polaris App. Sciences	Tom Freeman
	Jeffrey Herrick	MT DEQ	Jeffrey Herrick

3 SEGMENT Total Segment/Reach Length 1,750 m m Segment/Reach Length Surveyed 1,750 m 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 Pebble/Cobble X Boulder____ Peat/Organic____ | Vegetated Bank: Yes | Wooded Upland: ____

Sediment Flat: Clay/Mud____ Sand____ Mixed/Coarse____ | Other: ____ | If snow and ice use Winter River SOS

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

Cliff or Bluff: ___ Est Height ____m | canyon____ manmade____ meander ____ confined or leveed ____ | Substrate Type: MIXED

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 1–10 m 10–100 m >100m ____m | 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 ____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	
2218 A				X	1750	600														X	Veg/Debris
2219 B				X	20	1	<1			P	S						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	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	cm	B, R, S, N	Yes / No	

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

Zone A: NOO - NFT

Zone B: Small "patch" of transferrable product on willow stand. Removed By Hot Shots. If not removed the area would still be considered 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#____

Yellow = missing tracks

* See attached to add x missing track.

ARCADIS

C66

D/B/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 2

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C66 Left Bank / Right Bank / Island	17/08/11	1316 hrs to 1530 hrs	low - mean - bankfull - overbank
Operations Division: C			falling - steady – rising
Survey by: Foot / ATV / Boat / Helicopter / Overlook / _____		Sun / Clouds / Fog / Rain / Snow / Windy / Calm	Air Temp + / - 30 deg C

2 SURVEY TEAM # 3

Name	Organization	Signature
Damien Korte	Cardno Entrix	
Lance Richman	EPA	
Jeffrey Herrick	DEQ	

3 SEGMENT Total Segment/Reach Length 980 m Segment/Reach Length Surveyed 980 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 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 | complete for primary

Cliff or Bluff: ___ Est Height ____ m | canyon____ manmade____ meander ____ confined or leveed ____ | Substrate Type: Grass

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 1–10 m 10–100 m >100m | 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 ____ 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				✓	980	400	0													✓	
B				✓	10	10	<1			P	S				~~NO~~		✓				Grass
C			✓		3	3	<1			P	S				~~NO~~		✓				Grass

1609
1610
1611

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)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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

Zone A - NOO

Zone B - Very light coat on grass, less than 1%. Recommend ~~AFM~~ DK 8/17/11 NFT.

Zone B - Very light coat on grass, less than 1% Recommend ~~AFM~~ DK 8/17/11 NFT

Sketch Yes / No Photos Yes / No Frames/Photographer: DK

Ver. 31 July 2011

9/1/2009
SLAT
Team 3
08/17/11
Zone A - NOO
C66
C66
C66W
006
Zone B - Very light coat on grass, NFT
007
Zone C - Very light coat on grass, NFT
004
Custer Frontage Rd
Old Hwy
© 2011 Google
Image USDA Farm Service Agency
©2010
1996
46°02'05.66" N 107°49'01.01" W elev 2822 ft

DB /G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

Page 1 of 1

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C 66 (Left Bank) / Right Bank / Island	25/07/11	1125 hrs to 1130 hrs	low - mean (bankfull) overbank
Operations Division: C			(falling) steady – rising
Survey by: Foot / ATV (Boat) / Helicopter / Overlook / _____	(Sun) / Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp + / - 25 deg C

2 SURVEY TEAM # 6	Name	Organization	Signature
	Chelsea Murphy	Cardno ENTRIX	[signature]
	David Rouse	US Fish and Wildlife	
	Jay Watson	MT Fish Wildlife and Parks	

3 SEGMENT Total Segment/Reach Length ~800 m Segment/Reach Length Surveyed ~800 m

Start GPS: LATITUDE 46 deg. 2.315 min. LONGITUDE 107 deg. 48.750 min. Datum: WGS 84

End GPS: LATITUDE 46 deg. 2.281 min. LONGITUDE 107 deg. 49.368 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: ____

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/silt

Sloped:___(>5°)(15°)(30°) | straight____ braided P oxbow____ flood plain valley____ | Forested (Vegetated) Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width : < 1m 1–10 m 10–100 m (>100m) 160m | 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 ____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 MS	LB	UB	OB	OIL COVER Length m	Width m	Distrib. %	OIL THICKNESS TO	CV	CT	ST	FL	OIL CHARACTER FR	MS	TB	PT	TC	SR	AP	NO	SUBST. TYPE(S)
1336 A			P		800	<1	0													P	veg/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 MS	LB	UB	OB	MAX. PIT DEPTH cm	OILED ZONE cm-cm	SUBSURFACE OIL CHARACTER SAP	OP	PP	OR	OF	TR	NO	WATER TABLE cm	SHEEN COLOUR B, R, S, N	CLEAN BELOW Yes / No	SUBST. TYPE(S)

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 - NOO

Sketch (Yes) / No Photos Yes / (No) Frames_____ Photographer_____

C66 LB
Team#6
25/07/11

DB / G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION

Segment/Reach ID: C66 **Left Bank** / Right Bank / Island

Operations Division:

Date (dd/mm/yy) 08/05/2011

Time (24h): std / daylight 0946 hrs to 1100 hrs (falling) / steady – rising

Water Level low - mean - **bankfull** - overbank

Survey by: **Foot** / ATV / Boat / Helicopter / Overlook / _____

(Sun) / Clouds / Fog / Rain / Snow / Windy / Calm

Air Temp + / - 3 2 deg C

2 SURVEY TEAM # 4

Name	Organization	Signature
Bruce Kvam	Polaris	Bruce Kvam
Chris Arredondo	CardnoEntrix	
Mike Ruggles	FWP	
John Davis	USCG	

3 SEGMENT *Total Segment/Reach Length* 800 *m* *Segment/Reach Length Surveyed* 800 *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 P___ 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 _____ confined or leveed _____ Substrate Type: Clay/Mud

Sloped:___(>5°)(15°)(30°) straight_____ braided X oxbow_____ flood plain valley_____ **Forested** / Vegetated / Bare

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

est. width : < 1m 1–10 m **10–100 m** >100m 160m **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 0 bags or 0 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	
1229 A				X	627	1														X	
1230 B				X	173	165	<1				X						X				Grass,Small 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	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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

Zone A: No treatment required.

Zone B: No treatment recommended.

Sketch Yes / No **Photos** Yes / No **Frames**_____ **Photographer** Chris Arredondo

C66-

(L/R/I)??

Team #4

~~08/05/2011~~

05/08/11

0 335 670 1,340

Feet

ARCADIS

C67

DB

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION

Segment/Reach ID: C 67 (Left Bank) / Right Bank / Island

Operations Division: C

Date (dd/mm/yy): 25/07/11

Time (24h): std / daylight 1120 hrs to 1125 hrs (falling) steady – rising

Water Level: low - mean - (bankfull) - overbank

Survey by: Foot / ATV / (Boat) / Helicopter / Overlook / _____ (Sun) / Clouds / Fog / Rain / Snow / Windy / Calm

Air Temp + / - 25 deg C

2 SURVEY TEAM # 6

Name	Organization	Signature
Chelsea Murphy	Cardno ENTRIX	[illegible]
David Rouse	US Fish and Wildlife	
Jay Watson	MT Fish Wildlife and Parks	

3 SEGMENT Total Segment/Reach Length ~950 m Segment/Reach Length Surveyed ~950 m

Start GPS: LATITUDE 46 deg. 2.658 min. LONGITUDE 107 deg. 48.193 min. Datum: WGS 84

End GPS: LATITUDE 46 deg. 2.304 min. LONGITUDE 107 deg. 48.752 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: ____

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/silt

Sloped:___(>5°)(15°)(30°) | straight_____ braided P oxbow_____ flood plain valley_____ | Forested / (Vegetated) Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width : < 1m 1–10 m 10–100 m (>100m) 160m | 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 _____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	
337 A					950	<1	Ø													P	

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)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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

Zone A - NOO

Sketch (Yes) / No Photos Yes / (No) Frames_____ Photographer_____

Ver. 04 July 2011

C67 LB
Team #6
25/07/11

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C67 Left Bank / Right Bank / Island	08/05/2011		low - mean - bankfull - overbank
Operations Division:		1105 hrs to 1400 hrs	falling - steady – rising
Survey by: Foot / ATV / Boat / Helicopter / Overlook / _____	Sun / Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp + / - 3 2 deg C

2 SURVEY TEAM # 4	Name	Organization	Signature
	Bruce Kvam	Polaris	Bruce K
	Chris Arredondo	CardnoEntrix	
	Mike Ruggles	FWP	
	John Davis	USCG	

3 SEGMENT Total Segment/Reach Length 943 m Segment/Reach Length Surveyed 943 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 P___ 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: Clay/Mud

Sloped:___(>5°)(15°)(30°) | straight____ braided X oxbow____ flood plain valley____ | Forested / Vegetated / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width : < 1m 1–10 m 10–100 m >100m 160m | 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 0 bags or 0 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	
1226 A				X	804	158														X	
1227 B				X	20	83	<1				X						X				Small Woody Debris
1228 C				X	119	15	<1					X						X			Backwater

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)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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

Zone A: No treatment required.

Zone B: No treatment recommended.

Zone C: No treatment recommended.

Note: ~~The summation of Zones A, B, and C lengths is greater than the segment length surveyed because the three zones paralleled each other or were situated diagonal to the river bank. Please refer to map.~~

Sketch Yes / No Photos Yes / No Frames_____ Photographer Chris Arredondo

C67-

(L/R/I)??

Team #4
05/08/11

ARCADIS

C68

DB

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C 68 (Left Bank) / Right Bank / Island	25/07/11	1115 hrs to 1120 hrs (falling) / steady – rising	low - mean - (bankfull) - overbank
Operations Division: C			
Survey by: Foot / ATV / (Boat) / Helicopter / Overlook / _____	(Sun) / Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp + / - 25 deg C

2 SURVEY TEAM # 6

Name	Organization	Signature
Chelsea Murphy	Cardno ENTRIX	[signature]
David Rouse	US Fish and Wildlife	
Jay Watson	MT Fish Wildlife and Parks	

3 SEGMENT Total Segment/Reach Length ~ 820 m Segment/Reach Length Surveyed ~ 1,000 m

Start GPS: LATITUDE 46 deg. 3.026 min. LONGITUDE 107 deg. 47.803 min. Datum: WGS 84

End GPS: LATITUDE 46 deg. 2.653 min. LONGITUDE 107 deg. 48.186 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: ____

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/silt

Sloped:___(>5°)(15°)(30°) | straight____ braided P___ oxbow____ flood plain valley____ | Forested (Vegetated) Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width : < 1m 1–10 m 10–100 m (>100m) 160m | 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 ____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	
1338 A					1000	<1	Ø													P	

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)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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

Zone A - NOO

Sketch (Yes) / No Photos Yes / (No) Frames_____ Photographer_____

Ver. 04 July 2011

C68 LB
Team#6
25/07/11

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C68 **Left Bank** / Right Bank / Island	08/05/2011		low - mean - **bankfull** - overbank
Operations Division:		1315 hrs to 1400 hrs	(falling) - steady – rising
Survey by: **Foot** / ATV / Boat / Helicopter / Overlook / _____		(Sun) / **Clouds** / Fog / Rain / Snow / Windy / Calm	Air Temp + / - 3 2 deg C

2 SURVEY TEAM # 4	Name	Organization	Signature
	Bruce Kvam	Polaris	Bruce K
	Chris Arredondo	CardnoEntrix	
	Mike Ruggles	FWP	
	John Davis	USCG	

3 SEGMENT *Total Segment/Reach Length* 895 *m* *Segment/Reach Length Surveyed* 197 *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 P___ Sand____ Mixed____ 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* *complete for primary*

Cliff or Bluff:___Est Height ____m canyon____ manmade____ meander ____ confined or leveed ____ Substrate Type: Clay/Mud

Sloped:___(>5°)(15°)(30°) straight____ braided X___ oxbow____ flood plain valley____ Forested / **Vegetated** / Bare

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

est. width : < 1m 1–10 m **10–100 m** >100m 160m **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 0 bags or 0 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)
					Length	Width	Distrib.														
	MS	LB	UB	OB	m	m	%	TO	CV	CT	ST	FL	FR	MS	TB	PT	TC	SR	AP	NO	
1224 A				X	158	65														X	
1225 B				X	197	62	<1				X						X				Grass, Shrub

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)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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

Zone A: No treatment required.

Zone B: No treatment recommended.

Note: The summation of Zone A and Zone B lengths is greater than the segment length surveyed because the two zones paralleled each other. Please refer to map.

Sketch Yes / No **Photos** Yes / No **Frames**_____ **Photographer**: Chris Arredondo

C68-

(L/R/I)??

Team# 4
05/08/11

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C68 **Left Bank** / Right Bank / Island	08/08/2011		low - mean - **bankfull** - overbank
Operations Division:		0900 hrs to 1043 hrs	falling - steady – rising
Survey by: **Foot** / ATV / Boat / Helicopter / Overlook / _____	**Sun** / Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp + / - 32 deg C

2 SURVEY TEAM # 6	Name	Organization	Signature
	Chris Arredondo	CardnoENTRIX	
	Dominic Ventura	EPA	
	Jessica Ross	DEQ	
	Fred Left Hand	THPO Crow Tribe	

3 SEGMENT *Total Segment/Reach Length* 910 *m* *Segment/Reach Length Surveyed* 910 *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 S 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: Clay/Mud

Sloped:___(>5°)(15°)(30°) straight_____ braided X oxbow_____ flood plain valley_____ **Forested** / Vegetated / Bare

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

est. width : < 1m 1–10 m **10–100 m** >100m 160m **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 0 bags or 0 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	
1291 A				X	910	250														X	
1292 B				X	~~40~~ 20	~~40~~ 20	<1			(X)	X						X				Grass, shrubs

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)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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

Zone A: No treatment required.

Zone B: No treatment recommendations.

Note: An oil sheen (10m x 5m) was identified at the confluence of a drainage canal and the Yellowstone River. Due to the small size and degraded condition of the sheen we are recommending natural attenuation as the treatment method.

Note: The summation of Zone A and Zone B lengths is greater than the segment length surveyed because the two zones paralleled each other. Please refer to map.

Sketch Yes / No **Photos** Yes / No **Frames**_____ **Photographer** Chris Arredondo

ExxonMobil Pipeline

N

SILVERTIP PIPELINE INCIDENT
Yellowstone River
Map 73

The Response Group
Emergency Response | Pre-Planning & Support

*Data Current through 08/05/2011

C68 L - Zones A+B - Team 6 - 08/08/11

ARCADIS

C69

DB

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

Page 1 of 1

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C 69 Left Bank / Right Bank / Island	25/07/11	1110 hrs to 1115 hrs	low - mean - bankfull - overbank
Operations Division: C			falling - steady – rising
Survey by: Foot / ATV / Boat / Helicopter / Overlook / _____	Sun / Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp + / - 25 deg C

2 SURVEY TEAM # 6	Name	Organization	Signature
	Chelsea Murphy	Cardno ENTRIX	[signature]
	David Rouse	US Fish and Wildlife	
	Jay Watson	MT Fish Wildlife and Parks	

3 SEGMENT Total Segment/Reach Length ~1,450 m Segment/Reach Length Surveyed ~1,600 m

Start GPS: LATITUDE 46 deg. 3.518 min. LONGITUDE 107 deg. 46.976 min. Datum: WGS 84

End GPS: LATITUDE 46 deg. 3.018 min. LONGITUDE 107 deg. 47.796 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: ____

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/silt

Sloped:___(>5°)(15°)(30°) | straight____ braided P oxbow____ flood plain valley____ | Forested / Vegetated / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width : < 1m 1–10 m 10–100 m >100m 160m | 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 ____ 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 MS	LB	UB	OB	OIL COVER Length m	Width m	Distrib. %	OIL THICKNESS TO	CV	CT	ST	FL	OIL CHARACTER FR	MS	TB	PT	TC	SR	AP	NO	SUBST. TYPE(S)
1339 A			P		1600	<1	Ø													P	

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

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

~~N~~ cm Zone A - NOO

Sketch Yes / No Photos Yes / No Frames_____ Photographer_____

C69LB
Team #6
25/07/11

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C69 **Left Bank** / Right Bank / Island	05/08/11		low - mean - **bankfull** - overbank
Operations Division:		0845 hrs to 1015 hrs	**falling** - steady – rising
Survey by: **Foot** / ATV / Boat / Helicopter / Overlook / _____		**Sun / Clouds** / Fog / Rain / Snow / Windy / Calm	Air Temp + / - 25 - 35 deg C

2 SURVEY TEAM # 5	Name	Organization	Signature
	Josh Hofkes	Cardno ENTRIX	
	Ron Lynn	USCG	
	Mark Peterson	DEQ	Mark Peterson

3 SEGMENT *Total Segment/Reach Length* _____ *m* *Segment/Reach Length Surveyed* 825 *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 S

Sediment Bank: Clay/Mud S Sand S Mixed (S) Pebble/Cobble S Boulder____ Peat/Organic (P) | *Vegetated Bank:* X | *Wooded Upland:* X

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: organic

Sloped:___(>5°)(15°)(30°) | straight____ braided ____ oxbow S flood plain valley P | **Forested** / **Vegetated** / Bare

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

est. width : < 1m 1–10 m 10–100 m **>100m** **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 NA bags or NA 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	
1231 A				X	210	125	<1			S	P						S				vegetative
1232 B				X	615	230	40			S	SP	PS	PS				S				Silt/mud/veg.
1233 C				X	110	110														X	mix

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)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	cm	B, R, S, N	Yes / No	

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

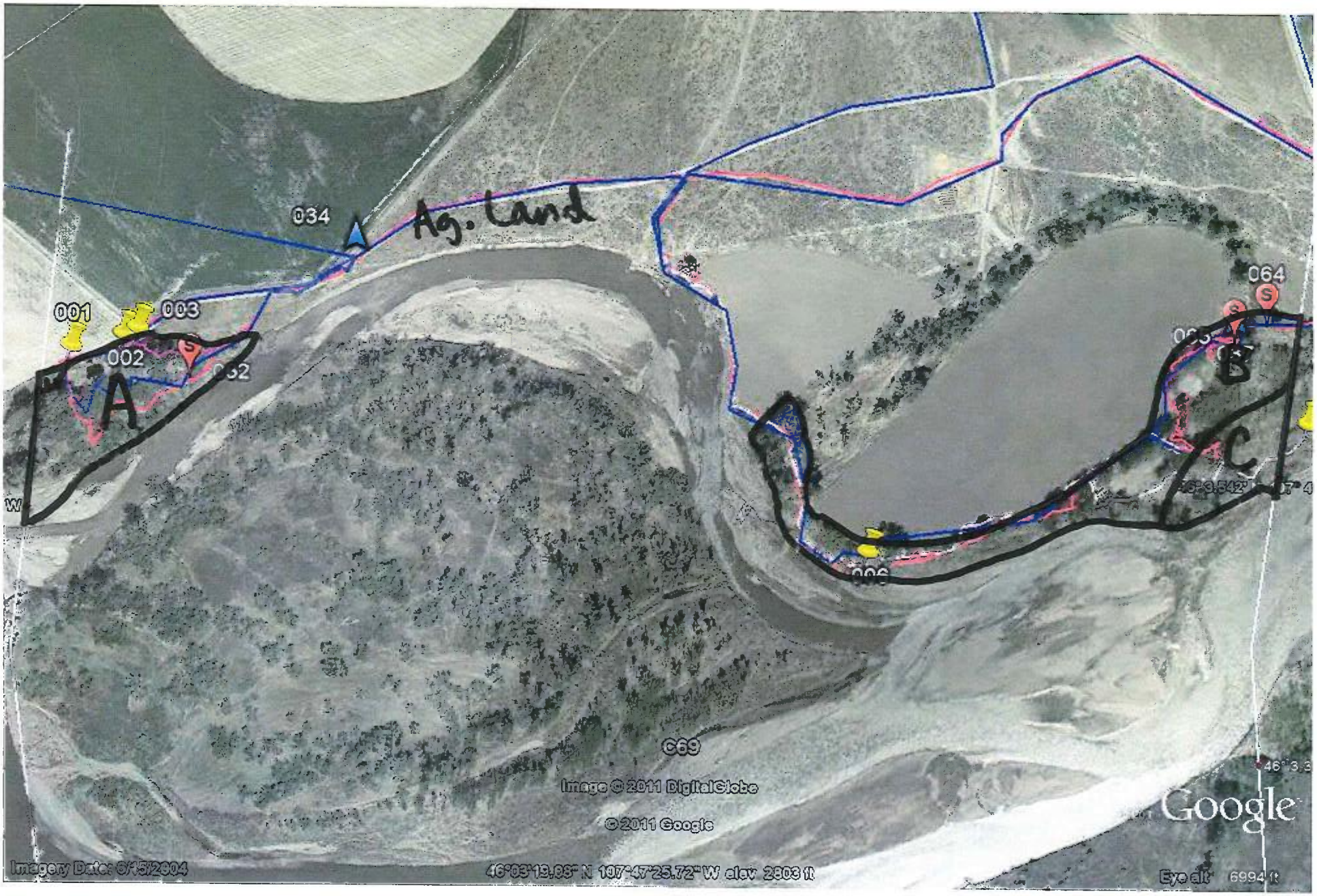
Overbank Survey Required Y / N Overbank Survey Completed Y / N Shoreline Survey Completed Y / N

Zone A: Isolated and trace (<1%) oiling coat and stain on small vegetative debris. No further treatment (NFT) recommended.

Zone B: Isolated trace (<1%) oiling coat and stain on vegetation. Silver oil sheen within isolated depressions throughout floodplain. Waters with sheen were also dark in color. USCG and DEQ suggested water be tested for potential oil content due to the dark nature of the water. Further, DEQ noted a hydrocarbon smell coming from the subject waters. Cardno ENTRIX believed the dark color to be result of the isolated, stagnant nature of waterbodies and high presence of organic debris within the water. Cardno ENTRIX noted strong anaerobic/septic smell near waterbodies. Consult Technical Advisory Group (TAG) for treatment recommendations.

Zone C: No oiling observed. No further treatment (NFT) recommended.

Sketch (Yes) / No **Photos** (Yes) / No **Frames/Photographer:** _____



August 5, 2011
TEAM 5 C69 LB

ARCADIS

C70

DB

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C 70 (Left Bank) / Right Bank / Island	25/07/11	1105 hrs to 1110 hrs	low - mean - (bankfull) - overbank
Operations Division: C			(falling) - steady – rising
Survey by: Foot / ATV / (Boat) / Helicopter / Overlook / _____	(Sun) / Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp + / - 25 deg C

2 SURVEY TEAM # 6

Name	Organization	Signature
Chelsea Murphy	Cardno ENTRIX	[illegible]
David Rouse	US Fish and Wildlife	
Jay Watson	MT Fish Wildlife and Parks	

3 SEGMENT Total Segment/Reach Length ~1,550 m Segment/Reach Length Surveyed ~1,600 m

Start GPS: LATITUDE 46 deg. 3.679 min. LONGITUDE 107 deg. 45.815 min. Datum: WGS 84

End GPS: LATITUDE 46 deg. 3.520 min. LONGITUDE 107 deg. 46.978 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: ____

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/silt

Sloped:___(>5°)(15°)(30°) | straight____ braided P___ oxbow____ flood plain valley____ | Forested / (Vegetated) / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width : < 1m 1–10 m 10–100 m (>100m) 160m | 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 ___ 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	
1390 A			P		1600	<1	Ø													P	

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)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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

Zone A - NOO

Sketch (Yes) / No Photos Yes / (No) Frames_____ Photographer_____

Ver. 04 July 2011

C70LB
Team#6
26/07/11

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C70 Left Bank / Right Bank / Island	04/08/11		low - mean - bankfull - overbank
Operations Division:		1015 hrs to 1100 hrs	falling - steady – rising
Survey by: Foot / ATV / Boat / Helicopter / Overlook / _____	Sun / Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp + / - 25 - 35 deg C

2 SURVEY TEAM # 5	Name	Organization	Signature
	Josh Hofkes	Cardno ENTRIX	
	Ron Lynn	USCG	
	Mark Peterson	DEQ	Mark Peterson

3 SEGMENT Total Segment/Reach Length _____ m Segment/Reach Length Surveyed 230 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 S___ Sand S___ Mixed (S) Pebble/Cobble S___ Boulder____ Peat/Organic P___ | Vegetated Bank: (X) | Wooded Upland: (X)

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: organic

Sloped: ___ (>5°)(15°)(30°) | straight____ braided ____ oxbow S___ flood plain valley P___ | Forested / Vegetated / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width : < 1m 1–10 m 10–100 m >100m | 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 NA bags or NA 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	
1234 A				X	230	158	<1			S	P						S				Mix

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)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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)

Zone A: Isolated trace (<1%) oiling coat and stain on vegetation. No further treatment (NFT) recommended.

Sketch (Yes) / No Photos (Yes) / No Frames/Photographer: _____

Ver. 31 July 2011

August 5, 2011
TEAM 5 C70 LB

ARCADIS

C71

D13/6

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

1 GENERAL INFORMATION

Segment/Reach ID: C 7 1 (Left Bank) / Right Bank / Island

Operations Division: C

Date (dd/mm/yy): 25/07/11

Time (24h): std / daylight 1100 hrs to 1105 hrs

Water Level: low - mean - (bankfull) overbank; (falling) steady – rising

Survey by: Foot / ATV / (Boat) / Helicopter / Overlook / _____

(Sun) / Clouds / Fog / Rain / Snow / Windy / Calm

Air Temp + / - 25 deg C

2 SURVEY TEAM # 6

Name	Organization	Signature
Chelsea Murphy	Cardno ENTRIX	[signature]
David Rouse	US Fish and Wildlife	
Jay Watson	MT Fish Wildlife and Parks	

3 SEGMENT

Total Segment/Reach Length ~ 1,500 m Segment/Reach Length Surveyed ~ 1,500 m

Start GPS: LATITUDE 46 deg. 3.850 min. LONGITUDE 107 deg. 44.682 min. Datum: WGS 84

End GPS: LATITUDE 46 deg. 3.671 min. LONGITUDE 107 deg. 45.813 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: ____

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 S___ confined or leveed ____

Sloped: ___ (>5°)(15°)(30°) | straight____ braided P___ oxbow____ flood plain valley____

complete for primary: Substrate Type: mud/silt___ | Forested / (Vegetated) / Bare

4C RIVER CHANNEL CHARACTER — circle or select as appropriate

est. width: < 1m 1–10 m 10–100 m (>100m) 160m

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 ____ 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	
1341 A			P		1500	21	Ø													P	Veg/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	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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

Zone A - NOO

Sketch (Yes) / No Photos Yes / (No) Frames_____ Photographer_____

C71 LB
Team#6
25/07/11

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C71 **Left Bank** / Right Bank / Island	04/08/11 DB		low - mean - **bankfull** - overbank
Operations Division:		1100 hrs to 1130 hrs	**falling** - steady – rising
Survey by: **Foot** / ATV / Boat / Helicopter / Overlook / _____	**Sun / Clouds** / Fog / Rain / Snow / Windy / Calm		Air Temp + / - 25-35 deg C

2 SURVEY TEAM # 5	Name	Organization	Signature
	Josh Hofkes	Cardno ENTRIX	
	Ron Lynn	USCG	
	Mark Peterson	DEQ	Mark Peterson

3 SEGMENT *Total Segment/Reach Length* _____ *m* *Segment/Reach Length Surveyed* 5 *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 X

Sediment Bank: Clay/Mud S Sand S Mixed S Pebble/Cobble S Boulder____ Peat/Organic P | *Vegetated Bank:* X | *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: organic

Sloped:___(>5°)(15°)(30°) | straight____ braided ____ oxbow S flood plain valley P | Forested / Vegetated / Bare

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

est. width : < 1m 1–10 m 10–100 m >100m | 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 NA bags or NA 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)
					Length	Width	Distrib.														
	MS	LB	UB	OB	m	m	%	TO	CV	CT	ST	FL	FR	MS	TB	PT	TC	SR	AP	NO	
1235 A				X	5	5	<1			S	P						P				vegetative

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

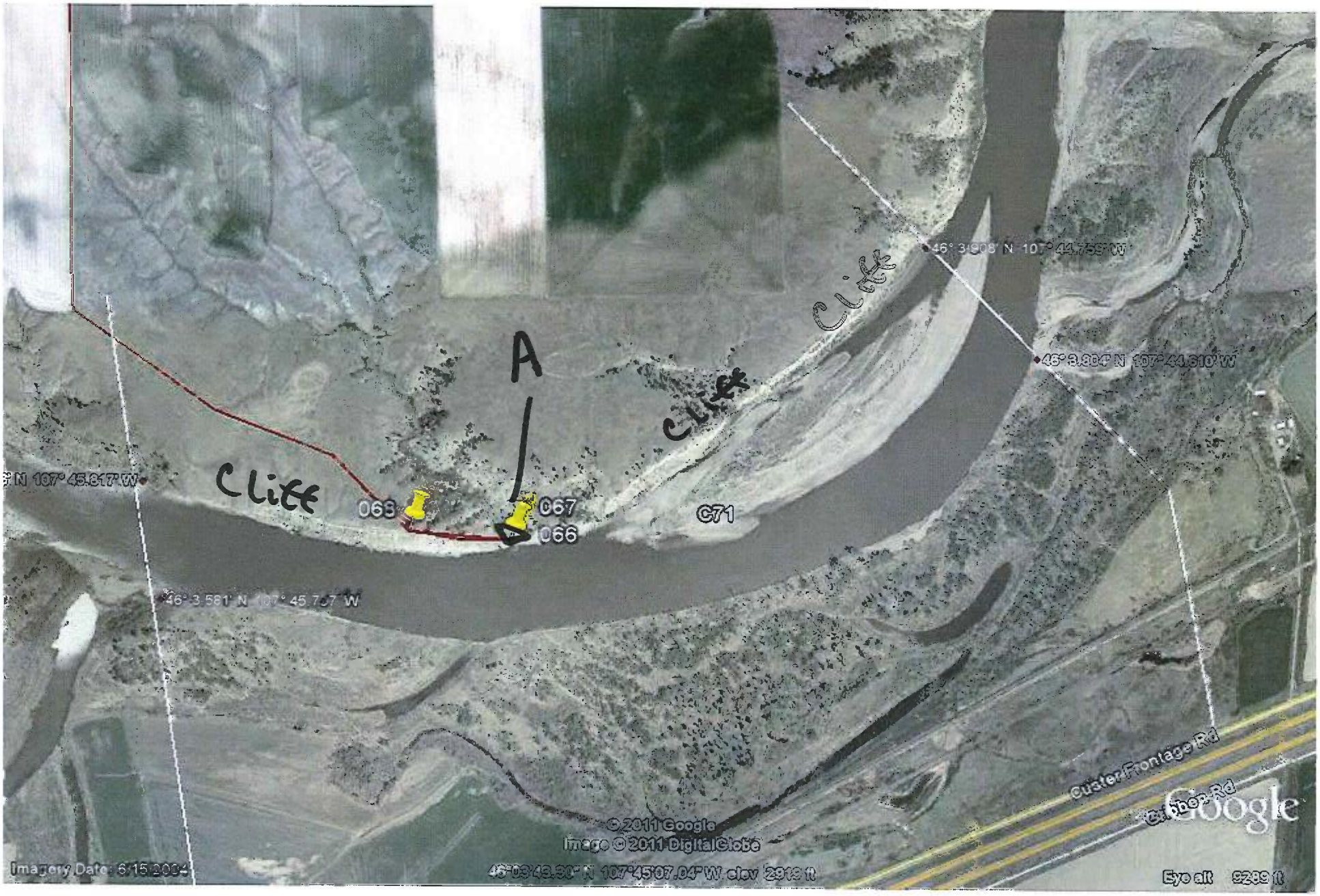
TRENCH or PIT NO.	RIVER BANK ZONE				MAX. PIT DEPTH	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	cm	B, R, S, N	Yes / No	

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

Zone A: Oiling stain on vegetation - nontransferable. Zone A is very remote. No further treatment (NFT) recommended.

Sketch Yes / No Photos Yes / No Frames/Photographer: _____



August 5, 2011

TCAM 5 C71 LB

ARCADIS

C72

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page _____ of _____

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C73a Left Bank / Right Bank / Island	08/08/11	0930 hrs to 1400hrs	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 + / - 28 deg C

2 SURVEY TEAM # 4	Name	Organization	Signature
	Richard Marty / John M Sprnik	Polaris	See
	John Davis	USCG	attached
	Ken Frazer	State of Montana	
	Mark Denny	Apsaalooke Nation	

3 SEGMENT Total Segment/Reach Length _____ m Segment/Reach Length Surveyed 165 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 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 X confined or leveed _____ | Substrate Type: Silt/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 1–10 m 10–100 m >100m 160m 100m | 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 _____ 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	165	450	—													✓	

2435

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)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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

A = NOO

* Removed from Zone E (1357) from C73 RB
AA 14 Oct. 2011

Sketch Yes / No Photos Yes / No Frames_____ Photographer_____

C72-IS
C72-LB
A
Image © 2011 DigitalGlobe
Google

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 2

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C73 Left Bank / **Right Bank** / Island	08/08/2011		low - mean - **bankfull** - overbank
Operations Division:		930 hrs to 1400 hrs	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 # ~~NA~~ 4	Name	Organization	Signature
	Richard Marty/John M Spenik	Polaris	[signature]
	John Davis	USCG	[signature]
	Ken Frazer	State of Montana	[signature]
	Mark Denny	Apsáalooke Nation	[signature]

3 SEGMENT *Total Segment/Reach Length* 1200 *m* *Segment/Reach Length Surveyed* 1200 *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 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 X	confined or leveed _____	Substrate Type: Silt/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 1–10 m 10–100 m >100m 100 m **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 _____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	
~~353~~ A				X	136	130	<1				x						x				Vegetation
~~354~~ B				X	118	47	<1				x						x				vegetation
~~355~~ C				X	35	236	<1				x						x				vegetation
~~356~~ D				X	159	27	<1		x						x						vegetation
~~357~~ E				X	702	500 RM	0													x	all

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)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	cm	B, R, S, N	Yes / No	
None																	

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

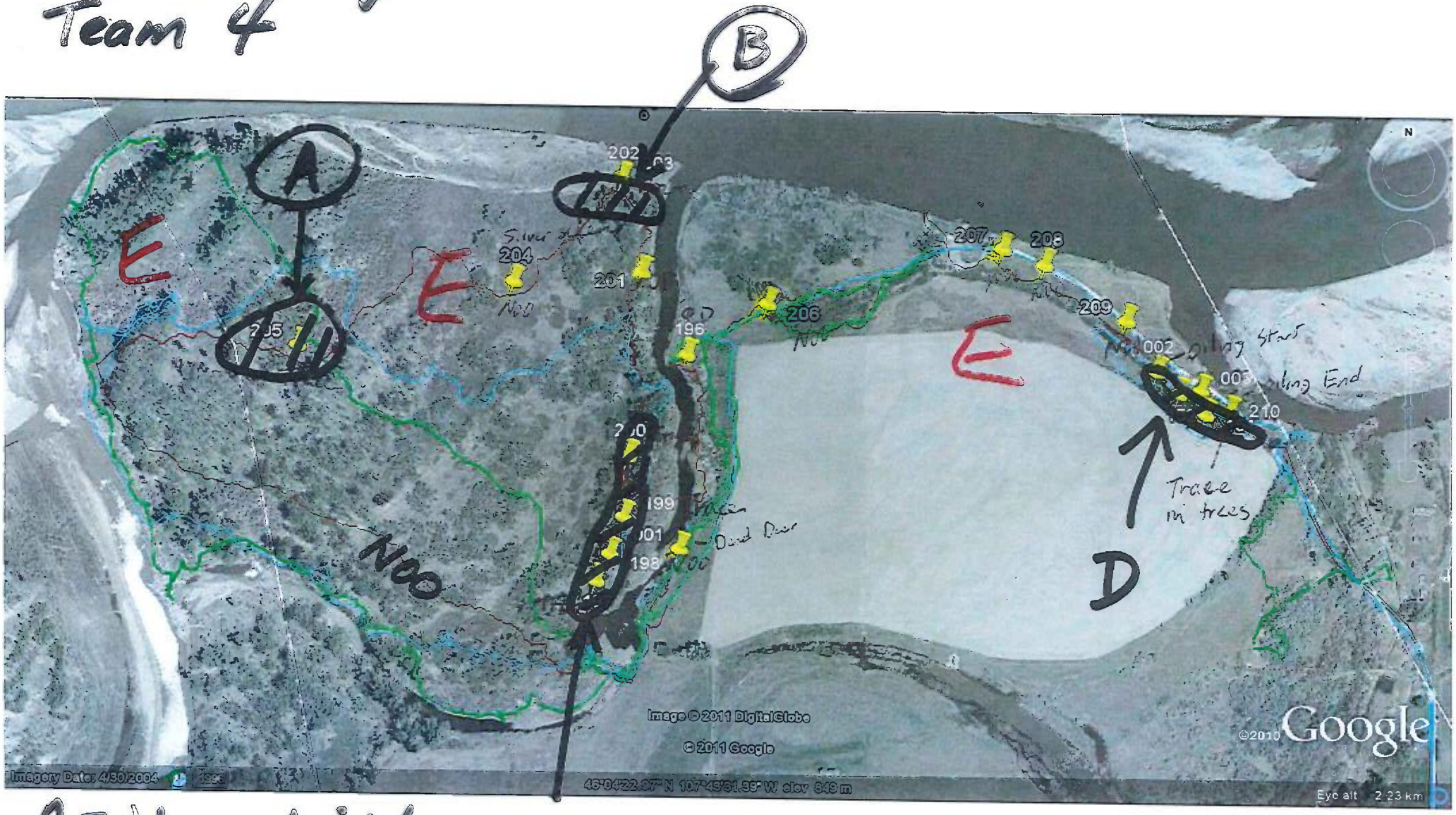
Stain on vegetation in Zone A is between 15 and 20 cm above the substrate; stain on vegetation in Zone B is between 20 and 25 cm above the substrate; stain on vegetation in Zone C is between 15 and 20 cm above the substrate; tar balls in Zone D are between 125 and 130 cm above the substrate.

Trace oiling on vegetation is largely non-transferable and is probably best addressed by Natural Attenuation for all zones.

* Portion of Zone E (357) moved to C72RB
AA 14 Oct. 2011

Sketch **Yes** / No **Photos** **Yes** / No **Frames**_____ **Photographer**_____

C-73 Right AUGUST
Team 4



C

A= Very Light
B= Very Light
C= Very Light

D= Very Light
E=NOO

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

1 GENERAL INFORMATION

Segment/Reach ID: 72 Left Bank / Right Bank / Island

Operations Division: C

Date (dd/mm/yy): 8/22/11

Time (24h): std / daylight 1340 hrs to 1806 hrs

Water Level: low - mean - bankfull - overbank; falling - steady – rising

Survey by: Foot / ATV / Boat / Helicopter / Overlook / _____

Sun / Clouds / Fog / Rain / Snow / Windy / Calm

Air Temp + / - 30 deg C

2 SURVEY TEAM # 5

Name	Organization	Signature
Ariel Blanc	Polaris	[illegible]
Daniel Elefant	Cardno-Entrix	[illegible]
Mark Gwanic	DEQ	[illegible]
Mike Herman	FWP	[illegible]
Pete Lee	Polaris	[illegible]

3 SEGMENT

Total Segment/Reach Length 1430 m Segment/Reach Length Surveyed 1041 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 5 Bog/Fen____ Marsh ____

Sediment Bank: Clay/Mud____ Sand P Mixed____ Pebble/Cobble____ Boulder____ Peat/Organic____ | Vegetated Bank: ✓ | Wooded Upland: ✓

Sediment Flat: Clay/Mud____ Sand____ Mixed/Coarse____ | Other: ____ | If snow and ice use Winter River SOS

4B RIVER VALLEY CHARACTER

select as appropriate

Cliff or Bluff: ___ Est Height ____ m | canyon____ manmade____ meander ✓S confined or leveed ____

Sloped: ___ (>5°)(15°)(30°) | straight____ braided ✓P 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 1–10 m 10–100 m >100m 160m 144m

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 4.5 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	
1781 B ~~AA~~				✓	142	74	<1			✓							✓				Veg
1780 A ~~BB~~				✓	899	88	Ø													✓	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	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	cm	B, R, S, N	Yes / No	

8 COMMENTS

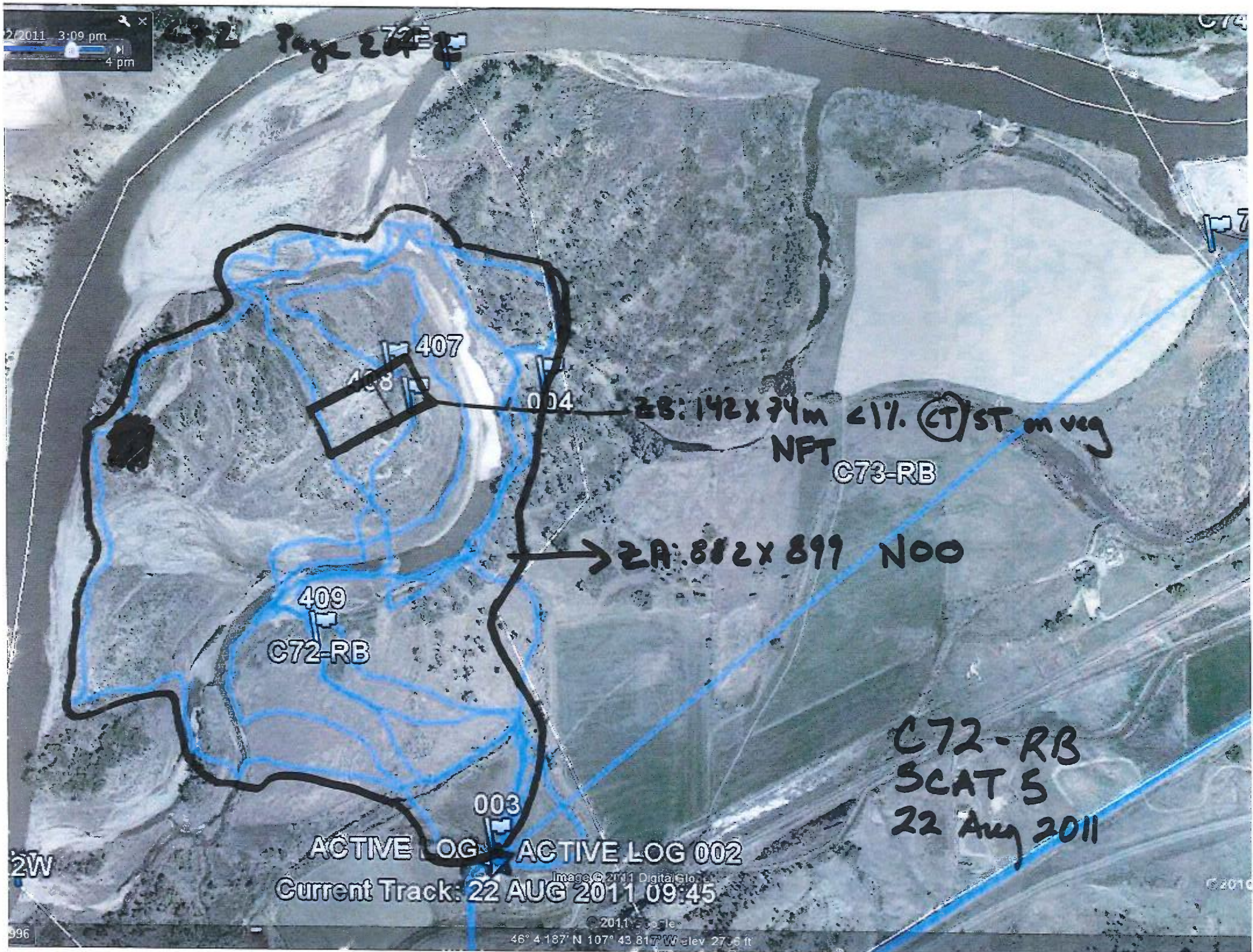
ecological/recreational/cultural/economic constraints - shorezone biota and wildlife observations - cleanup recommendations

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

ZB: COAT ON VEG, HOT SHOTS REMOVED <.5 Bag Debris. NFT.

ZA: NFT, NO.O.

Sketch Yes / No Photos Yes / No Frames _____ Photographer _____


2/2011 3:09 pm
4 pm
C72 Page 2 of 2
407
408
004
ZB: 142x74m <1% CT ST on veg
NFT
C73-RB
ZA: 812x899 N00
409
C72-RB
003
ACTIVE LOG
ACTIVE LOG 002
Current Track: 22 AUG 2011 09:45
C72-RB
SCAT 5
22 Aug 2011

DB

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION

Segment/Reach ID: C 72 (Left Bank) / Right Bank / Island

Operations Division: C

Date (dd/mm/yy): 25/07/11

Time (24h): std / daylight 1055 hrs to 1100 hrs (falling) steady – rising

Water Level: low - mean - (bankfull) - overbank

Survey by: Foot / ATV / (Boat) / Helicopter / Overlook / _____ (Sun) / Clouds / Fog / Rain / Snow / Windy / Calm

Air Temp + / - 25 deg C

2 SURVEY TEAM # 6

Name	Organization	Signature
Chelsea Murphy	Cardno ENTRIX	[signature]
David Rouse	US Fish and Wildlife	
Jay Watson	MT Fish Wildlife and Parks	

3 SEGMENT Total Segment/Reach Length ~ 1,600 m Segment/Reach Length Surveyed ~ 2,0790 m

Start GPS: LATITUDE 46 deg. 4.626 min. LONGITUDE 107 deg. 44.093 min. Datum: WGS 84

End GPS: LATITUDE 46 deg. 3.849 min. LONGITUDE 107 deg. 44.677 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: ____

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/silt

Sloped:___(>5°)(15°)(30°) | straight____ braided P___ oxbow____ flood plain valley____ | Forested (Vegetated) Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width : < 1m 1–10 m 10–100 m (>100m) 160m

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 ____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	
1347 A			P		2000	<1	Ø													P	Veg/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	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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

Zone A - NOO

Sketch (Yes) / No Photos Yes / (No) Frames_____ Photographer_____

C72 LB
Team #6
25/07/11

ARCADIS

C73

DB

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION

Segment/Reach ID: C 73 (Left Bank) / Right Bank / Island

Operations Division: C

Date (dd/mm/yy): 25/07/11

Time (24h): std / daylight 1050 hrs to 1055 hrs

Water Level: low - mean - (bankfull) - overbank; (falling) - steady – rising

Survey by: Foot / ATV / (Boat) / Helicopter / Overlook / _____ (Sun) / Clouds / Fog / Rain / Snow / Windy / Calm

Air Temp + / - 25 deg C

2 SURVEY TEAM # 6

Name	Organization	Signature
Chelsea Murphy	Cardno ENTRIX	[illegible]
David Rouse	US Fish and Wildlife	
Jay Watson	MT Fish Wildlife and Parks	

3 SEGMENT Total Segment/Reach Length ~1,150 m Segment/Reach Length Surveyed ~1,150 m

Start GPS: LATITUDE 46 deg. 4.643 min. LONGITUDE 107 deg. 43.206 min. Datum: WGS 84

End GPS: LATITUDE 46 deg. 4.641 min. LONGITUDE 107 deg. 44.122 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: ____

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/silt

Sloped:___(>5°)(15°)(30°) | straight_____ braided P___ oxbow_____ flood plain valley_____ | Forested / (Vegetated) / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width : < 1m 1–10 m 10–100 m (>100m) 160m

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 _____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			P		1,150	<1	Ø													P	veg/Rock

1343 1343

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)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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

Zone A - NOO

Sketch (Yes) / No Photos Yes / (No) Frames_____ Photographer_____

C73LB
Team #6
25/07/11

D/B/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 2

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C73 Left Bank / **Right Bank** / Island	08/08/2011		low - mean - **bankfull** - overbank
Operations Division:		930 hrs to 1400 hrs	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 # NA	Name	Organization	Signature
	Richard Marty/John M Spenik	Polaris	
	John Davis	USCG	
	Ken Frazer	State of Montana	
	Mark Denny	Apsáalooke Nation	

3 SEGMENT Total Segment/Reach Length 1200 m Segment/Reach Length Surveyed 1200 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 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 X__ confined or leveed _____ | Substrate Type: Silt/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 1–10 m 10–100 m >100m 100 m | 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 _____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	
1353 A				X	136	130	<1				x						x				Vegetation
1354 B				X	118	47	<1				x						x				vegetation
1355 C				X	35	236	<1				x						x				vegetation
1356 D				X	159	27	<1		x						x						vegetation
1357 E				X	702	500 RM	0													x	all

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)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	cm	B, R, S, N	Yes / No	
None																	

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

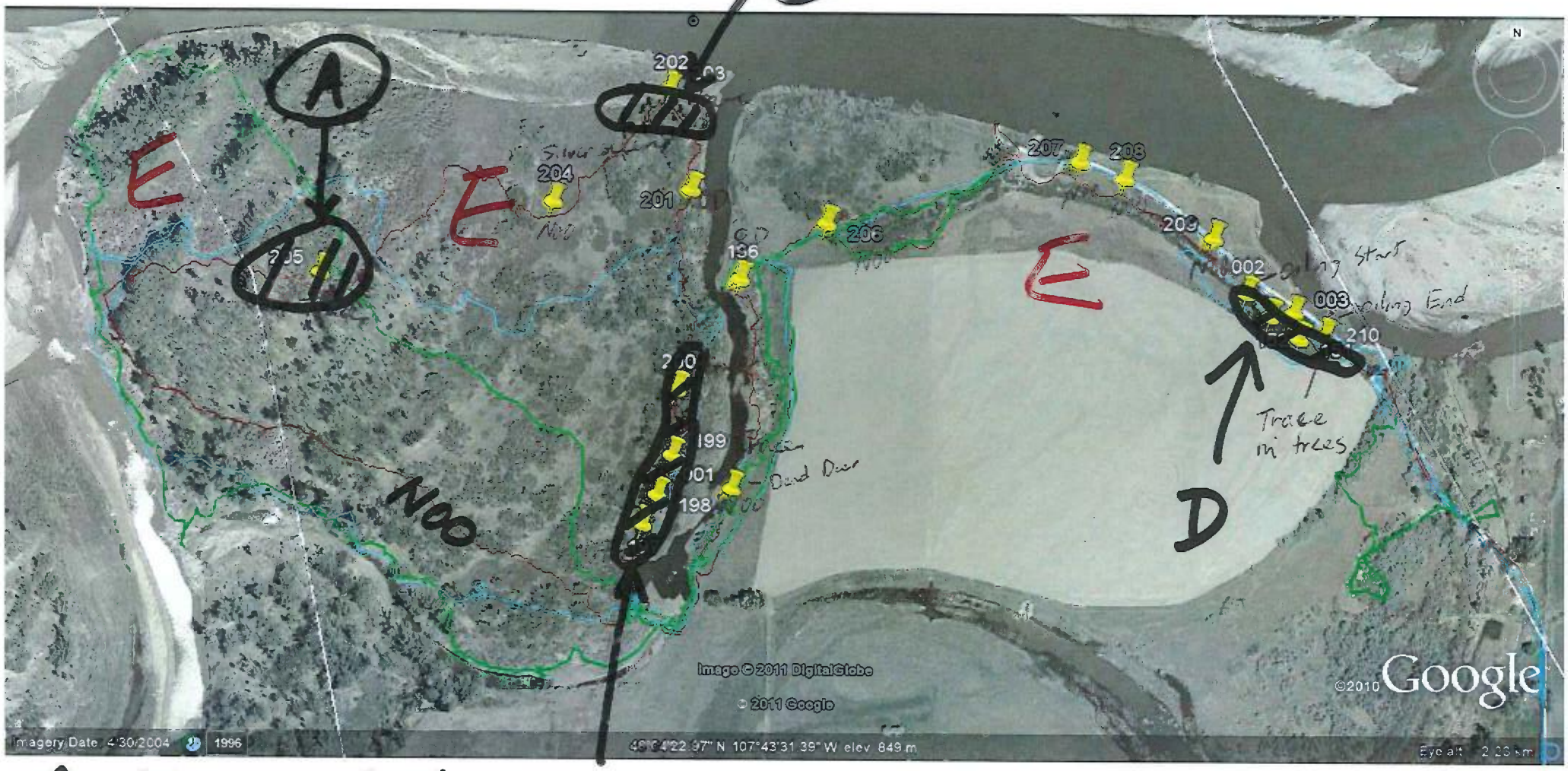
Stain on vegetation in Zone A is between 15 and 20 cm above the substrate; stain on vegetation in Zone B is between 20 and 25 cm above the substrate; stain on vegetation in Zone C is between 15 and 20 cm above the substrate; tar balls in Zone D are between 125 and 130 cm above the substrate.

Trace oiling on vegetation is largely non-transferable and is probably best addressed by Natural Attenuation for all zones.

* Portion of Zone E (1357) moved to C72RB
AA 14 Oct. 2011

Sketch **Yes** / No Photos **Yes** / No Frames_____ Photographer_____

C-73 Right AUGUST
Team 4



A= Very Light
B= Very Light
C= Very Light

D= Very Light
E=NOO

DB/G/S

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C73 part Left Bank / **Right Bank** / Island	24/07/2011	11:10 hrs to 12:42 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 + / - **28** deg C

2 SURVEY TEAM # NA	Name	Organization	Signature
	Richard Marty	Polaris	Richard Marty

3 SEGMENT *Total Segment/Reach Length* 1300 m *Segment/Reach Length Surveyed* 640 m

Start GPS: LATITUDE 46 deg. 4.3985 min. LONGITUDE 107 deg. 43.06417 min. *Datum:* _____

End GPS: LATITUDE 46 deg. 4.5477 min. LONGITUDE 107 deg. 43.5127 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 X ___ confined or leveed ____ | Substrate Type: Silt/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 1–10 m 10–100 m >100m 130 m **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 1 bags or ____ trucks access restrictions: Roadway to the fish access site is being washed out

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 MS	LB	UB	OB	OIL COVER Length m	Width m	Distrib. %	OIL THICKNESS TO	CV	CT	ST	FL	OIL CHARACTER FR	MS	TB	PT	TC	SR	AP	NO	SUBST. TYPE(S)
643 A		x	(x)		640															x	Veg on silt
644 B				x	40	5	<1		(x)							x					Veg/fence

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

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

Oiling is localized in an area along a fence that separates a newly plowed field from the riparian area (see Sketch Map). The corresponding shoreline is NOO but product balls are present at the fence line and in vegetation riverward of the fence. The oiling is approximately 75 cm above the substrate and approximately 5 cm thick. The product balls are scattered at trace levels over a 5 meter band.

The oil in Zone B remains transferable and should be recovered using a small operations crew. Product balls in the vegetation should be cut out to the extent possible.

Sketch **Yes** / No **Photos** **Yes** / No **Frames** _____ **Photographer** _____

7/24/2011 10 am
7/24/2011 4 pm
2/2011
7/2011
C73
C73
N46°04'35.04"
ZONE A NOO
W107°43'48"
W107°43'22.08"
152
151
ZONE B
5-m -wide zone of
trace level of product
patties on fence and
brush
© 2011 Google
©2010 Google
Imagery Date: 4/30/2004
1996
46°04'27.03" N 107°43'31.03" W elev 2793 ft
Eye alt 6403 ft

ARCADIS

C74

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C74 Left Bank / **Right Bank** / Island	08/10/2011		low - mean - bankfull - overbank
Operations Division:		1008 hrs to 1345 hrs	**falling** - steady – rising
Survey by: **Foot** / ATV / Boat / Helicopter / Overlook / _____	**Sun** / Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp + / - 33 deg C

2 SURVEY TEAM # 6	Name	Organization	Signature
	Chris Arredondo	CardnoENTRIX	
	Dominic Ventura	EPA	
	Jay Watson	FWP	
	Mark Denny	THPO Crow Tribe	
	Sierra Mandelko	EthnoScience	

3 SEGMENT Total Segment/Reach Length 2062 m Segment/Reach Length Surveyed 2062 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_____ 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: Mixed

Sloped:___(>5°)(15°)(30°) straight_____ braided X oxbow_____ flood plain valley_____ **Forested** / Vegetated / Bare

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

est. width : < 1m 1–10 m **10–100 m** >100m 160m **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 0 bags or 0 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	
1400 A				X	2062	508														X	
1401 B				X	1	1	<1			X							X				Small debris
1402 C				X	1	1	<1			X							X				Smalle 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)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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

Zone A: No treatment required.

Zone B: No treatment recommended.

Zone C: No treatment recommended.

Sketch Yes / No **Photos** Yes / No **Frames**_____ **Photographer**

ExxonMobil Pipeline

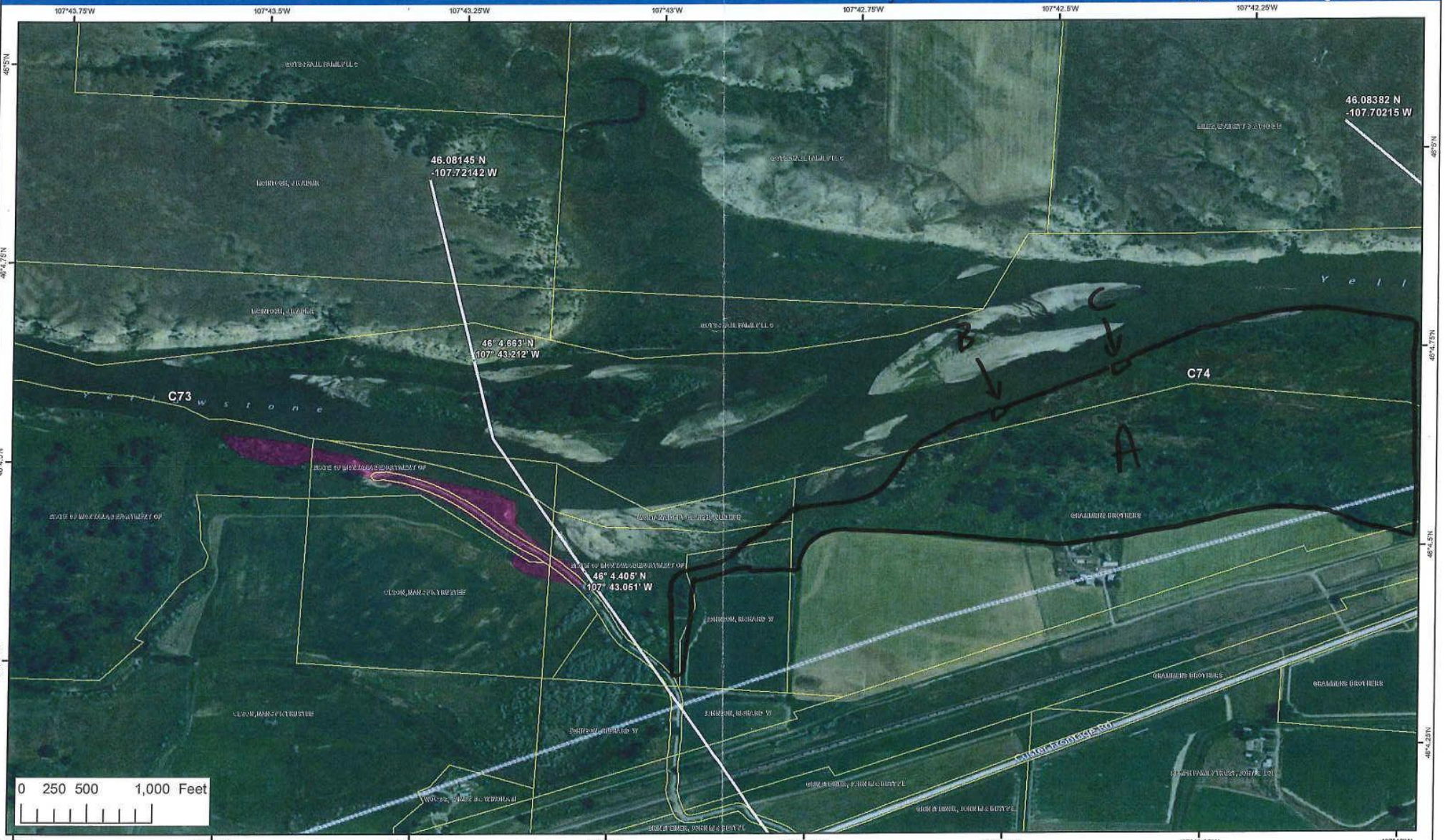
N

SILVERTIP PIPELINE INCIDENT
Yellowstone River
Map 79

8/10/11
Section C74 Team 6
Right Bank

The Response Group
Emergency Response & Pre-Planning & Support

*Data Current through 08/05/2011



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Path: Z:\GIS\MXD's\Segments_Map_11x17.mxd

ExxonMobil Pipeline

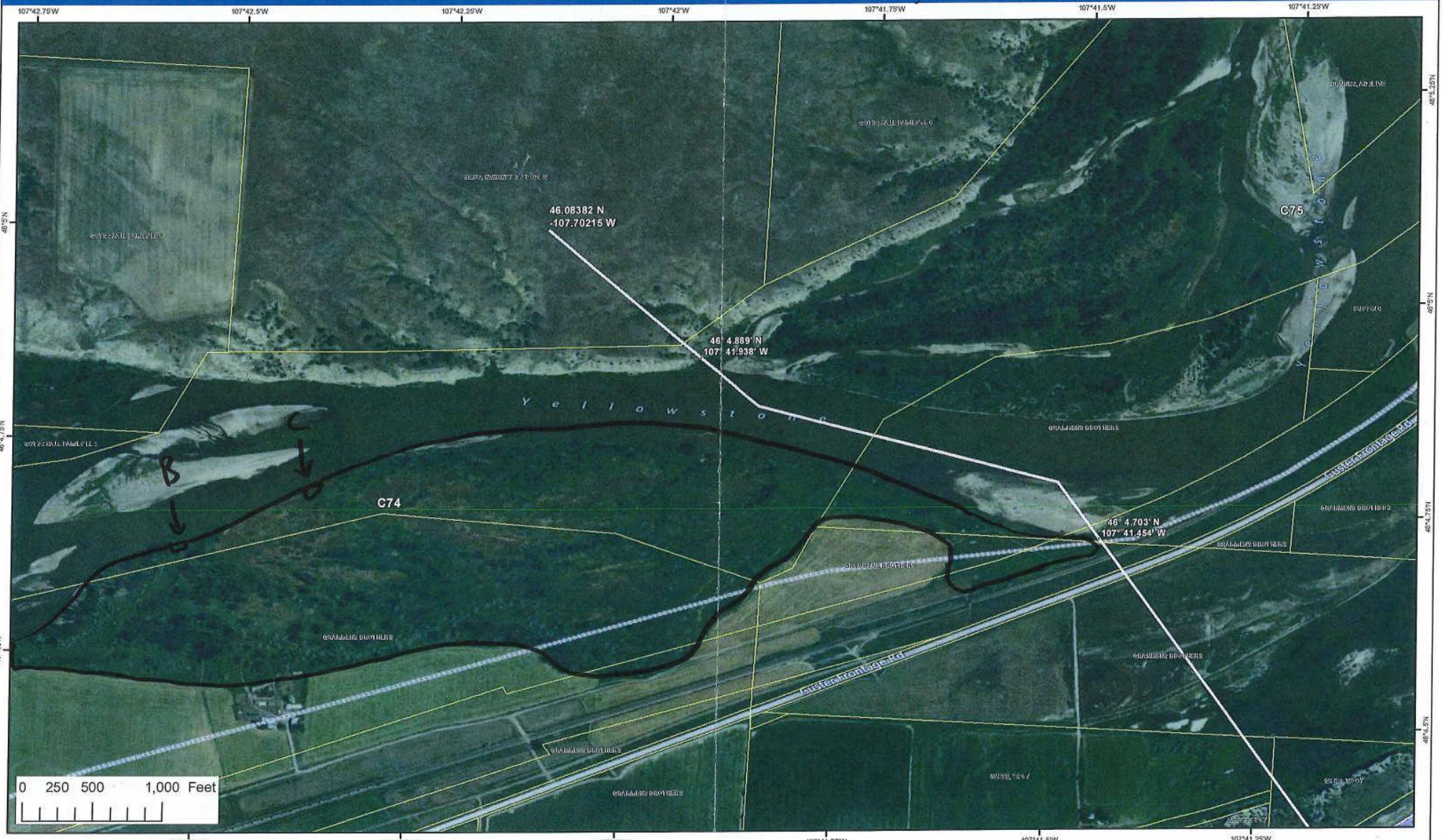
N

SILVERTIP PIPELINE INCIDENT
Yellowstone River
Map 80

8/10/11 Team 6
Section C74
Right Bank

The Response Group
Emergency Response | Pre-Planning & Support

*Data Current through 08/05/2011



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DB / G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION

Segment/Reach ID: C 74 Left Bank / Right Bank / Island

Operations Division: C

Date (dd/mm/yy): 25/07/11

Time (24h): std / daylight 1045 hrs to 1050 hrs falling / steady – rising

Water Level: low - mean - bankfull - overbank

Survey by: Foot / ATV / Boat / Helicopter / Overlook / _____ Sun / Clouds / Fog / Rain / Snow / Windy / Calm

Air Temp + / - 25 deg C

2 SURVEY TEAM # 6

Name	Organization	Signature
Chelsea Murphy	Cardno ENTRIX	[signature]
David Rouse	US Fish and Wildlife	
Jay Watson	MT Fish Wildlife and Parks	

3 SEGMENT Total Segment/Reach Length 1,700 m Segment/Reach Length Surveyed ~2,000 m

Start GPS: LATITUDE 46 deg. 4.880 min. LONGITUDE 107 deg. 41.930 min. Datum: WGS 84

End GPS: LATITUDE 46 deg. 4.048 min. LONGITUDE 107 deg. 43.209 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: ____

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/silt

Sloped:___(>5°)(15°)(30°) straight_____ braided P___ oxbow_____ flood plain valley_____ Forested / Vegetated / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width : < 1m 1–10 m 10–100 m >100m 160m

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 _____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	
1344 A			P		2,000	<1	Ø													P	veg/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	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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

Zone A – NOO

Sketch Yes / No Photos Yes / No Frames_____ Photographer_____

Ver. 04 July 2011

C74LB
Team #6
25/07/11

ARCADIS

C75

D3/6

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page _____ of _____

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: ~~C~~ C75 Left Bank / Right Bank / Island	16/08/11		low - mean - bankfull - overbank
Operations Division: C		11:20 hrs to 12:49 hrs	falling - steady – rising
Survey by: Foot / ATV / Boat / Helicopter / Overlook / _____		Sun / Clouds / Fog / Rain / Snow / Windy / Calm	Air Temp + / - 31 deg C

2 SURVEY TEAM # 3	Name	Organization	Signature
	Lisa Gerencher	Cardno ENTRIX	
	Rich Marty	Polaris	Richard Marty
	Lance Richman	EPA	
	Trevor Selch	FWP	

3 SEGMENT Total Segment/Reach Length 5970 m Segment/Reach Length Surveyed 5092 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: 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°)(15°)(30°) | straight____ braided X oxbow____ flood plain valley____ | Forested / Vegetated / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width : < 1m 1–10 m 10–100 m >100m 160m | 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 ____ 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)
					Length	Width	Distrib.														
	MS	LB	UB	OB	m	m	%	TO	CV	CT	ST	FL	FR	MS	TB	PT	TC	SR	AP	NO	
1590 A				X	5092	537														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	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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

Zone A -
NOO- No Oiling Observed

Sketch Yes / No Photos Yes / No Frames_____ Photographer_____

Ver. 04 July 2011

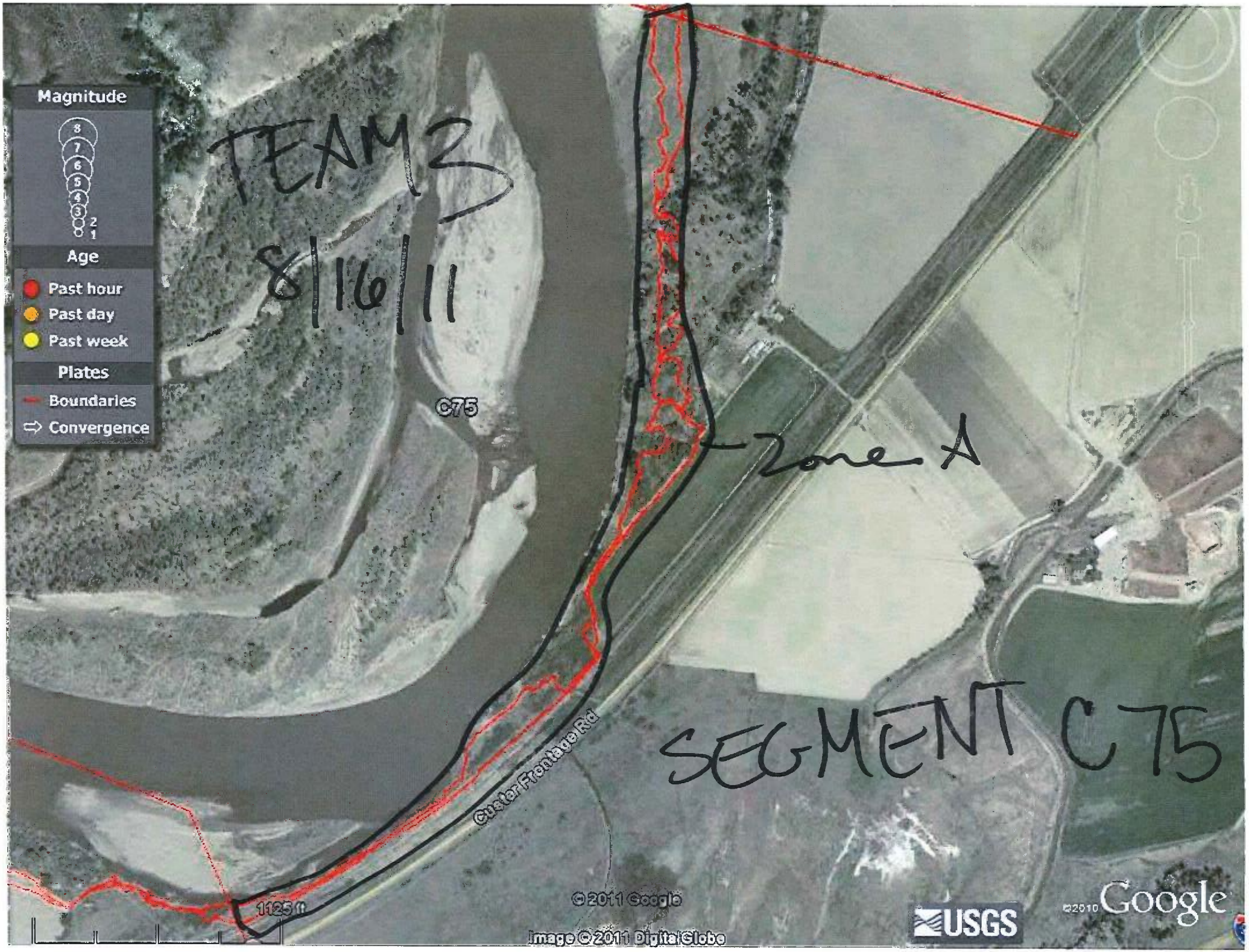
Magnitude
8
7
6
5
4
3
2
1
Age
Past hour
Past day
Past week
Plates
Boundaries
Convergence
TEAM 3
8/16/11
C75
Zone A
SEGMENT C75
Custer Frontage Rd
1125 ft
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Image © 2011 DigitalGlobe
USGS
©2010 Google

DB

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION

Segment/Reach ID: C 75 (Left Bank / Right Bank / Island)

Operations Division: C

Date (dd/mm/yy): 25/07/11

Time (24h): std / daylight 1040 hrs to 1045 hrs (falling / steady – rising)

Water Level: low - mean - (bankfull) - overbank

Survey by: Foot / ATV / (Boat) / Helicopter / Overlook / _____ (Sun) / Clouds / Fog / Rain / Snow / Windy / Calm

Air Temp + / - 25 deg C

2 SURVEY TEAM # 6

Name	Organization	Signature
Chelsea Murphy	Cardno ENTRIX	[signature]
David Rouse	US Fish and Wildlife	
Jay Watson	MT Fish Wildlife and Parks	

3 SEGMENT Total Segment/Reach Length 1,300 m Segment/Reach Length Surveyed 1,700 m

Start GPS: LATITUDE 46 deg. 5.436 min. LONGITUDE 107 deg. 41.300 min. Datum: WGS 84

End GPS: LATITUDE 46 deg. 4.863 min. LONGITUDE 107 deg. 41.910 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: ____

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/silt

Sloped:___(>5°)(15°)(30°) | straight_____ braided P oxbow_____ flood plain valley_____ | Forested / (Vegetated) / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width : < 1m 1–10 m 10–100 m (>100m) 160m | 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 _____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	
1345 A			P		1,700	<1	Ø													P	veg/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	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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

Zone A - NOO

Sketch (Yes) / No Photos Yes / (No) Frames_____ Photographer_____

Ver. 04 July 2011

C75LB
Team #6
25/07/11

ARCADIS

C76

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page _____ of _____

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C76 Left Bank / Right Bank / Island	16/08/11		low - mean - bankfull - overbank
Operations Division: C		11:20 hrs to 13:40 hrs	falling / steady – rising
Survey by: Foot / ATV / Boat / Helicopter / Overlook / _____	Sun / Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp + / - 31 deg C

2 SURVEY TEAM # 5	Name	Organization	Signature
	Lisa Gerencher	Cardno ENTRIX	Lisa Gerencher
	Rich Marty	Polaris	Richard Marty
	Lance Richman	EPA	
	Trevor Selch	FWP	

3 SEGMENT Total Segment/Reach Length 7910 m Segment/Reach Length Surveyed 7910 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: 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°)(15°)(30°) | straight_____ braided X oxbow_____ flood plain valley_____ | Forested / Vegetated / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width : < 1m 1–10 m 10–100 m >100m 160m | 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 _____ 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)
					Length	Width	Distrib.														
	MS	LB	UB	OB	m	m	%	TO	CV	CT	ST	FL	FR	MS	TB	PT	TC	SR	AP	NO	
1591 A				X	7910	~~300~~ 1500														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	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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

Zone A -
NOO- No Oiling Observed

Sketch Yes / No Photos Yes / No Frames_____ Photographer_____

Ver. 04 July 2011

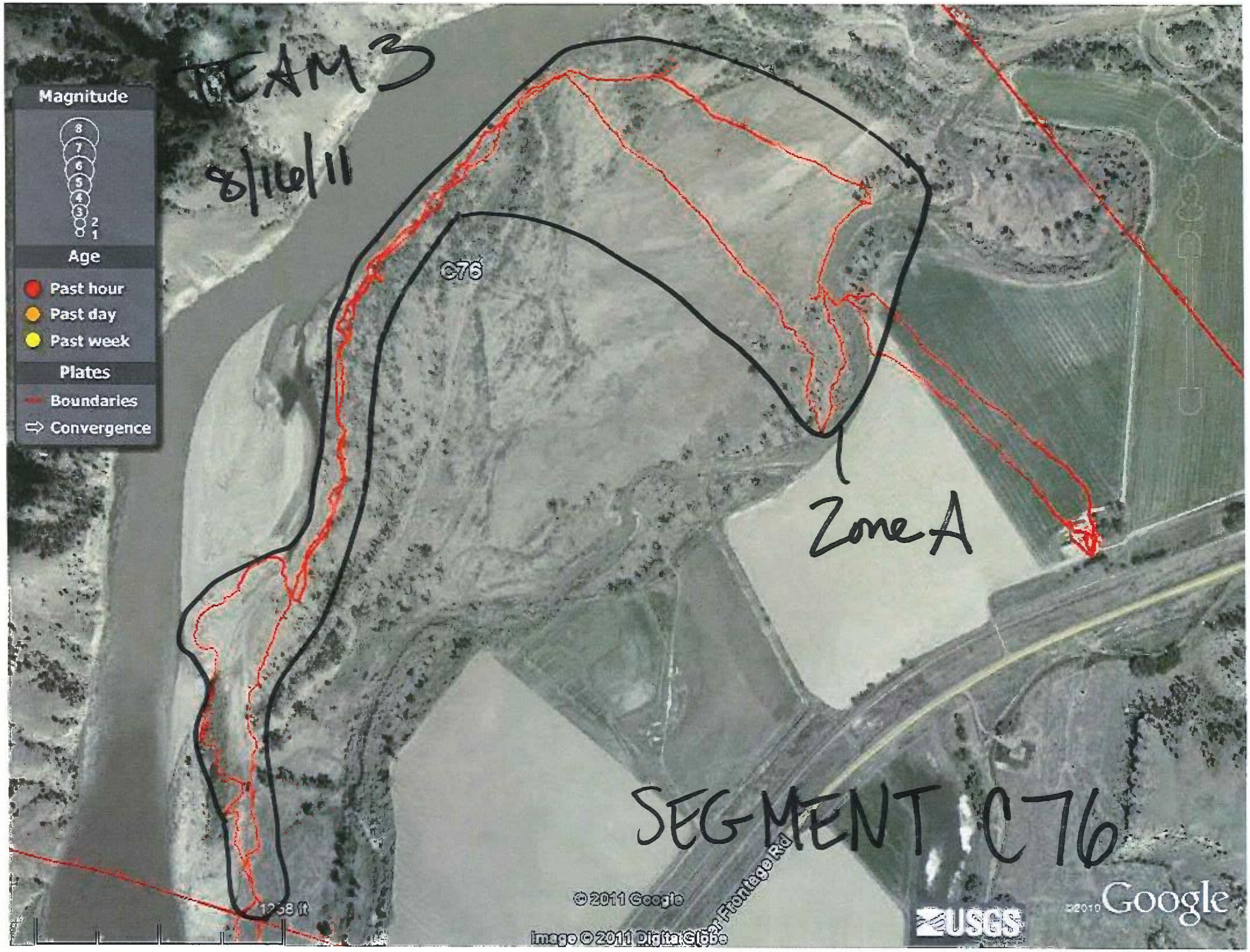
TEAM 3
8/16/11
Magnitude
8
7
6
5
4
3
2
1
Age
Past hour
Past day
Past week
Plates
Boundaries
Convergence
C76
Zone A
SEGMENT C76
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Image © 2011 DigitalGlobe
USGS
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DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 2

1 GENERAL INFORMATION

Segment/Reach ID: 76 Left Bank / (Right Bank) / Island

Operations Division: C

Survey by: (Foot) / ATV / Boat / Helicopter / Overlook / _____

Date (dd/mm/yy): 8/22/11

Time (24h): std / daylight 1100 PDT 945 hrs to 1251 hrs

(Sun) / Clouds / Fog / Rain / Snow / Windy / Calm

Water Level: low - (mean) - bankfull - overbank; (falling) - steady – rising

Air Temp + / - 30 deg C

2 SURVEY TEAM # 5

Name	Organization	Signature
Daniel Elefant	Cardno-Entrix	[illegible]
Pete Lee	Polaris	PBLee
Ariel Blanc	Polaris	[illegible]
Mike Herman	FWP	[illegible]
Mark Kwanic	DEQ	[illegible]

3 SEGMENT Total Segment/Reach Length 1860 m Segment/Reach Length Surveyed 1246 m (1226 Total Zones)

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 (P) Mixed____ Pebble/Cobble 5 Boulder____ Peat/Organic____ Vegetated Bank: ✓ Wooded Upland: ✓

Sediment Flat: Clay/Mud____ Sand____ Mixed/Coarse____ Other: ____ If snow and ice use Winter River SOS

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

Cliff or Bluff:___ Est Height ____m canyon____ manmade____ meander 5 confined or leveed ____

Sloped:___(>5°)(15°)(30°) straight____ braided P oxbow____ flood plain valley____

Substrate Type: Veg.

Forested / Vegetated / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width: < 1m 1–10 m 10–100 m >100m 160m 177m

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 4.5 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 MS	LB	UB	OB	OIL COVER Length m	Width m	Distrib. %	OIL THICKNESS TO	CV	CT	ST	FL	OIL CHARACTER FR	MS	TB	PT	TC	SR	AP	NO	SUBST. TYPE(S)
1784	A			X	X	1246	667	—													✓	Veg
1785	B			X	X	50	10	<1%			(X)	X						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 MS	LB	UB	OB	MAX. PIT DEPTH cm	OILED ZONE cm-cm	SUBSURFACE OIL CHARACTER SAP	OP	PP	OR	OF	TR	NO	WATER TABLE cm	SHEEN COLOUR B, R, S, N	CLEAN BELOW Yes / No	SUBST. TYPE(S)

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: NOO-NFT

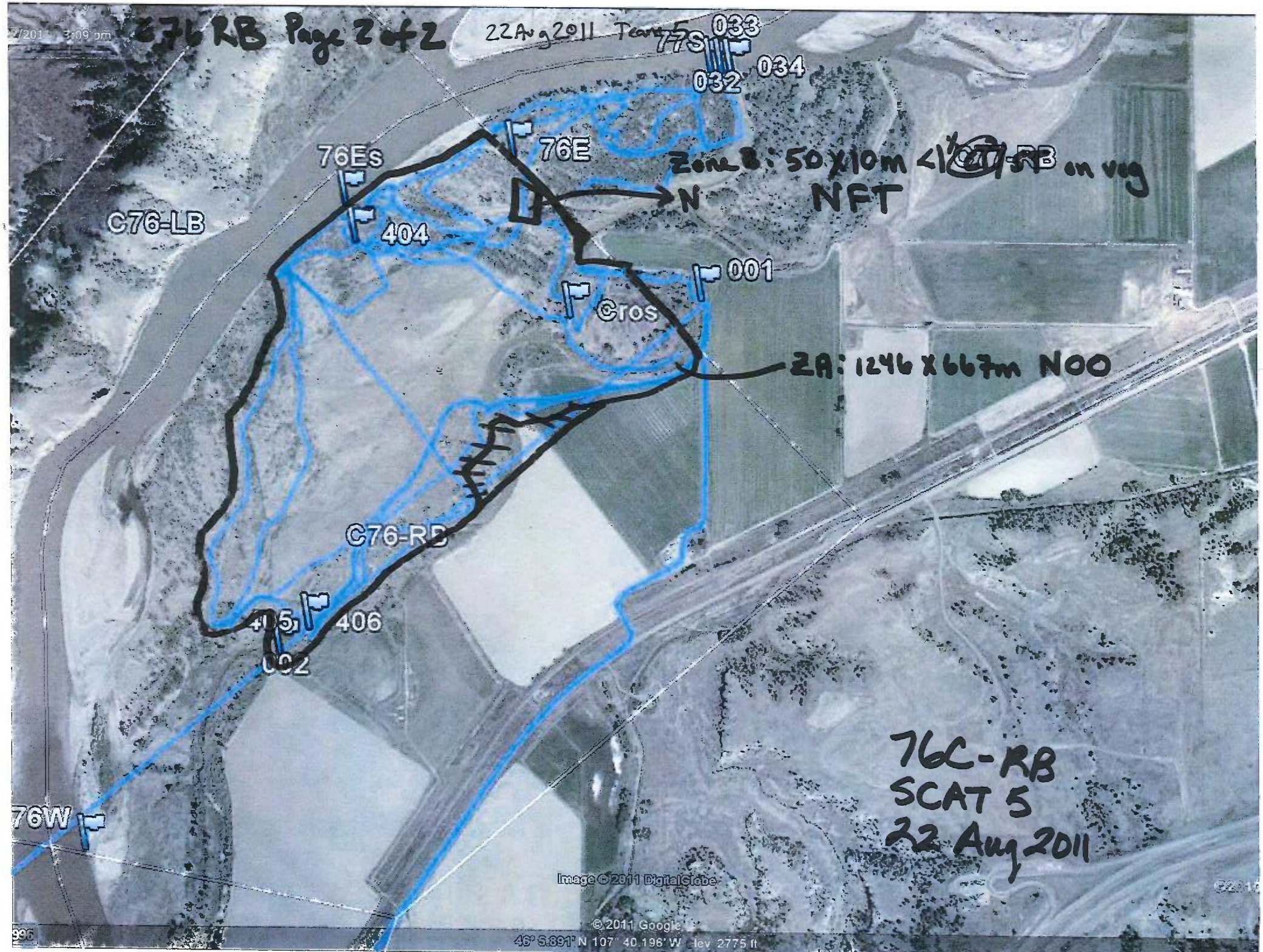
~~Zone B: Oil removed by hot shot crew. NFT~~

AB 23/08/2011

Zone B: Oiled (CT/ST) debris and veg removed by hot shot crew. ≤0.5 bag. NFT

Sketch (Yes) / No Photos (Yes) / No Frames_____ Photographer_____

Ver. 04 July 2011



C76 RB Page 2 of 2
22Aug2011 Team 5
033
77S
034
032
76E
76Es
Zone B: 50 X 10m <1% on veg
NFT
N
C76-LB
404
001
Cros
ZA: 1246 X 667m NOO
C76-RB
406
76W
76C-RB
SCAT 5
22 Aug 2011
Image © 2011 DigitalGlobe
© 2011 Google
46° 5.891' N 107° 40.196' W elev 2775 ft

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C 7 (Left Bank) / Right Bank / Island	25/07/11	1035 hrs to 1040 hrs	low - mean - (bankfull) - overbank
Operations Division: C			(falling) - steady – rising
Survey by: Foot / ATV / (Boat) / Helicopter / Overlook / _____		(Sun) / Clouds / Fog / Rain / Snow / Windy / Calm	Air Temp + / - 25 deg C

2 SURVEY TEAM # 6 Name	Organization	Signature
Chelsea Murphy	Cardno ENTRIX	[signature]
David Rouse	US Fish and Wildlife	
Jay Watson	MT Fish Wildlife and Parks	

3 SEGMENT Total Segment/Reach Length 2,100 m Segment/Reach Length Surveyed 2,100 m

Start GPS: LATITUDE 46 deg. 6.409 min. LONGITUDE 107 deg. 40.585 min. Datum: WGS 84

End GPS: LATITUDE 46 deg. 5.432 min. LONGITUDE 107 deg. 41.301 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: ____

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/silt

Sloped:___(>5°)(15°)(30°) | straight_____ braided P___ oxbow_____ flood plain valley_____ | Forested / (Vegetated) / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width : < 1m 1–10 m 10–100 m (>100m) 160m | 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 _____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	
1346 A			P		2,100	<1	Ø													P	veg/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	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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

Zone A - NOO

Sketch (Yes) / No Photos Yes / (No) Frames_____ Photographer_____

Ver. 04 July 2011

C76LB
Team #6
25/07/11

ARCADIS

C77

D13/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page ____ of ____

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C77 Left Bank / Right Bank / Island	17/08/11	13:40 hrs to 15:30 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 + / - 33 deg C

2 SURVEY TEAM # 4	Name	Organization	Signature
	LISA GERENCHER	Cardno ENTRIX	
	Daryl REED	DEQ	Daryl Reed
	RACHELLE THOMPSON	EPA	Rachelle Thompson

3 SEGMENT Total Segment/Reach Length 1938 m Segment/Reach Length Surveyed 1658 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: 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°)(15°)(30°) | straight____ braided X oxbow____ flood plain valley____ | Forested / Vegetated / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width: < 1m 1–10 m 10–100 m >100m 160m | 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 ____ 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 MS	LB	UB	OB	OIL COVER Length m	Width m	Distrib. %	OIL THICKNESS TO	CV	CT	ST	FL	OIL CHARACTER FR	MS	TB	PT	TC	SR	AP	NO	SUBST. TYPE(S)
1633	A				X	1	1	<1				X							X			grass, veg
1634	B				X	1658	338														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 MS	LB	UB	OB	MAX. PIT DEPTH cm	OILED ZONE cm-cm	SUBSURFACE OIL CHARACTER SAP	OP	PP	OR	OF	TR	NO	WATER TABLE cm	SHEEN COLOUR B, R, S, N	CLEAN BELOW Yes / No	SUBST. TYPE(S)

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- Light ~~staining~~ staining on vegetation and grass ~~in~~ IN AN Aproximate 1 meter x 1 meter area. NFT.

Sketch Yes / No Photos Yes / No Frames ____ Photographer Reed + Gerencher

Magnitude
8
7
6
5
4
3
2
1
Age
Past hour
Past day
Past week
Plates
Boundaries
Convergence
TEAM #4
8/17/11
C77
O112
Zone A
Zone B
SEGMENT #C77R
© 2011 Google
1233 ft
Image USDA Farm Service Agency
USGS
Google

D13G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: 677 Left Bank / Right Bank / Island	8/22/11	945 AM 1100 PM	low - mean - bankfull - overbank
Operations Division: C		~~1030~~ hrs to ~~1130~~ hrs	falling - steady – rising
Survey by: Foot / ATV / Boat / Helicopter / Overlook / _____		Sun / Clouds / Fog / Rain / Snow / Windy / Calm	Air Temp + / - 30 deg C

2 SURVEY TEAM # 5

Name	Organization	Signature
D. Elefant	Cardno-Entrix	
Ariel Blanc	Polaris	
Mark Ewanic	DEQ	
Mike Herman	FWP	
Pete Lee	Polaris	

3 SEGMENT Total Segment/Reach Length 478 m Segment/Reach Length Surveyed 478 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 P 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 S confined or leveed ____ | Substrate Type: Veg/Forest

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 1–10 m 10–100 m >100m 160m 100 m | 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 ____ 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				✓	478	273	Ø													P	TREE

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)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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

Sketch Yes / No Photos Yes / No Frames_____ Photographer_____

2/2011 3:09 pm
4 pm
77S
033
034
032
ZONE A
N.O.O.
C77-RB
001
Cros
©2010
© 2011 Google
46° 6.245' N 107° 59.697' W elev 2768 ft

D3

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION

Segment/Reach ID: C 77 (Left Bank) / Right Bank / Island

Operations Division: C

Date (dd/mm/yy): 25/07/11

Time (24h): std / daylight 1030 hrs to 1035 hrs (falling) / steady – rising

Water Level: low - mean - (bankfull) - overbank

Survey by: Foot / ATV / (Boat) / Helicopter / Overlook / _____ (Sun) / Clouds / Fog / Rain / Snow / Windy / Calm

Air Temp + / - 25 deg C

2 SURVEY TEAM # 6

Name	Organization	Signature
Chelsea Murphy	Cardno ENTRIX	[signature]
David Rouse	US Fish and Wildlife	
Jay Watson	MT Fish Wildlife and Parks	

3 SEGMENT Total Segment/Reach Length 2,300 m Segment/Reach Length Surveyed 2,500 m

Start GPS: LATITUDE 46 deg. 6.731 min. LONGITUDE 107 deg. 38.928 min. Datum: WGS 84

End GPS: LATITUDE 46 deg. 6.413 min. LONGITUDE 107 deg. 40.586 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: ____

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/silt

Sloped:___(>5°)(15°)(30°) | straight____ braided P oxbow____ flood plain valley____ | Forested / (Vegetated) / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width : < 1m 1–10 m 10–100 m (>100m) 160m | 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 ____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	
1347 A			P		2,500	4	Ø													P	

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)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	cm	B, R, S, N	Yes / No	

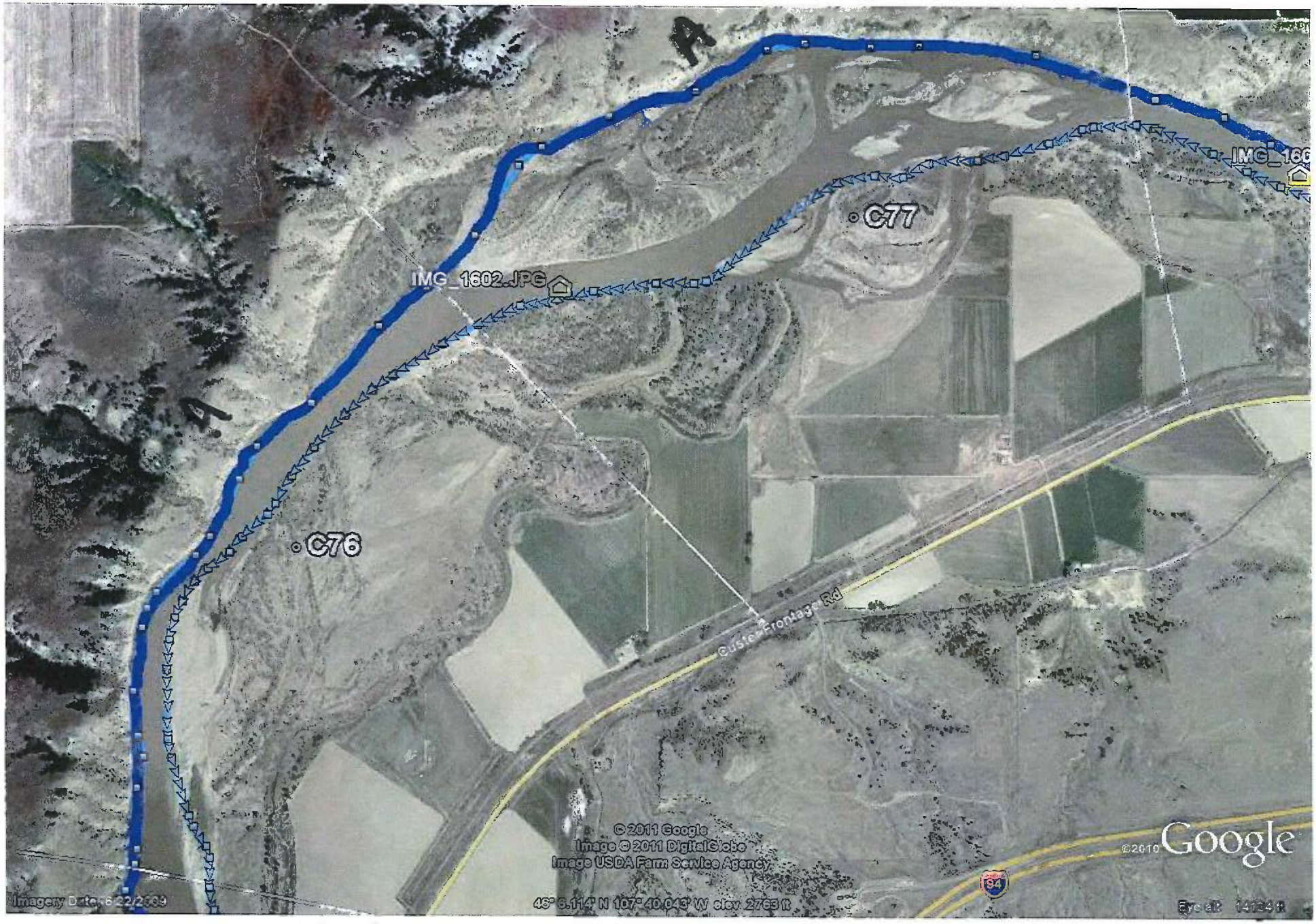
8 COMMENTS ecological/recreational/cultural/economic constraints - shorezone biota and wildlife observations - cleanup recommendations

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

Zone A - NOO

Sketch (Yes) / No Photos Yes / (No) Frames_____ Photographer_____

Ver. 04 July 2011



C77LB
Team #6
25/07/11

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of ~~1~~ 2

1 GENERAL INFORMATION

Segment/Reach ID: C77 (Left Bank) / Right Bank / Island

Operations Division: C

Date (dd/mm/yy): 15/08/11

Time (24h): std / daylight 1140 hrs to 1235 hrs

Water Level: low - mean - bankfull - overbank; falling - steady – rising

Survey by: (Foot) / ATV / Boat / Helicopter / Overlook / _____

Sun / Clouds / Fog / Rain / Snow / Windy / Calm

Air Temp + / - ____ deg C

2 SURVEY TEAM # 4

Name	Organization	Signature
Bob Naylon	Cardno Entrix	[illegible]
Damien Korte	Cardno ENTRIX	[illegible]
Ernie McKenzie	BLM	[illegible]
Rachelle Thompson	EPA	[illegible]
Alicia Taylor	USCG	[illegible]

3 SEGMENT Total Segment/Reach Length 2300 m Segment/Reach Length Surveyed 600 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 P Shelf ____ | Manmade: Solid ____ Permeable ____ (type) ____ | Wetland: Swamp ____ Bog/Fen ____ Marsh ____

Sediment Bank: Clay/Mud ____ Sand S Mixed ____ Pebble/Cobble S Boulder ____ Peat/Organic ____ | Vegetated Bank: PS | 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 60 m | canyon ✓ manmade ____ meander ____ confined or leveed ____

Sloped: ✓ (>5°)(15°)(30°) | straight ____ braided ____ oxbow ____ flood plain valley ____

Substrate Type: Sand | Forested / Vegetated / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width: < 1 m 1–10 m 10–100 m (>100 m) | 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 ____ trucks | access restrictions Steep bluffs

Oiled trees/shrubs Y / (N) | River Current strong (Y) / N | Other Features: limited access roads

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	
1573 A				✓	600	200	0													X	Sand; Veg 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	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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

No cleanup recommendations required; No oil observed
Recommend completing balance (remainder) of segment by boat/airboat.

Sketch Yes / No Photos Yes / No Frames/Photographer: ____

Ver. 31 July 2011

9/1/2009
2009
SCAT TEAM 4 08/15/11
C77L
C77E
C77 • C77
Zone A
©2011 Google
Image USDA Farm Service Agency
Custer Frontage Rd
46°06'23.94" N 107°39'32.53" W elev 2768 ft
1996
©2010

ARCADIS

C78

DB

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page _____ of _____

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C78 Left Bank / (Right Bank) / Island	17/08/11	9:15 hrs to 13:40 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 + / - 33 deg C

2 SURVEY TEAM # 4

Name	Organization	Signature
LISA GERENCHER	Cardno ENTRIX	Lisa Gerencher
RACHELLE THOMPSON	EPA	Rachelle Thompson
DARYL REED	DEQ	Daryl Reed

3 SEGMENT Total Segment/Reach Length 2129 m Segment/Reach Length Surveyed 2129 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_____ 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°)(15°)(30°) | straight_____ braided X oxbow_____ flood plain valley_____ | (Forested / Vegetated) / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width: < 1m 1–10 m 10–100 m (>100m) 160m | 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 _____ 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 MS	LB	UB	OB	OIL COVER Length m	Width m	Distrib. %	OIL THICKNESS TO	CV	CT	ST	FL	OIL CHARACTER FR	MS	TB	PT	TC	SR	AP	NO	SUBST. TYPE(S)
1635	A				X	.25	.25	<1			(X)	X							X			DEBRIS
1636	B				X	1	1	<1				X							X			veg.
1637	C				X	2129	3910														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 MS	LB	UB	OB	MAX. PIT DEPTH cm	OILED ZONE cm-cm	SUBSURFACE OIL CHARACTER SAP	OP	PP	OR	OF	TR	NO	WATER TABLE cm	SHEEN COLOUR B, R, S, N	CLEAN BELOW Yes / No	SUBST. TYPE(S)

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

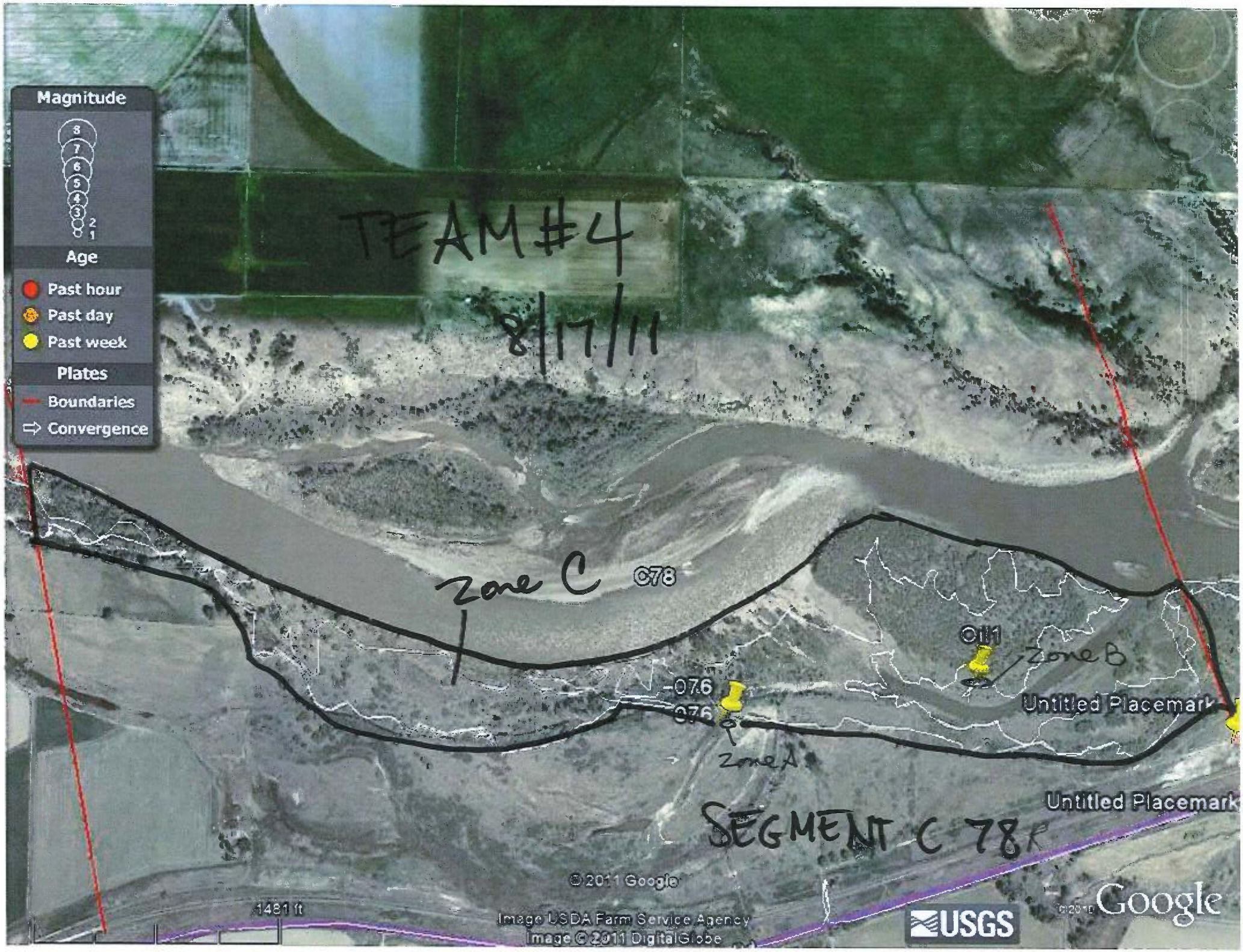
Zone A - Small (.25 METER x .25 METER) PATCH OF OIL, COATED AND STAINED ON DEBRIS, NFT.

Zone B - SPORATIC OILING, STAINED ON VEGETATION, IN AN APROXIMATE 1METER x 1METER AREA. NFT.

Zone C - NO OILING OBSERVED. NFT.

Sketch (Yes) / No Photos (Yes) / No Frames _____ Photographer Reed + Gerencher

Ver. 04 July 2011


Magnitude
8
7
6
5
4
3
2
1
Age
Past hour
Past day
Past week
Plates
Boundaries
Convergence
TEAM #4
8/17/11
Zone C
078
011
Zone B
-076
076
Zone A
Untitled Placemark
Untitled Placemark
SEGMENT C 78
© 2011 Google
1481 ft
Image USDA Farm Service Agency
Image © 2011 DigitalGlobe
USGS
Google

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C 78 (Left Bank) / Right Bank / Island	25/07/11	1027 hrs to 1030 hrs (falling) steady – rising	low - mean - (bankfull) - overbank
Operations Division: C			
Survey by: Foot / ATV (Boat) / Helicopter / Overlook / _____	(Sun) / Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp + / - 25 deg C

2 SURVEY TEAM # 6	Name	Organization	Signature
	Chelsea Murphy	Cardno ENTRIX	[signature]
	David Rouse	US Fish and Wildlife	
	Jay Watson	MT Fish Wildlife and Parks	

3 SEGMENT Total Segment/Reach Length ~2,000 m Segment/Reach Length Surveyed ~2,000 m

Start GPS: LATITUDE 46 deg. 6.678 min. LONGITUDE 107 deg. 37.320 min. Datum: WGS 84

End GPS: LATITUDE 46 deg. 6.728 min. LONGITUDE 107 deg. 38.922 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: ____

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/silt

Sloped:___(>5°)(15°)(30°) | straight_____ braided P oxbow_____ flood plain valley_____ | Forested (Vegetated) Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width : < 1m 1–10 m 10–100 m (>100m) 160m | 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 _____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	
1398 A			P		2000	1	Ø													P	rip rap

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)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	cm	B, R, S, N	Yes / No	

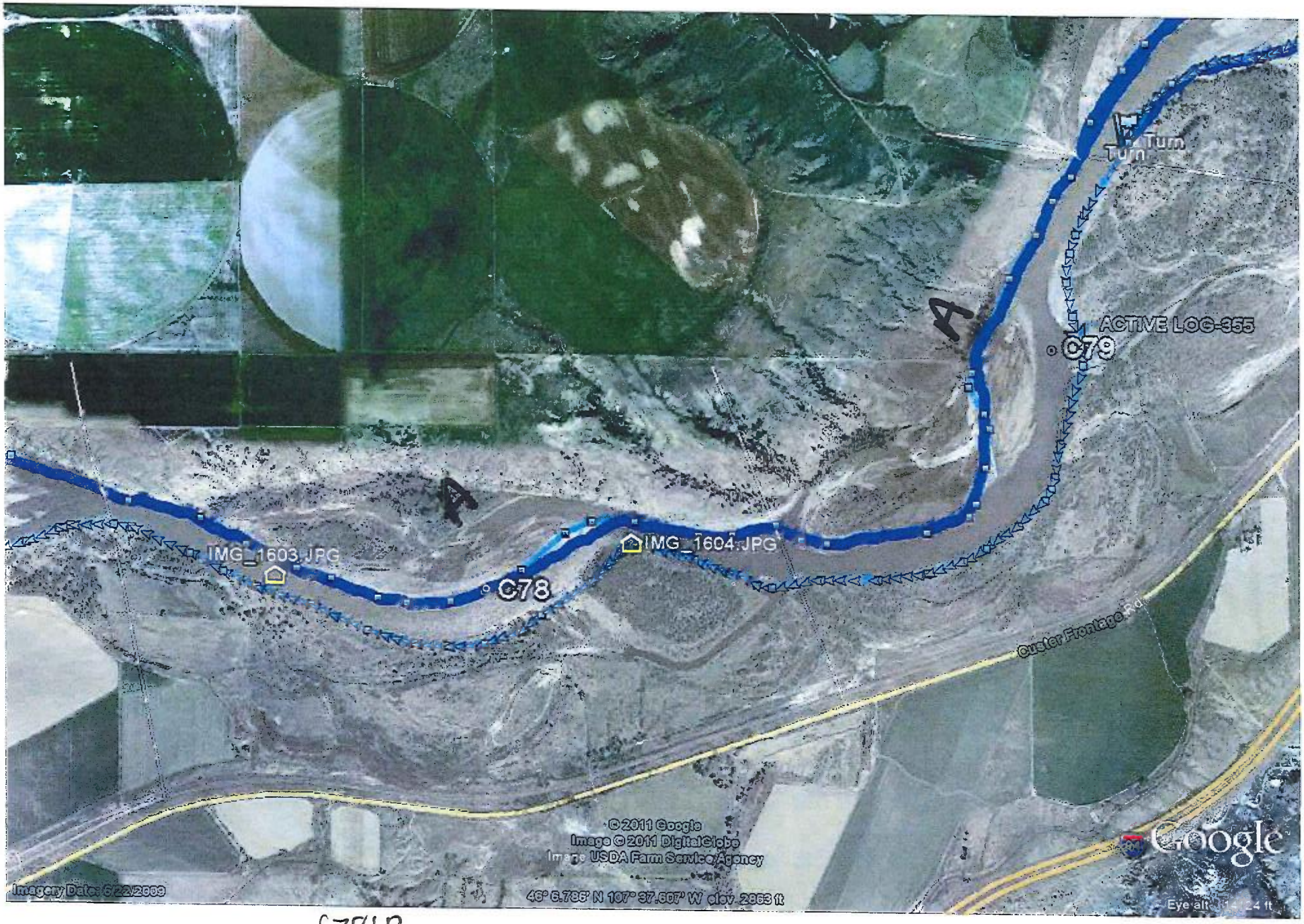
8 COMMENTS ecological/recreational/cultural/economic constraints - shorezone biota and wildlife observations - cleanup recommendations

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

Zone A - NOO

Sketch (Yes) / No Photos Yes / (No) Frames_____ Photographer_____

Ver. 04 July 2011



C78LB
Team#6
25/07/11

ARCADIS

C79

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C79 Left Bank / **Right Bank** / Island	06/08/11		low - mean - **bankfull** - overbank
Operations Division:		0845 hrs to 1115 hrs	**falling** - steady – rising
Survey by: **Foot** / ATV / Boat / Helicopter / Overlook / _____	**Sun / Clouds** / Fog / Rain / Snow / Windy / Calm		Air Temp + / - 25-35 deg C

2 SURVEY TEAM # 5

Name	Organization	Signature
Josh Hofkes	Cardno ENTRIX	
Ron Lynn	USCG	
Mark Peterson	DEQ	Mark Peterson

3 SEGMENT *Total Segment/Reach Length* _____ *m* *Segment/Reach Length Surveyed* 2100 *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 S___ Sand S___ Mixed S___ Pebble/Cobble S___ Boulder____ Peat/Organic P___ | *Vegetated Bank: X* | *Wooded Upland: X*

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: organic

Sloped:___(>5°)(15°)(30°) | straight____ braided ____ oxbow S___ flood plain valley P___ | **Forested** / Vegetated / Bare

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

est. width : < 1m 1–10 m 10–100 m **>100m** | **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 NA bags or NA 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	
1241 A				X	138	15	75					P	P								Silt, sand, organic mix
1242 B				X	2100	520														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	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	cm	B, R, S, N	Yes / No	

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

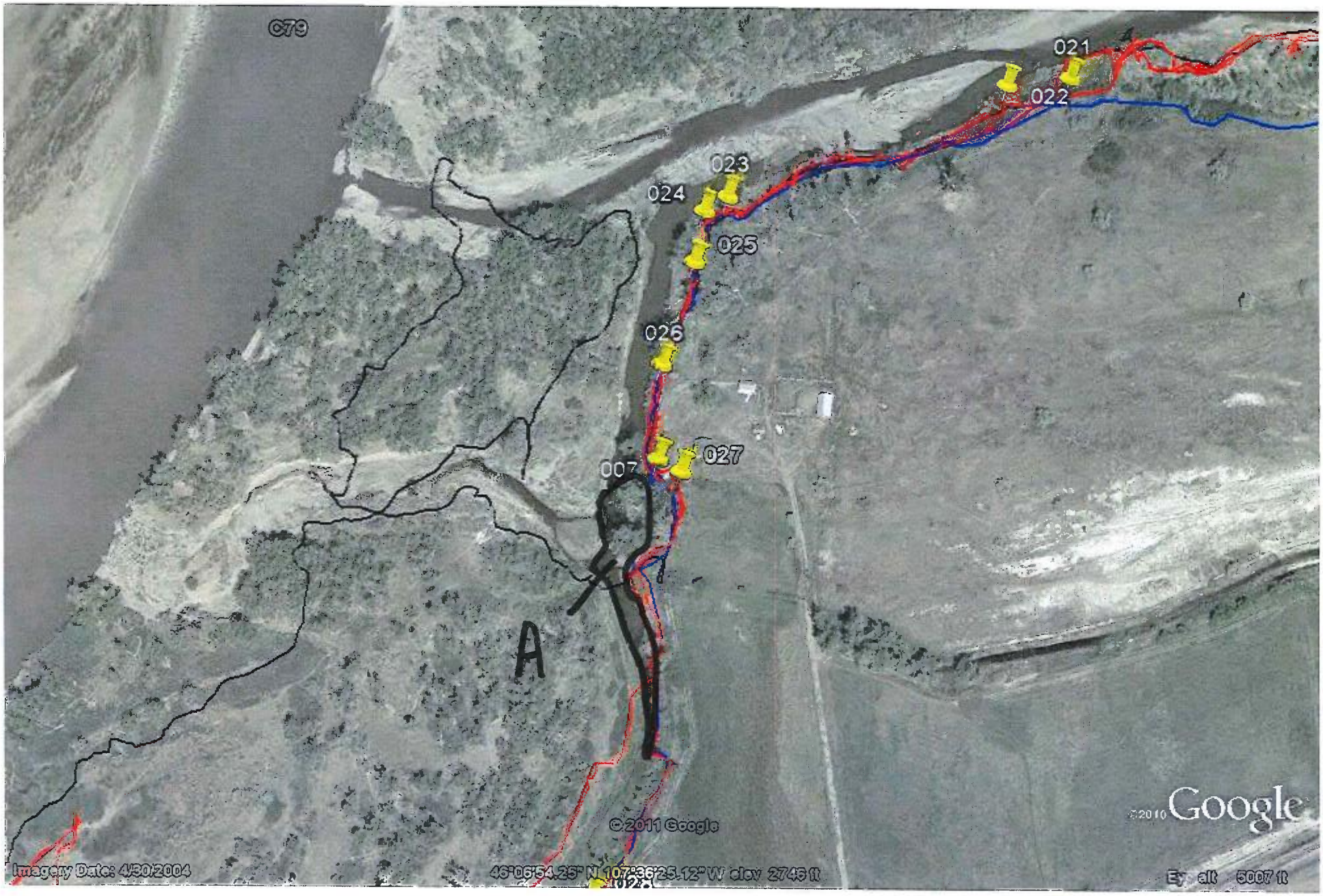
Overbank Survey Required Y / N Overbank Survey Completed Y / N Shoreline Survey Completed Y / N

Zone A: Silver sheen on slack water/ox bows within floodplain. No further treatment (NFT) recommended.

Zone B: No oiling observed. No further treatment (NFT) recommended.

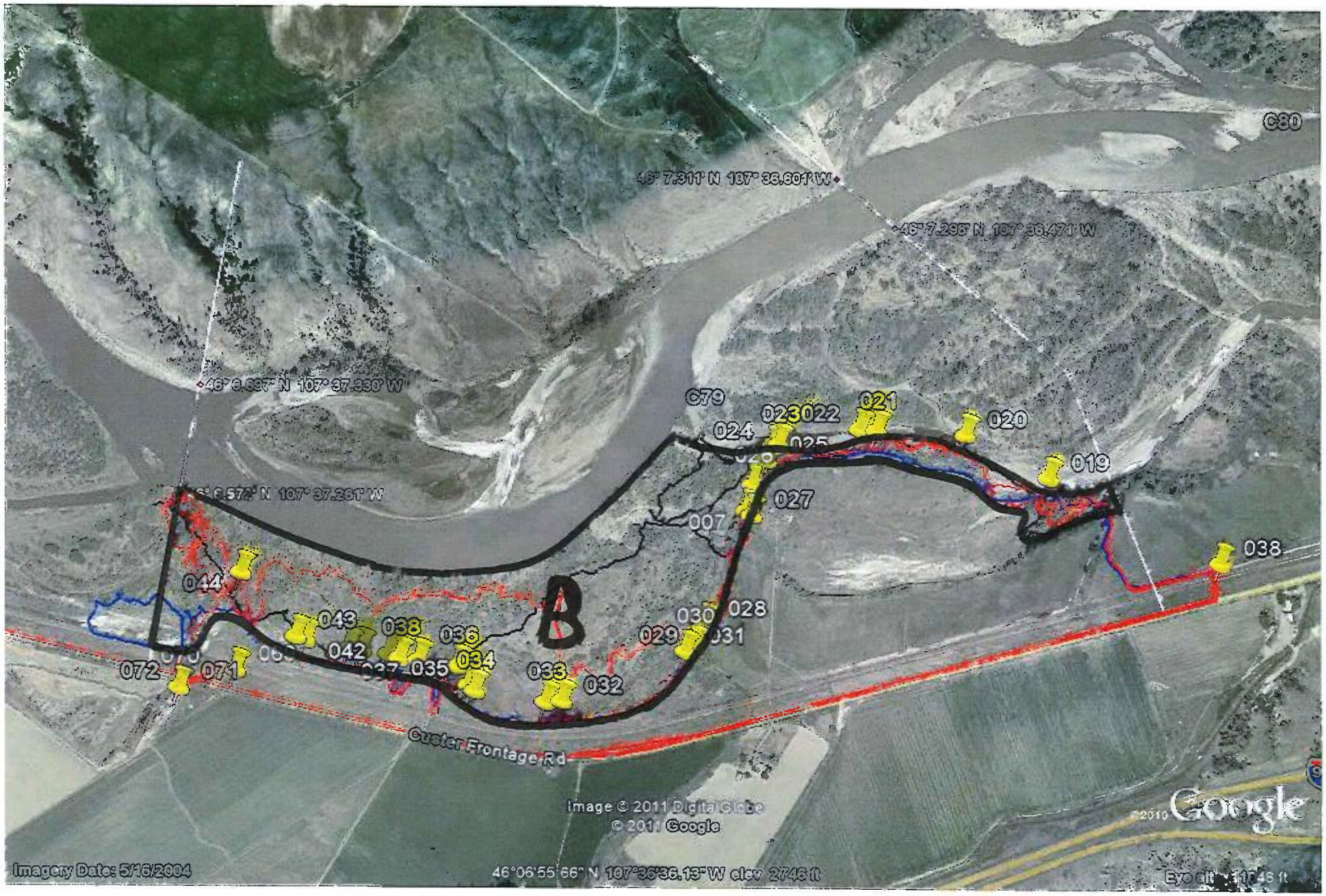
Sketch Yes / No Photos Yes / No Frames/Photographer: _____

Ver. 31 July 2011



August 6, 2011
TEAM 5 C79 RB

2 of 2



August 6, 2011
TEAM 5 C79 RB

1 of 2

DB

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION

Segment/Reach ID: C 79 Left Bank / Right Bank / Island

Operations Division: C

Date (dd/mm/yy): 25/07/11

Time (24h): std / daylight 1024 hrs to 1027 hrs falling / steady – rising

Water Level: low - mean - bankfull - overbank

Survey by: Foot / ATV / Boat / Helicopter / Overlook / _____ Sun / Clouds / Fog / Rain / Snow / Windy / Calm

Air Temp + / - 25 deg C

2 SURVEY TEAM # 6

Name	Organization	Signature
Chelsea Murphy	Cardno ENTRIX	[illegible]
David Rouse	US Fish and Wildlife	
Jay Watson	MT Fish Wildlife and Parks	

3 SEGMENT Total Segment/Reach Length 1750 m Segment/Reach Length Surveyed 1750 m

Start GPS: LATITUDE 46 deg. 7.308 min. LONGITUDE 107 deg. 36.582 min. Datum: WGS 84

End GPS: LATITUDE 46 deg. 6.673 min. LONGITUDE 107 deg. 37.320 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: ____

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/silt

Sloped:___(>5°)(15°)(30°) | straight_____ braided P___ oxbow_____ flood plain valley_____ | Forested / Vegetated / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width : < 1m 1–10 m 10–100 m >100m 160m | 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 ___ 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	
1349 A			P		1750	<1	Ø													P	Rock/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	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	cm	B, R, S, N	Yes / No	

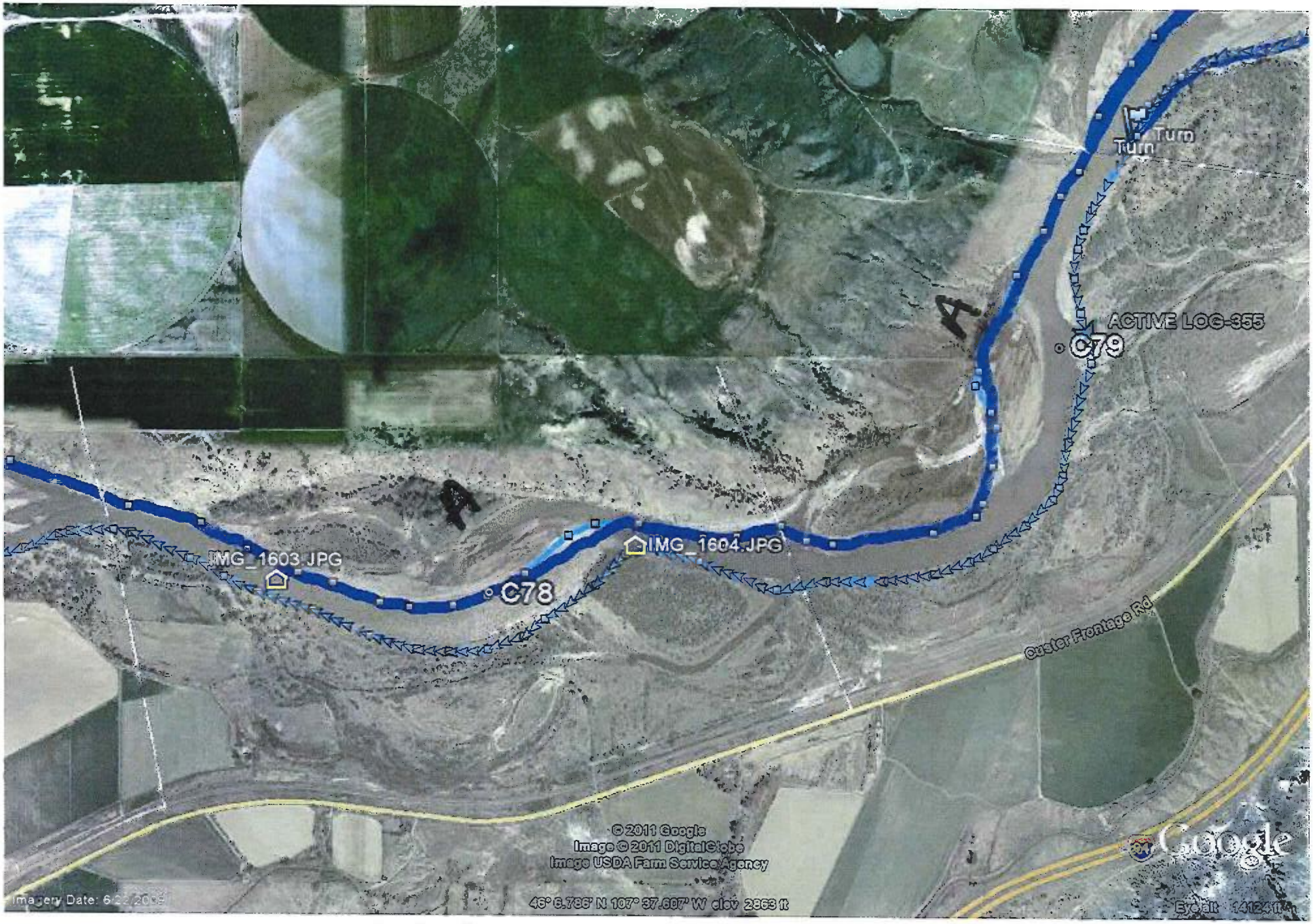
8 COMMENTS ecological/recreational/cultural/economic constraints - shorezone biota and wildlife observations - cleanup recommendations

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

Zone A - NOD

Sketch Yes / No Photos Yes / No Frames_____ Photographer_____

Ver. 04 July 2011



C79 LB
Team#6
25/07/11

ARCADIS

C80

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page _____ of _____

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: 080 Left Bank / Right Bank / Island	14/08/11		low - mean - bankfull - overbank
Operations Division:		0900 hrs to 1130 hrs	falling - steady – rising
Survey by: Foot / ATV / Boat / Helicopter / Overlook / _____		Sun / Clouds / Fog / Rain / Snow / Windy / Calm	Air Temp + / - ____ deg C

2 SURVEY TEAM # 5

Name	Organization	Signature
LISA GERENCHER	Cardno ENTRIX	
RON LYNN	USCG	
ALICIA TAYLOR	USCG	
MARCILE SIGLER	DEQ	

3 SEGMENT Total Segment/Reach Length 1248 m Segment/Reach Length Surveyed 1153 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: 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°)(15°)(30°) | straight____ braided X oxbow____ flood plain valley____ | Forested / Vegetated / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width : < 1m 1–10 m 10–100 m >100m 160m | 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 ____ 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	
1597 A				X	1153	50														X	

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

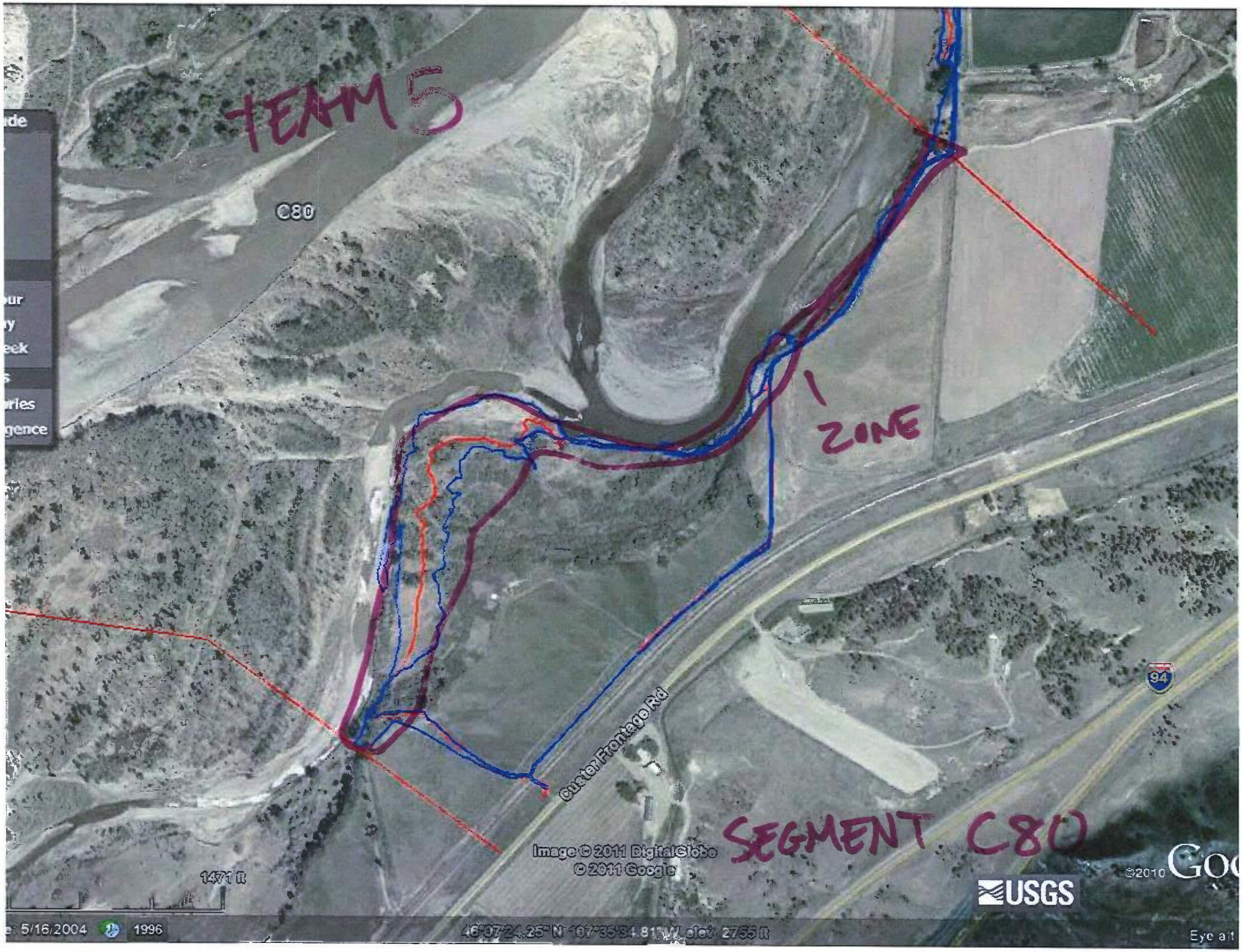
TRENCH or PIT NO.	RIVER BANK ZONE				MAX. PIT DEPTH	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	cm	B, R, S, N	Yes / No	

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

ZONE A - NO OIL OBSERVED. NO TREATMENT REQUIRED.

Sketch Yes / No Photos Yes / No Frames _____ Photographer _____


TEAM 5
C80
ZONE
Custer Frontage Rd
94
SEGMENT C80
Image © 2011 DigitalGlobe
© 2011 Google
1471 ft
USGS
©2010 Google
5/16/2004
1996
46°07'24.25" N 107°35'34.81" W elev 2755 ft
Eye alt

DB 1G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION

Segment/Reach ID: C 80 (Left Bank / Right Bank / Island)
Operations Division: C

Date (dd/mm/yy): 25/07/11

Time (24h): std / daylight 1021 hrs to 1024 hrs (falling / steady – rising)

Water Level: low - mean - (bankfull) - overbank

Survey by: Foot / ATV / (Boat) / Helicopter / Overlook / _____ (Sun) / Clouds / Fog / Rain / Snow / Windy / Calm

Air Temp + / - 25 deg C

2 SURVEY TEAM # 6

Name	Organization	Signature
Chelsea Murphy	Cardno ENTRIX	[signature]
David Rouse	US Fish and Wildlife	
Jay Watson	MT Fish Wildlife and Parks	

3 SEGMENT Total Segment/Reach Length 1,700 m Segment/Reach Length Surveyed ~ 1,685 m

Start GPS: LATITUDE 46 deg. 7.911 min. LONGITUDE 107 deg. 35.603 min. Datum: WGS 84

End GPS: LATITUDE 46 deg. 7.308 min. LONGITUDE 107 deg. 36.585 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: ____

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/silt

Sloped: ___ (>5°)(15°)(30°) | straight____ braided P___ oxbow____ flood plain valley____ | Forested / (Vegetated) / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width : < 1m 1–10 m 10–100 m (>100m) 160m | 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 ____ 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 MS	LB	UB	OB	OIL COVER Length m	Width m	Distrib. %	OIL THICKNESS TO	CV	CT	ST	FL	OIL CHARACTER FR	MS	TB	PT	TC	SR	AP	NO	SUBST. TYPE(S)
1350	A			P		1000	<1	Ø													P	veg/Rock
1351	B			P		50	<1	2%				P		P								"
1352	C			P		635	<1	Ø													P	"

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

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

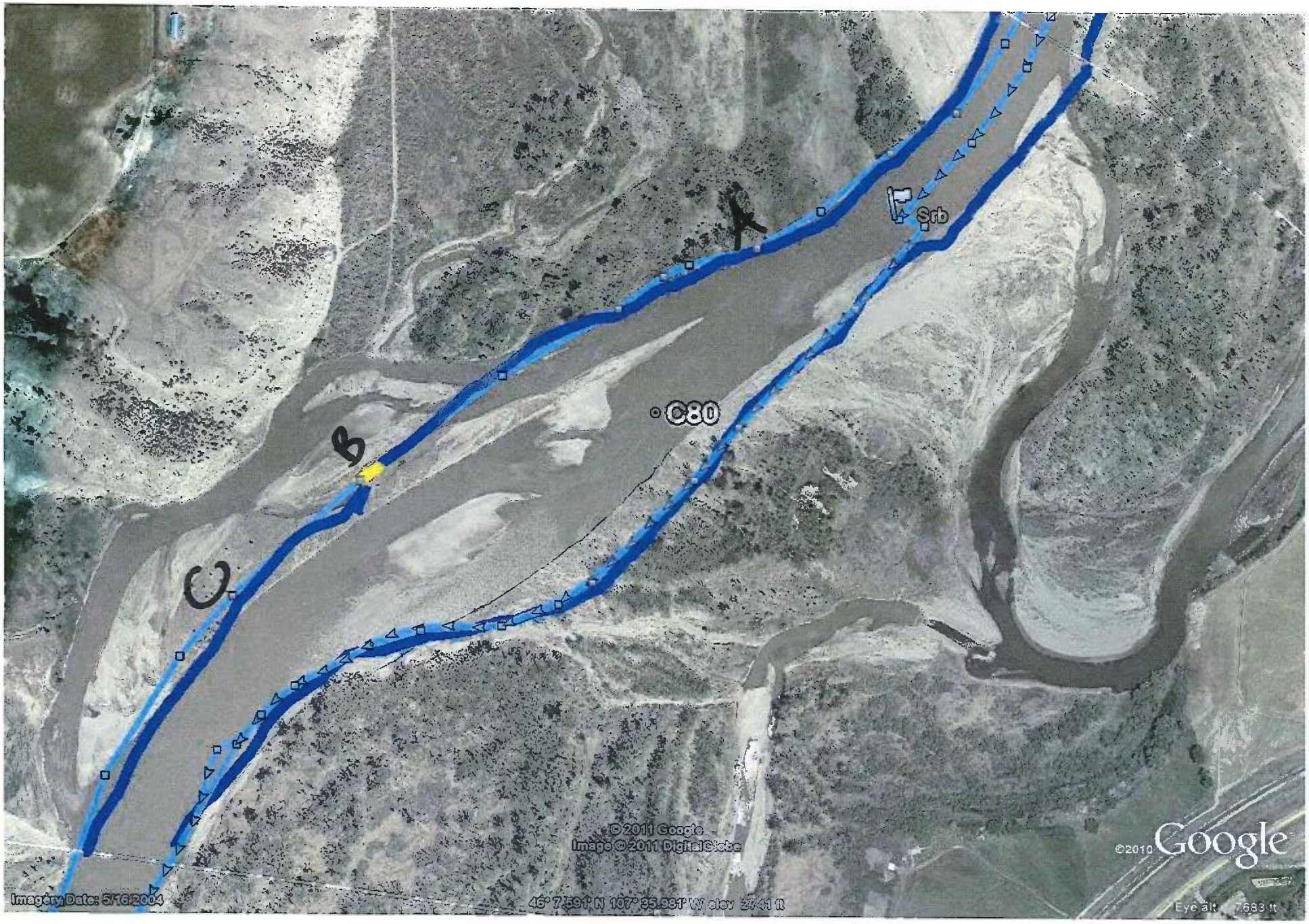
Zone A - NOO

Zone B - ~3" band of oil stain on grass veg along upper bank
- Recommend additional SCAT ground truthing

Zone C - NOO

Sketch (Yes) / No Photos (Yes) / No Frames 1590 Photographer Chelsea Murphy

Ver. 04 Jul 2011



C80LB
Team #6

25/07/11

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

1 GENERAL INFORMATION

Segment/Reach ID: C 80 Left Bank / ~~Right Bank~~ / Island

Operations Division: C

Date (dd/mm/yy): 25/07/11

Time (24h): std / daylight 1440 hrs to 1443 hrs (falling) steady – rising

Water Level: low - mean - (bankfull) - overbank

Survey by: Foot / ATV (Boat) / Helicopter / Overlook / _____ (Sun) / Clouds / Fog / Rain / Snow / Windy / Calm

Air Temp + / - 25 deg C

2 SURVEY TEAM # 6

Name	Organization	Signature
Chelsea Murphy	Cardno ENTRIX	[illegible]
David Rouse	US Fish and Wildlife	
Jay Watson	MT Fish Wildlife and Parks	

3 SEGMENT Total Segment/Reach Length ~ 1,600 m Segment/Reach Length Surveyed ~ 1,700 m

Start GPS: LATITUDE 46 deg. 7.881 min. LONGITUDE 107 deg. 35.529 min. Datum: WGS 84

End GPS: LATITUDE 46 deg. 7.301 min. LONGITUDE 107 deg. 36.489 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: ____

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/silt

Sloped: ___ (>5°)(15°)(30°) | straight____ braided P___ oxbow____ flood plain valley____ | Forested (Vegetated) Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width: < 1m 1–10 m 10–100 m (>100m) 160m | 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 ____ 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	
1379 A			P		1700	<1	Ø													P	mud/veg

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

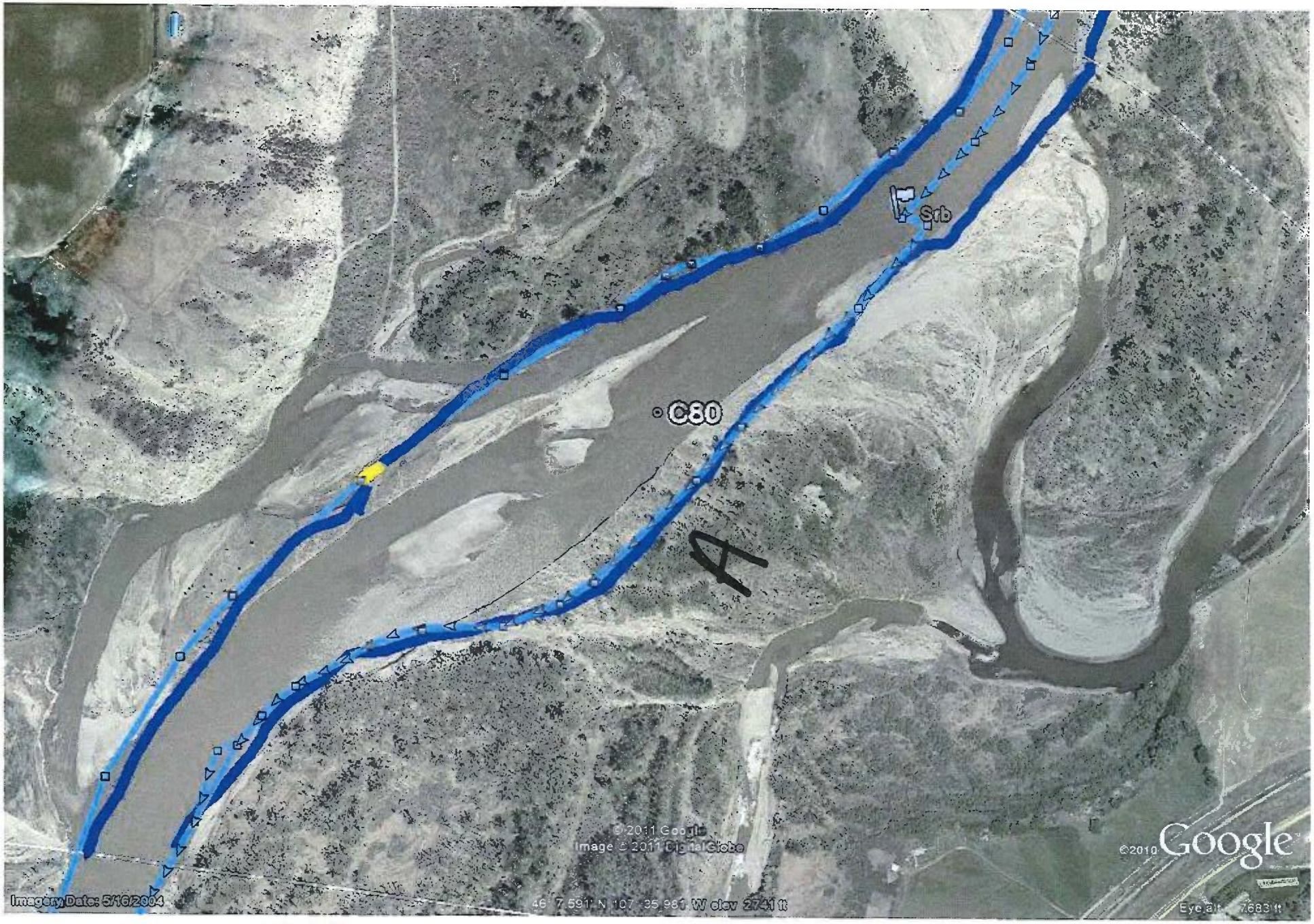
TRENCH or PIT NO.	RIVER BANK ZONE				MAX. PIT DEPTH	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	cm	B, R, S, N	Yes / No	

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

Zone A - NOO - NFT

Sketch (Yes) / No Photos Yes / (No) Frames _____ Photographer _____



C8ORB
Team#6
25/07/11

ARCADIS

C81

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION

Segment/Reach ID: C 81 Left Bank / (Right Bank) / Island

Operations Division: C

Date (dd/mm/yy): 25/07/11

Time (24h): std / daylight 1436 hrs to 1440 hrs

Water Level: low - mean - (bankfull) - overbank; (falling) - steady - rising

Survey by: Foot / ATV / (Boat) / Helicopter / Overlook / _____ (Sun) / Clouds / Fog / Rain / Snow / Windy / Calm

Air Temp + / - 25 deg C

2 SURVEY TEAM # 6

Name	Organization	Signature
Chelsea Murphy	Cardno ENTRIX	[signature]
David Rouse	US Fish and Wildlife	
Jay Watson	MT Fish Wildlife and Parks	

3 SEGMENT Total Segment/Reach Length ~1,170 m Segment/Reach Length Surveyed ~1,265 m

Start GPS: LATITUDE 46 deg. 8.373 min. LONGITUDE 107 deg. 34.962 min. Datum: WGS 84

End GPS: LATITUDE 46 deg. 7.884 min. LONGITUDE 107 deg. 35.533 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: ____

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/silt

Sloped: ___ (>5°)(15°)(30°) | straight____ braided P___ oxbow____ flood plain valley____ | Forested / (Vegetated) / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width: < 1m 1–10 m 10–100 m (>100m) 160m | 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 ____ 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	
1380 A			P		1265	21	Ø													P	mud/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	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	cm	B, R, S, N	Yes / No	

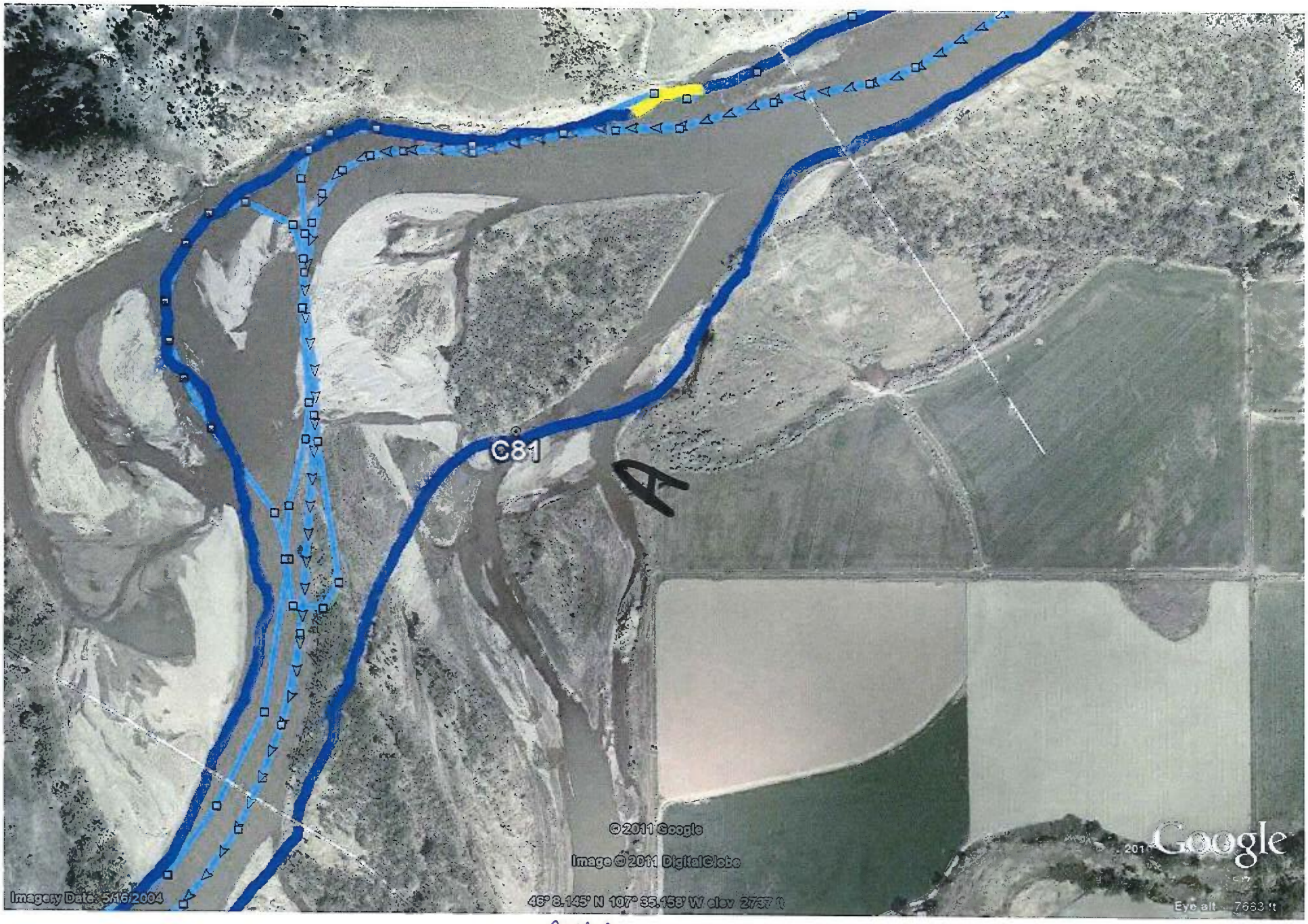
8 COMMENTS ecological/recreational/cultural/economic constraints - shorezone biota and wildlife observations - cleanup recommendations

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

Zone A - NOO - NFT

Sketch (Yes) / No Photos Yes / (No) Frames _____ Photographer _____

Ver. 04 July 2011



C81RB
Team #6
25/07/11

D13 16

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page _____ of _____

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: 081 Left Bank / Right Bank / Island	14/08/2011	1130 hrs to 1210 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 + / - ____ deg C

2 SURVEY TEAM # 5

Name	Organization	Signature
LISA GERENCHER	Cardno ENTRIX	
RON LYNN	USCG	
Alicia Taylor	USCG	
MARCILE Siglen	DEQ	Marcile Siglen

3 SEGMENT Total Segment/Reach Length 1324 m Segment/Reach Length Surveyed 1324 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: 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°)(15°)(30°) | straight____ braided X oxbow____ flood plain valley____ | Forested / Vegetated / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width : < 1m 1–10 m 10–100 m >100m 160m 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 ____ 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	
1593 A				X	1324	170														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	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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

Zone A - NO OIL OBSERVED. NO TREATMENT REQUIRED

Sketch Yes / No Photos Yes / No Frames _____ Photographer _____

TEAM #5
C81
ZONE A
SEGMENT C81
Image © 2011 DigitalGlobe
© 2011 Google
1470 ft
USGS
©2010 Goo
5/16/2004
1996
46°08'06.15"N 107°35'07.12"W elev 2743 ft
Eye alt

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

1 GENERAL INFORMATION

Segment/Reach ID: C 81 (Left Bank / Right Bank / Island)
Operations Division: C

Date (dd/mm/yy): 25/07/11

Time (24h): std / daylight 1012 hrs to 1015 hrs (falling / steady – rising)

Water Level: low - mean - (bankfull) - overbank

Survey by: Foot / ATV / (Boat) / Helicopter / Overlook / _____ (Sun) / Clouds / Fog / Rain / Snow / Windy / Calm

Air Temp + / - 25 deg C

2 SURVEY TEAM # 6

Name	Organization	Signature
Chelsea Murphy	Cardno ENTRIX	[signature]
David Rouse	US Fish and Wildlife	
Jay Watson	MT Fish Wildlife and Parks	

3 SEGMENT

Total Segment/Reach Length ~ 1,500 m Segment/Reach Length Surveyed ~ 1,618 m

Start GPS: LATITUDE 46 deg. 8.441 min. LONGITUDE 107 deg. 35.021 min. Datum: WGS 84

End GPS: LATITUDE 46 deg. 7.912 min. LONGITUDE 107 deg. 35.004 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: ____
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
Sloped: ___ (>5°)(15°)(30°)
canyon____ manmade____ meander S___ confined or leveed____
straight____ braided P___ oxbow____ flood plain valley____

complete for primary: Substrate Type: mud/silt
Forested / (Vegetated) / Bare

4C RIVER CHANNEL CHARACTER — circle or select as appropriate

est. width: < 1m 1–10 m 10–100 m (>100m) 160m
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 ____ 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 MS	LB	UB	OB	OIL COVER Length m	Width m	Distrib. %	OIL THICKNESS TO	CV	CT	ST	FL	OIL CHARACTER FR	MS	TB	PT	TC	SR	AP	NO	SUBST. TYPE(S)
1381 A			P		113	<1	Ø													P	veg / Rock
1382 B			P		105	<1	5				P		P								"
1383 C			P		1,400	<1	Ø													P	"

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

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

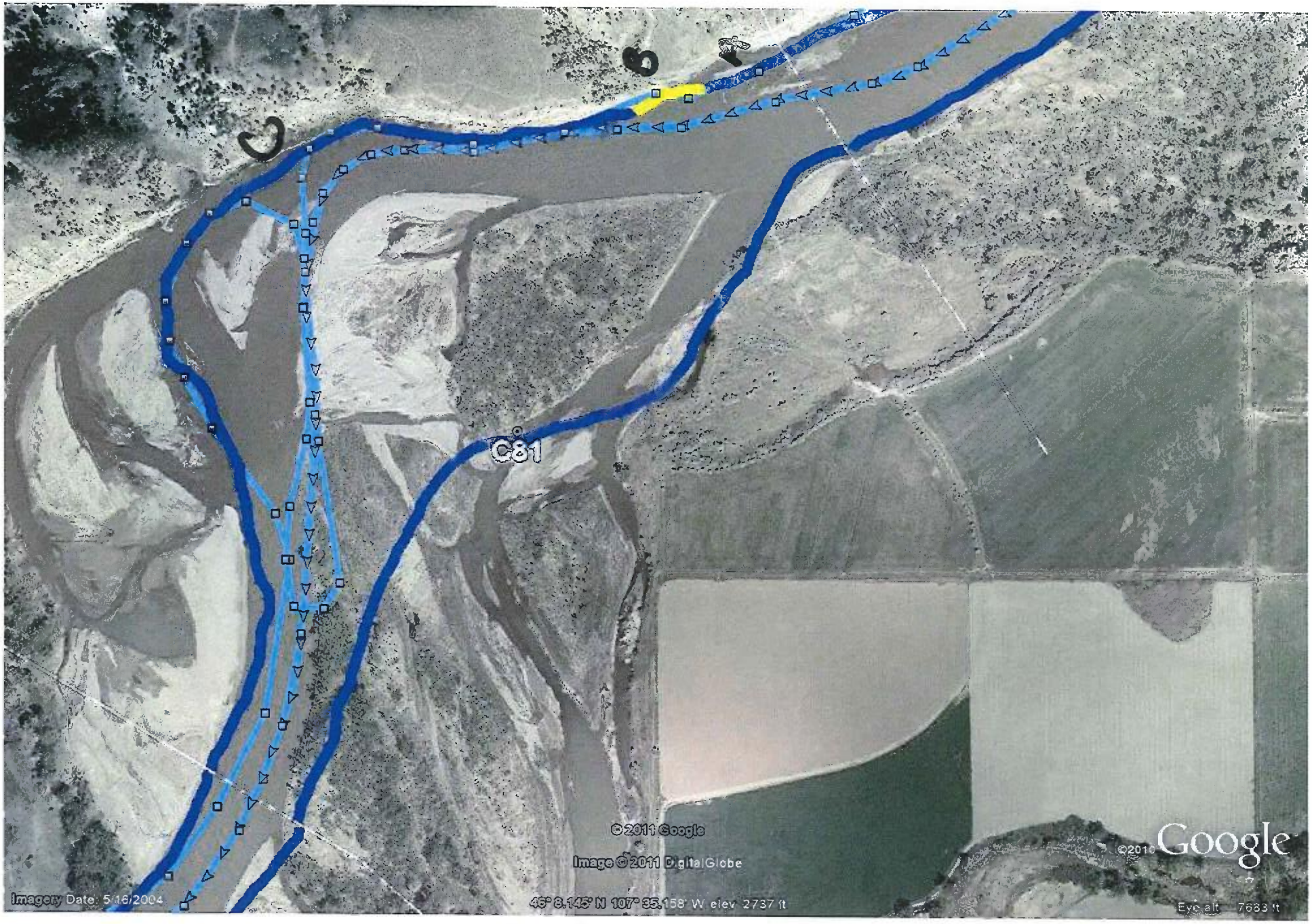
Overbank Survey Required (Y) / N Overbank Survey Completed Y / (N) Shoreline Survey Completed (Y) / N

Zone A - NOO

Zone B - oil observed on grass vegetation on upper bank, ~3 inch band - only light stain. More SCAT needed to determine distribution

Zone C - NOO

Sketch (Yes) / No Photos (Yes) / No Frames 1577-1579 Photographer Chelsea Murphy



C81 LB
Team #6
25/07/11

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 2

1 GENERAL INFORMATION

Segment/Reach ID: C81 (Left Bank / Right Bank / Island)
Operations Division: C
Date (dd/mm/yy): 15/08/11
Time (24h): std / daylight 0955 hrs to 1045 hrs
Water Level: low / (mean) / bankfull - overbank; falling - steady – rising
Survey by: (Foot) / ATV / Boat / Helicopter / Overlook / _____
(Sun) / (Clouds) / Fog / Rain / Snow / Windy / Calm
Air Temp + / - ____ deg C

2 SURVEY TEAM # 4

Name	Organization	Signature
Bob Nailon	Cardno Entrix	[signature]
Damien Korte	Cardno Entrix	[signature]
Ernie McKenzie	BLM	[signature]
Rachelle Thompson	EPA	[signature]
Alicia Taylor	USCG	[signature]

3 SEGMENT Total Segment/Reach Length 1530 m Segment/Reach Length Surveyed ~~180~~ 330 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 P Shelf ____ | Manmade: Solid ___ Permeable ___ (type) ____ | Wetland: Swamp ____ Bog/Fen ____ Marsh ____
Sediment Bank: Clay/Mud ____ Sand ____ Mixed S Pebble/Cobble ____ Boulder ____ Peat/Organic ____ | Vegetated Bank: ~~S~~ | 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: X Est Height 60 m | canyon X | manmade ____ | meander ____ | confined or leveed ____ | Substrate Type: Sand
Sloped 60 (>5°)(15°)(30°) | straight ____ | braided ____ | oxbow ____ | flood plain valley ____ | Forested / Vegetated / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width: < 1m 1–10 m (10–100 m) (>100m) | 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 ____ trucks | access restrictions steep bluffs
Oiled trees/shrubs Y (N) | River Current strong (Y) / N | Other Features: limited access roads

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 MS	LB	UB	OB	OIL COVER Length m	Width m	Distrib. %	OIL THICKNESS TO	CV	CT	ST	FL	OIL CHARACTER FR	MS	TB	PT	TC	SR	AP	NO	SUBST. TYPE(S)
1574	A			✓		180	5	<1			S	P		X								grass
1575	B			✓		200	40	0													✓	

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

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 - Very light stain on grass. NFT recommended.
Zone B - NOO
Recommend remainder of C81 left bank be surveyed by boat.

Sketch Yes / No Photos Yes / No Frames/Photographer: ____

9/1/2009
SCA
08/15
C81E
001
C81E-C82W
002
Zone A- Very light oil
Zone B- NOO
C81W
C81
C81
© 2011 Google
Image USDA Farm Service Agency
©2010
1996
46°08'18.35" N 107°35'31.60" W elev 2739 ft

ARCADIS

C82

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION

Segment/Reach ID: C 82 Left Bank / (Right Bank) / Island

Operations Division: C

Date (dd/mm/yy) 25/07/11

Time (24h): std / daylight 1431 hrs to 1436 hrs

Water Level: low - mean - (bankfull) - overbank; (falling) - steady – rising

Survey by: Foot / ATV / (Boat) / Helicopter / Overlook / _____ (Sun) / Clouds / Fog / Rain / Snow / Windy / Calm

Air Temp + / - 25 deg C

2 SURVEY TEAM # 6

Name	Organization	Signature
Chelsea Murphy	Cardno ENTRIX	[illegible]
David Rouse	US Fish and Wildlife	
Jay Watson	MT Fish Wildlife and Parks	

3 SEGMENT Total Segment/Reach Length ~ 1,400 m Segment/Reach Length Surveyed ~ 1,460 m

Start GPS: LATITUDE 46 deg. 8.6116 min. LONGITUDE 107 deg. 33.924 min. Datum: WGS 84

End GPS: LATITUDE 46 deg. 8.371 min. LONGITUDE 107 deg. 34.957 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: ____

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/silt

Sloped:___(>5°)(15°)(30°) | straight_____ braided P oxbow_____ flood plain valley_____ | Forested / (Vegetated) / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width : < 1m 1–10 m 10–100 m (>100m) 160m | 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 _____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	
1384 A			P		1460	<1	Ø													P	mud/peg

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)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	cm	B, R, S, N	Yes / No	

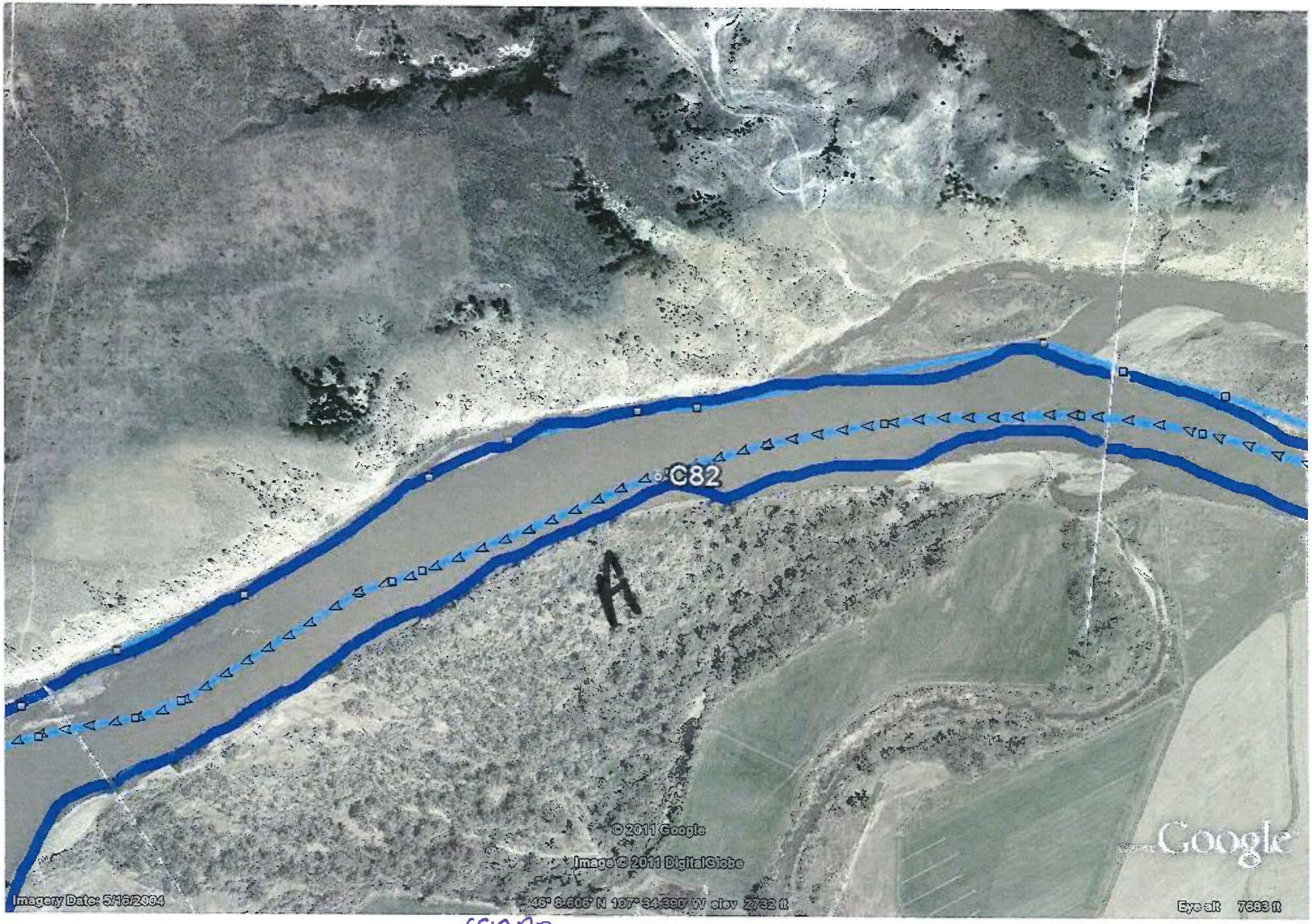
8 COMMENTS ecological/recreational/cultural/economic constraints - shorezone biota and wildlife observations - cleanup recommendations

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

Zone A - NOO - NFT

Sketch (Yes) / No Photos Yes / (No) Frames_____ Photographer_____

Ver. 04 July 2011



C82RB
Team # 6
25/07/11

DB/9

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 2

1 GENERAL INFORMATION

Segment/Reach ID: C82 Left Bank / (Right Bank) / Island

Operations Division: C

Survey by: (Foot) / ATV / Boat / Helicopter / Overlook / _____

Date (dd/mm/yy): 22/08/11

Time (24h): std / daylight 1100 hrs to 1200 hrs

(Sun) / Clouds / Fog / Rain / Snow / Windy / Calm

Water Level: low - (mean) - bankfull - overbank; (falling) - steady – rising

Air Temp + / - 90 deg C

2 SURVEY TEAM # 6

Name	Organization	Signature
Bob Naylon	Cardno ENTRIX	Bob Naylon
David Eric Harlow	Cardno ENTRIX	David Harlow
Darrick Turner	MT DEQ	[illegible]
E. Bruce Kram	Polaris	Bruce Kram
David Fuller	MT FWP	Dave Fuller

3 SEGMENT Total Segment/Reach Length 1401 m Segment/Reach Length Surveyed 1401 m

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

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

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

Bedrock: Cliff/Ramp____ Shelf____ | Manmade: Solid___ Permeable___ (type)____ | Wetland: Swamp____ Bog/Fen____ Marsh ____

Sediment Bank: Clay/Mud____ Sand S Mixed____ Pebble/Cobble____ 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 1.5 m | canyon____ manmade____ meander ____ confined or leveed ____

Sloped:___(>5°)(15°)(30°) | straight ✓ braided ____ oxbow____ flood plain valley____

Substrate Type: Veg Bank

(Forested) / Vegetated / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width: < 1m 1–10 m 10–100 m (>100m) 160m

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 ____ 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	
1797 A			X	✓	1401	300														X	Veg 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	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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

Zone A - NDO

Sketch Yes / No Photos Yes / No Frames_____ Photographer_____

C82-RB
SCAT 6
22 Aug 2011

DB /G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

1 GENERAL INFORMATION

Segment/Reach ID: C 82 / Left Bank / Right Bank / Island

Operations Division: C

Date (dd/mm/yy): 25/07/11

Time (24h): std / daylight 1011 hrs to 1012 hrs

Water Level: low - mean - bankfull - overbank; falling - steady – rising

Survey by: Foot / ATV / Boat / Helicopter / Overlook / _____

Sun / Clouds / Fog / Rain / Snow / Windy / Calm

Air Temp + / - 25 deg C

2 SURVEY TEAM # 6

Name	Organization	Signature
Chelsea Murphy	Cardno ENTRIX	
David Rouse	US Fish and Wildlife	
Jay Watson	MT Fish Wildlife and Parks	

3 SEGMENT Total Segment/Reach Length ~1,500 m Segment/Reach Length Surveyed 1,500 m

Start GPS: LATITUDE 46 deg. 8.674 min. LONGITUDE 107 deg. 33.916 min. Datum: WGS 84

End GPS: LATITUDE 46 deg. 8.438 min. LONGITUDE 107 deg. 35.023 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: ____

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

Sloped: ___ (>5°)(15°)(30°)

canyon____ manmade____ meander S___ confined or leveed ____

straight____ braided P___ oxbow____ flood plain valley____

complete for primary: Substrate Type: mud/silt

Forested / Vegetated / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width: < 1m 1–10 m 10–100 m >100m 160m

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 ____ 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	
1385 A			P		1,500	<1	Ø													P	

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

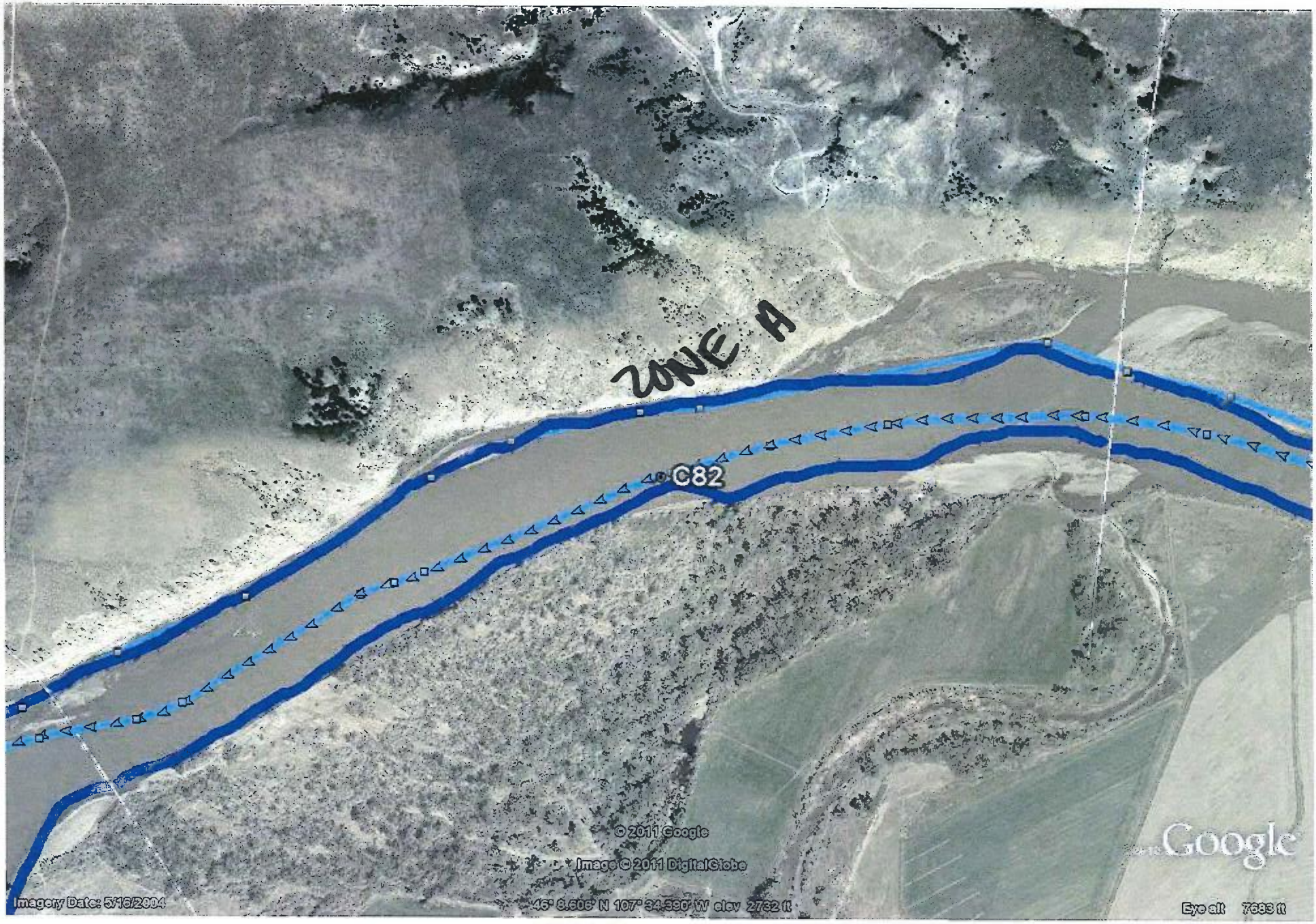
TRENCH or PIT NO.	RIVER BANK ZONE				MAX. PIT DEPTH	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	cm	B, R, S, N	Yes / No	

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

Zone A - 1000

Sketch Yes / No Photos Yes / No Frames_____ Photographer_____



C82LB
Team#6
25/07/11

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 2

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C82 (Left Bank) / Right Bank / Island	15/08/11	0915 hrs to 0945 hrs	low (mean) bankfull - overbank
Operations Division: C			(falling) steady – rising
Survey by: (Foot) / ATV / Boat / Helicopter / Overlook / _____	(Sun) / (Clouds) / Fog / Rain / Snow / Windy / Calm		Air Temp + / - ___ deg C

2 SURVEY TEAM # 4

Name	Organization	Signature
Bob Vailon	Cardno Entrix	[signature]
Damien Korte	Cardno Entrix	[signature]
Ernie McKenzie	BLM	[signature]
Rachelle Thompson	EPA	[signature]
Alicia Taylor	USCG	[signature]

3 SEGMENT Total Segment/Reach Length 1500 m Segment/Reach Length Surveyed 200 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 P Shelf ____ | Manmade: Solid ___ Permeable ___ (type) ____ | Wetland: Swamp ____ Bog/Fen ____ Marsh ____

Sediment Bank: Clay/Mud ____ Sand ____ Mixed S Pebble/Cobble ____ Boulder ____ Peat/Organic ____ | Vegetated Bank: S | 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: X Est Height 80 m | canyon X manmade ____ meander ____ confined or leveed ____ | Substrate Type: Sand

Sloped: 60 (>5°)(15°)(30°) | straight ____ braided ____ oxbow ____ flood plain valley ____ | Forested / Vegetated / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width: < 1m 1–10 m 10–100 m (>100m) | 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 ____ trucks | access restrictions Steep bluffs

Oiled trees/shrubs Y (N) | River Current strong (Y) / N | Other Features: limited access roads

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			✓		200	50	0													✓	

1576

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)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	cm	B, R, S, N	Yes / No	

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

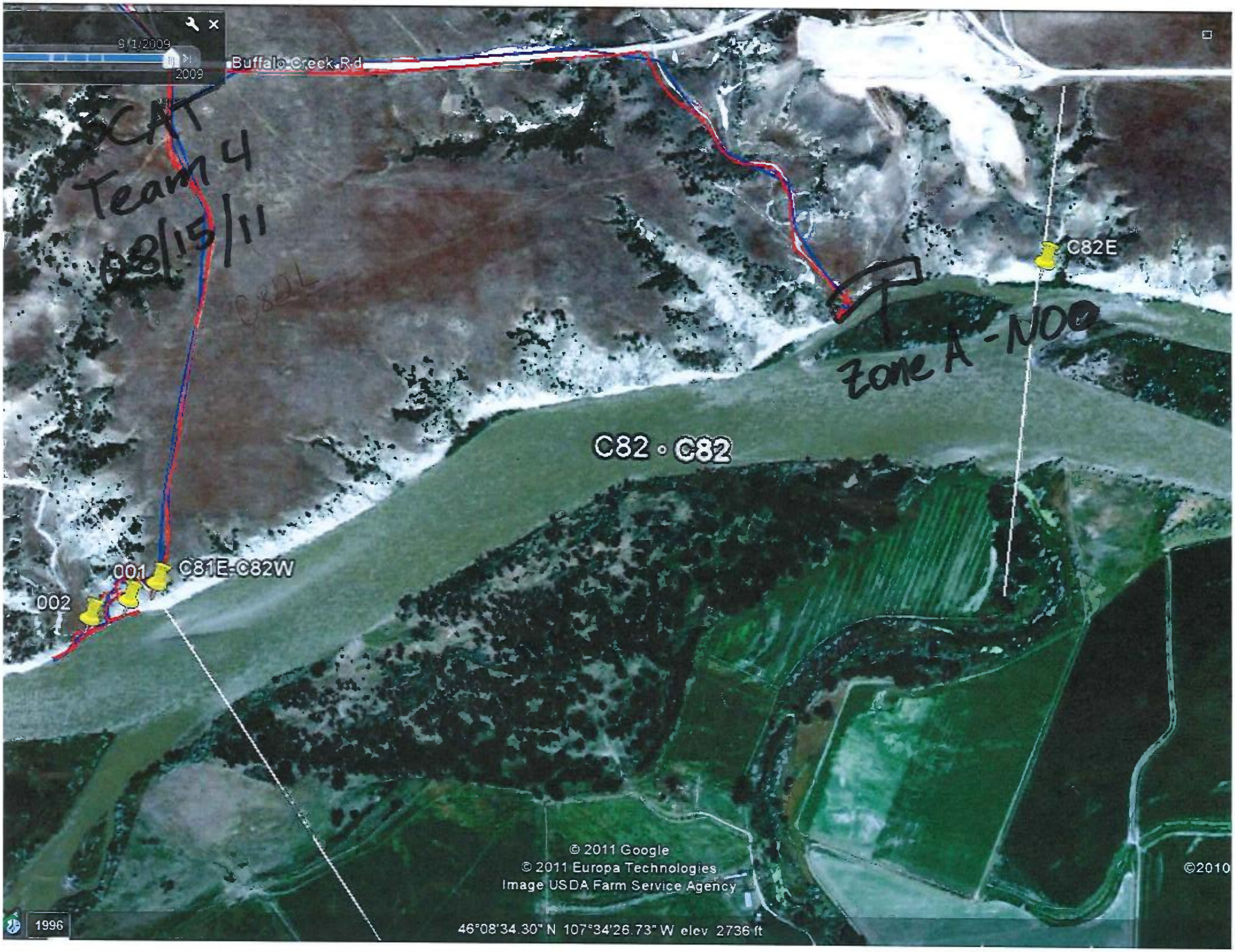
Overbank Survey Required Y / (N) Overbank Survey Completed Y / (N) Shoreline Survey Completed (Y) / N

Zone A - NOO

Recommend remainder of C82 left bank be surveyed by boat.

Sketch Yes / No **Photos** Yes / No **Frames/Photographer:** _____

Ver. 31 July 2011


9/1/2009
2009
Buffalo Creek Rd
CAT
Team 4
08/15/11
C82E
Zone A - NOO
C82 • C82
001
C81E-C82W
002
© 2011 Google
© 2011 Europa Technologies
Image USDA Farm Service Agency
©2010
1996
46°08'34.30" N 107°34'26.73" W elev 2736 ft

ARCADIS

C83

DB /G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION

Segment/Reach ID: C 83 Left Bank / (Right Bank) / Island

Operations Division: C

Survey by: Foot / ATV / (Boat) / Helicopter / Overlook / _____

Date (dd/mm/yy): 25/07/11

Time (24h): std / daylight 1427 hrs to 1431 hrs (falling) steady – rising

(Sun) / Clouds / Fog / Rain / Snow / Windy / Calm

Water Level: low - mean - (bankfull) - overbank

Air Temp + / - 25 deg C

2 SURVEY TEAM # 6

Name	Organization	Signature
Chelsea Murphy	Cardno ENTRIX	Chelsea Murphy
David Rouse	US Fish and Wildlife	
Jay Watson	MT Fish Wildlife and Parks	

3 SEGMENT Total Segment/Reach Length ~1,200 m Segment/Reach Length Surveyed ~1,280 m

Start GPS: LATITUDE 46 deg. 8.495 min. LONGITUDE 107 deg. 32.980 min. Datum: WGS 84

End GPS: LATITUDE 46 deg. 8.6116 min. LONGITUDE 107 deg. 33.925 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: ____

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/silt

Sloped:___(>5°)(15°)(30°) | straight_____ braided P___ oxbow_____ flood plain valley_____ | Forested / (Vegetated) / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width : < 1m 1–10 m 10–100 m (>100m) 160m

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 _____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	
1389 A			P		1280	<1	Ø													P	mud/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	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	cm	B, R, S, N	Yes / No	

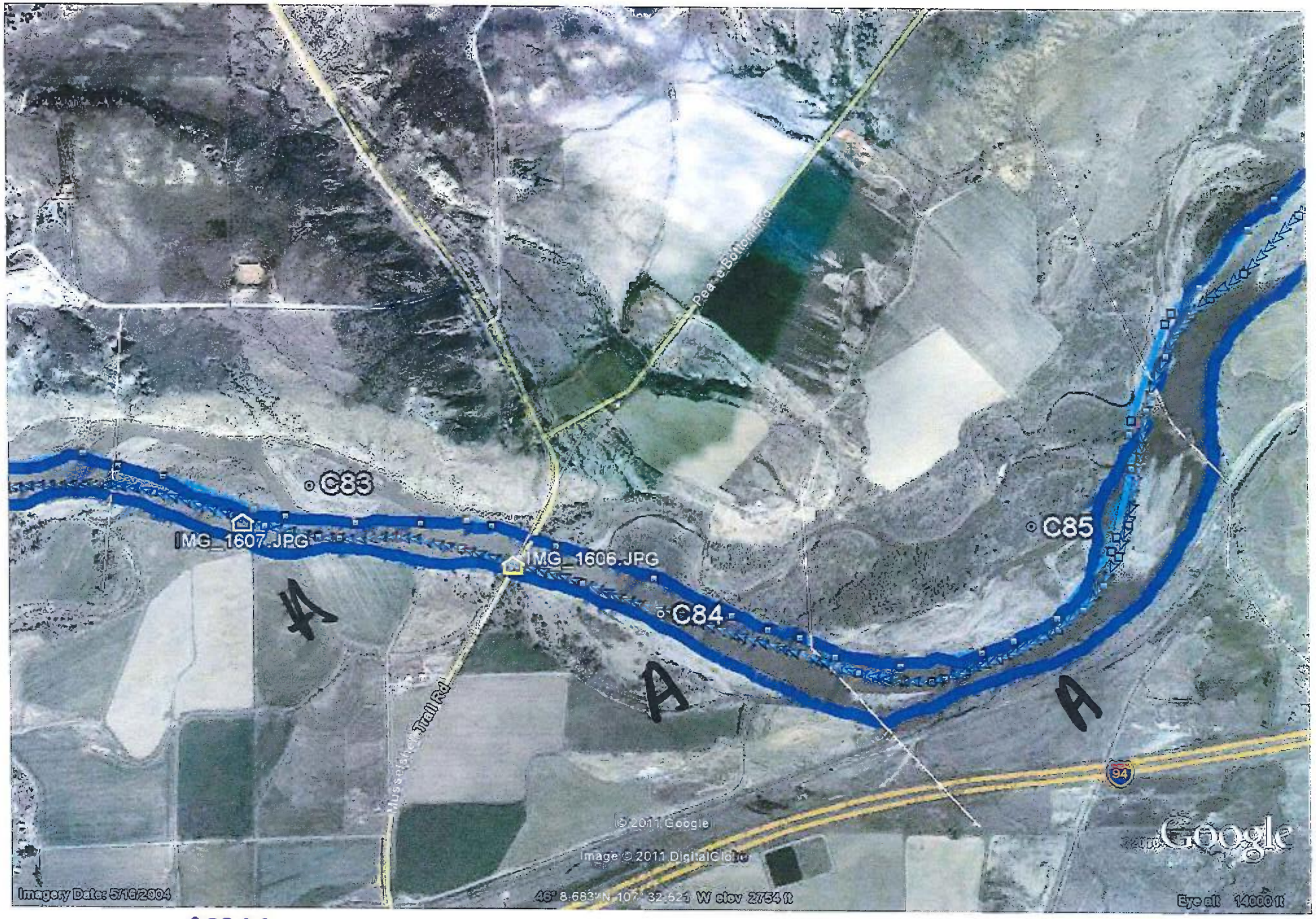
8 COMMENTS ecological/recreational/cultural/economic constraints - shorezone biota and wildlife observations - cleanup recommendations

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

Zone A - NOO - NFT

Sketch (Yes) / No Photos Yes / (No) Frames_____ Photographer_____

Ver. 04 July 2011



C83RB
Team#6
25/07/11

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

1 GENERAL INFORMATION

Segment/Reach ID: C83 Left Bank / Right Bank / Island

Operations Division: C

Date (dd/mm/yy): 22/08/11

Time (24h): std / daylight 10:08 hrs to 1100 hrs

Water Level: low - mean - bankfull - overbank; falling - steady - rising

Survey by: Foot / ATV / Boat / Helicopter / Overlook / _____ Sun / Clouds / Fog / Rain / Snow / Windy / Calm

Air Temp + / - 85 deg C

2 SURVEY TEAM # 6

Name	Organization	Signature
Bob Marlow	Cardno	[illegible]
David Eric Harlow	Cardno	[illegible]
Derrick Turner	DEQ	[illegible]
E. Bruce Kram	Polaris	[illegible]
Dave Fuller	FWP	[illegible]

3 SEGMENT Total Segment/Reach Length 1229 m Segment/Reach Length Surveyed 1229 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 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 ____ confined or leveed ____ | Substrate Type: mixed

Sloped: S (>5°)(15°)(30°) | straight P braided R cr. 7/21/11 oxbow____ flood plain valley S | Forested / Vegetated / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width: < 1m 1–10 m 10–100 m >100m 160m | 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 ____ trucks | access restrictions NOO

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	
1796 A			S	P	1229	30	Ø													X	Veg. Bank

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

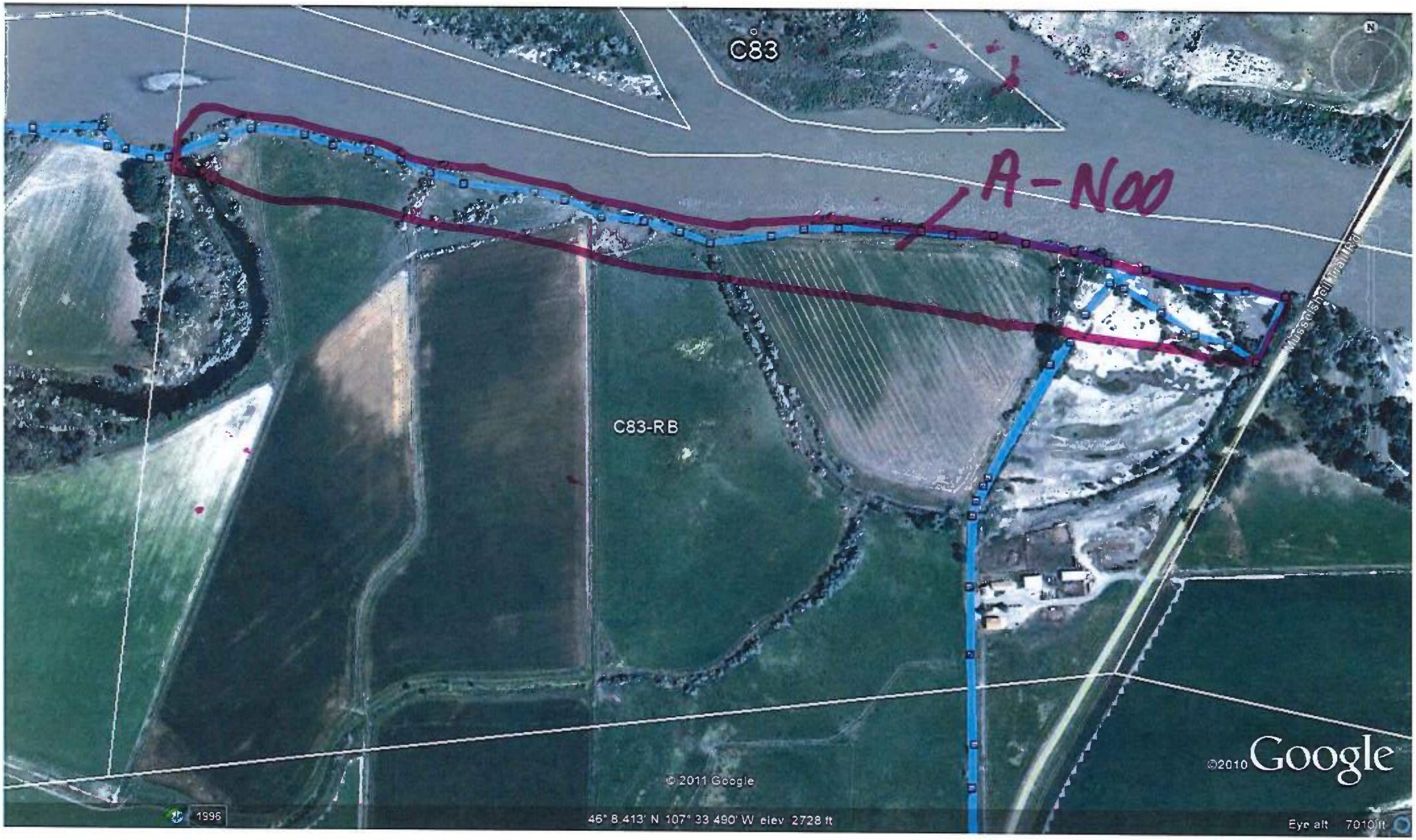
TRENCH or PIT NO.	RIVER BANK ZONE				MAX. PIT DEPTH	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	cm	B, R, S, N	Yes / No	

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

Zone - No oil - NFA

Sketch Yes / No Photos Yes / No Frames _____ Photographer _____



C83-RB
SCAT-6
22 Aug 2011

D3/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C 83 (Left Bank / Right Bank / Island)	25/07/11	1010 hrs to 1011 hrs (falling) steady – rising	low - mean - (bankfull) - overbank
Operations Division: C			
Survey by: Foot / ATV / (Boat) / Helicopter / Overlook / _____	(Sun) / Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp + / - 25 deg C

2 SURVEY TEAM # 6	Name	Organization	Signature
	Chelsea Murphy	Cardno ENTRIX	[signature]
	David Rouse	US Fish and Wildlife	
	Jay Watson	MT Fish Wildlife and Parks	

3 SEGMENT Total Segment/Reach Length ~1,200 m Segment/Reach Length Surveyed ~1,300 m

Start GPS: LATITUDE 46 deg. 8.552 min. LONGITUDE 107 deg. 32.935 min. Datum: WGS 84

End GPS: LATITUDE 46 deg. 8.670 min. LONGITUDE 107 deg. 33.918 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: ____

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/silt

Sloped:___(>5°)(15°)(30°) | straight_____ braided P oxbow_____ flood plain valley_____ | Forested / (Vegetated) / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width : < 1m 1–10 m 10–100 m (>100m) 160m | 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 — 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	
1386 A			P		1,300	<1	Ø													P	veg/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	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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

Zone A - NOO

Sketch (Yes) / No Photos Yes / (No) Frames_____ Photographer_____

Ver. 04 July 2011

C83LB
Team #6
25/07/11

ARCADIS

C84

D13/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION

Segment/Reach ID: C 834 Left Bank / (Right Bank) / Island

Operations Division: C

Date (dd/mm/yy): 25/07/11

Time (24h): std / daylight 1424 hrs to 1427 hrs (falling) steady – rising

Water Level: low - mean - (bankfull) overbank

Survey by: Foot / ATV / (Boat) / Helicopter / Overlook / _____ (Sun) / Clouds / Fog / Rain / Snow / Windy / Calm

Air Temp + / - 25 deg C

2 SURVEY TEAM # 6

Name	Organization	Signature
Chelsea Murphy	Cardno ENTRIX	Chelsea M
David Rouse	US Fish and Wildlife	
Jay Watson	MT Fish Wildlife and Parks	

3 SEGMENT Total Segment/Reach Length ~1,210 m Segment/Reach Length Surveyed ~1,230 m

Start GPS: LATITUDE 46 deg. 8.246 min. LONGITUDE 107 deg. 32.105 min. Datum: WGS 84

End GPS: LATITUDE 46 deg. 8.495 min. LONGITUDE 107 deg. 32.979 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: ___

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/silt

Sloped:___(>5°)(15°)(30°) | straight_____ braided P oxbow_____ flood plain valley_____ | Forested / (Vegetated) Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width : < 1m 1–10 m 10–100 m (>100m) 160m | 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 _____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	
1390 A			P		1230	<1	Ø													P	mud/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	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	cm	B, R, S, N	Yes / No	

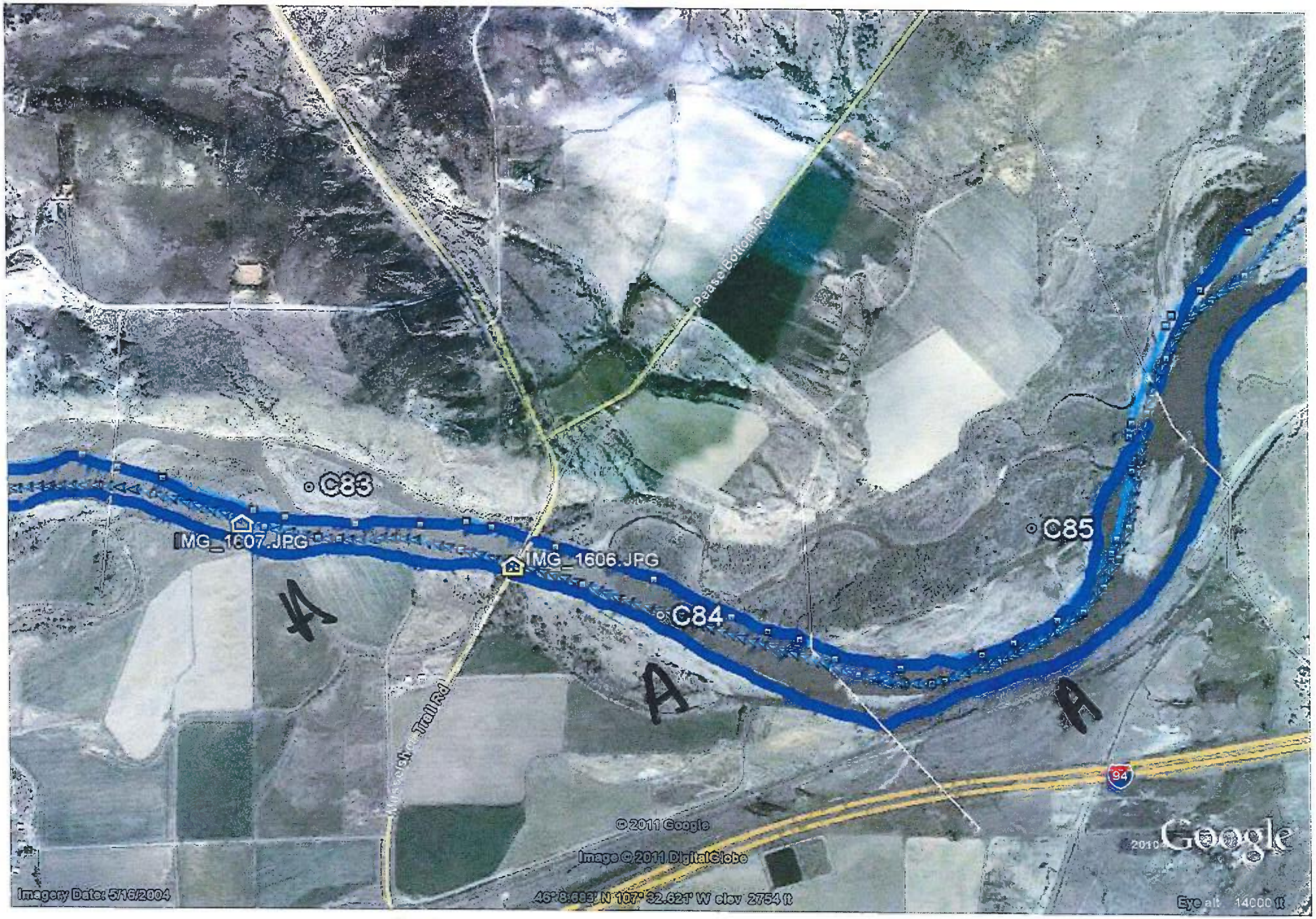
8 COMMENTS ecological/recreational/cultural/economic constraints - shorezone biota and wildlife observations - cleanup recommendations

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

Zone A - NOO - NFT

Sketch (Yes) / No Photos Yes (No) Frames_____ Photographer_____

Ver. 04 July 2011



C84RB
Team#6
25/07/11

D/B/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

Page 1 of 1

1 GENERAL INFORMATION

Segment/Reach ID: C84 Left Bank / Right Bank / Island

Operations Division:

Date (dd/mm/yy): 08/08/11

Time (24h): std / daylight 9Am hrs to 12:05 hrs

Water Level: low - mean - bankfull - overbank; falling - steady - rising

Survey by: Foot / ATV / Boat / Helicopter / Overlook / _____ Sun / Clouds / Fog / Rain / Snow / Windy / Calm Air Temp + / - ____ deg C

2 SURVEY TEAM # 5

name	organization	contact phone number
Larkin Chandler	THPO	[signature]
Jenna Scholz	Cardno ENTRIX	[signature]
Joe Busalacchi	Cardno ENTRIX	[signature]
Tom Bourgeton	DEQ	[signature]
Ron Lunn	USCG	[signature]

3 SEGMENT Total Segment/Reach Length _____ m Segment/Reach Length Surveyed 1,605 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 8 Sand 5 Mixed ____ Pebble/Cobble ____ Boulder ____ Peat/Organic ____ Vegetated Bank: S Wooded Upland: S

Sediment Flat: Clay/Mud S 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 / MUD

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

4C RIVER CHANNEL CHARACTER circle or select as appropriate

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

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: N/A - No Ops treatments needed

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 MS	LB	UB	OB	OIL COVER Length m	Width m	Distrib. %	OIL THICKNESS TO	CV	CT	ST	FL	OIL CHARACTER FR	MS	TB	PT	TC	SR	AP	NO	SUBST. TYPE(S)
1253	A				X	25	4	80					X	X								Film - very light
1254	B				X	180	15	<1					X	X								"
1255	C				X	1400	200														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 MS	LB	UB	OB	MAX. PIT DEPTH cm	OILED ZONE cm-cm	SUBSURFACE OIL CHARACTER SAP	OP	PP	OR	OF	TR	NO	WATER TABLE cm	SHEEN COLOUR B, R, S, N	CLEAN BELOW Yes / No	SUBST. TYPE(S)

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

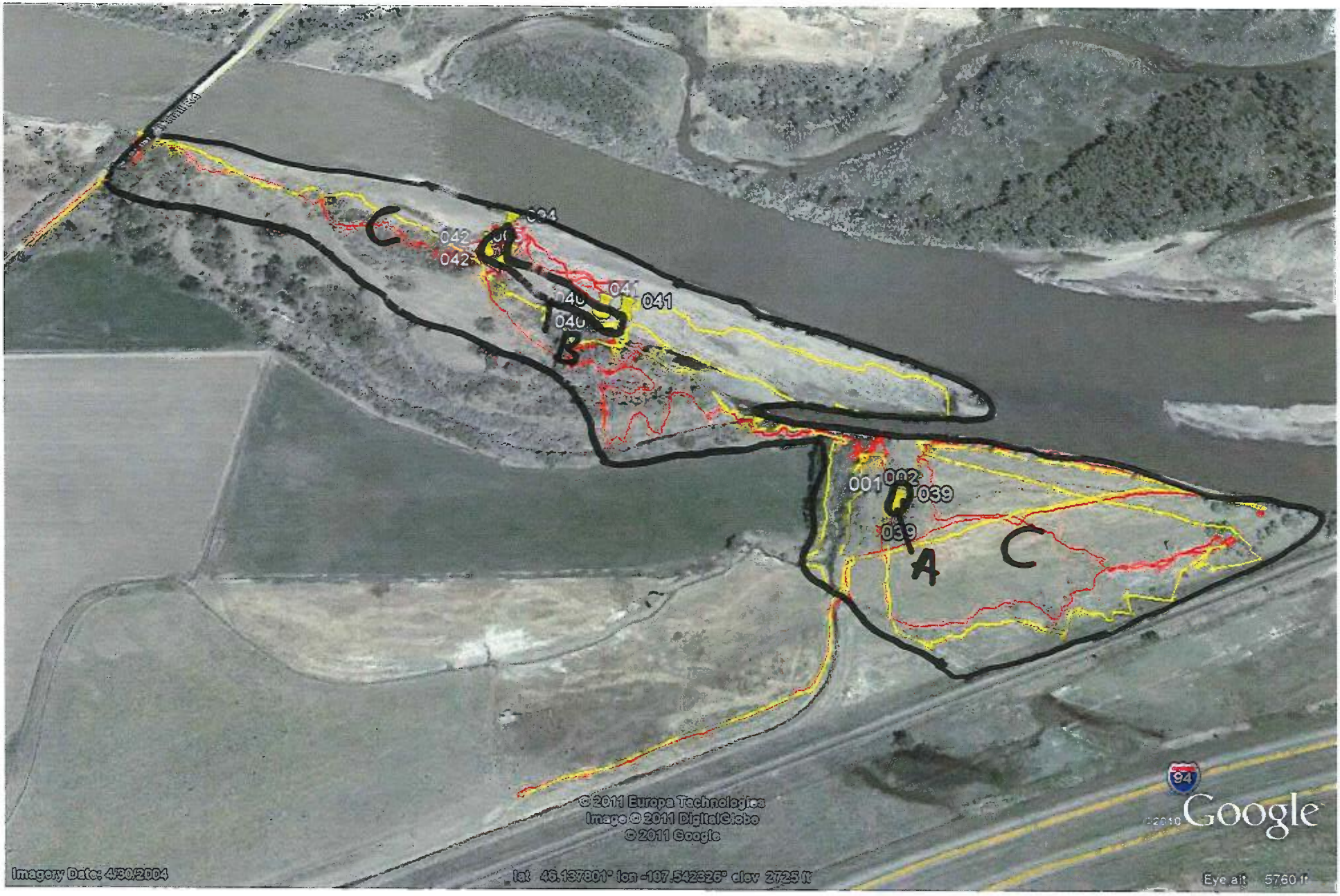
NTR - sheen observed in isolated, small areas, in shade, pooled water <1ft. Assume natural attenuation is sufficient to address findings

Larkin observed bufall berry in fruit in several locations

Tutural Rep.

(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# _____



C84R

Zones A, B + C

Team 5

08/08/11

D13/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION

Segment/Reach ID: C 84 Left Bank / Right Bank / Island

Operations Division: C

Date (dd/mm/yy) 25/07/11

Time (24h): std / daylight 1009 hrs to 1010 hrs falling / steady – rising

Water Level: low - mean - bankfull - overbank

Survey by: Foot / ATV / Boat / Helicopter / Overlook / _____ Sun / Clouds / Fog / Rain / Snow / Windy / Calm

Air Temp + / - 25 deg C

2 SURVEY TEAM # 6

Name	Organization	Signature
Chelsea Murphy	Cardno ENTRIX	[illegible]
David Rouse	US Fish and Wildlife	
Jay Watson	MT Fish Wildlife and Parks	

3 SEGMENT Total Segment/Reach Length 920 m Segment/Reach Length Surveyed 900 m

Start GPS: LATITUDE 46 deg. 8.381 min. LONGITUDE 107 deg. 32.269 min. Datum: WGS 84

End GPS: LATITUDE 46 deg. 8.550 min. LONGITUDE 107 deg. 32.931 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: ____

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 S confined or leveed _____

Sloped:___(>5°)(15°)(30°) | straight_____ braided P oxbow_____ flood plain valley_____

complete for primary: Substrate Type: mud/silt | Forested / Vegetated / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width : < 1m 1–10 m 10–100 m >100m 160m

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 _____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	
1387 A			P		900	<1	Ø													P	Rock/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	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	cm	B, R, S, N	Yes / No	

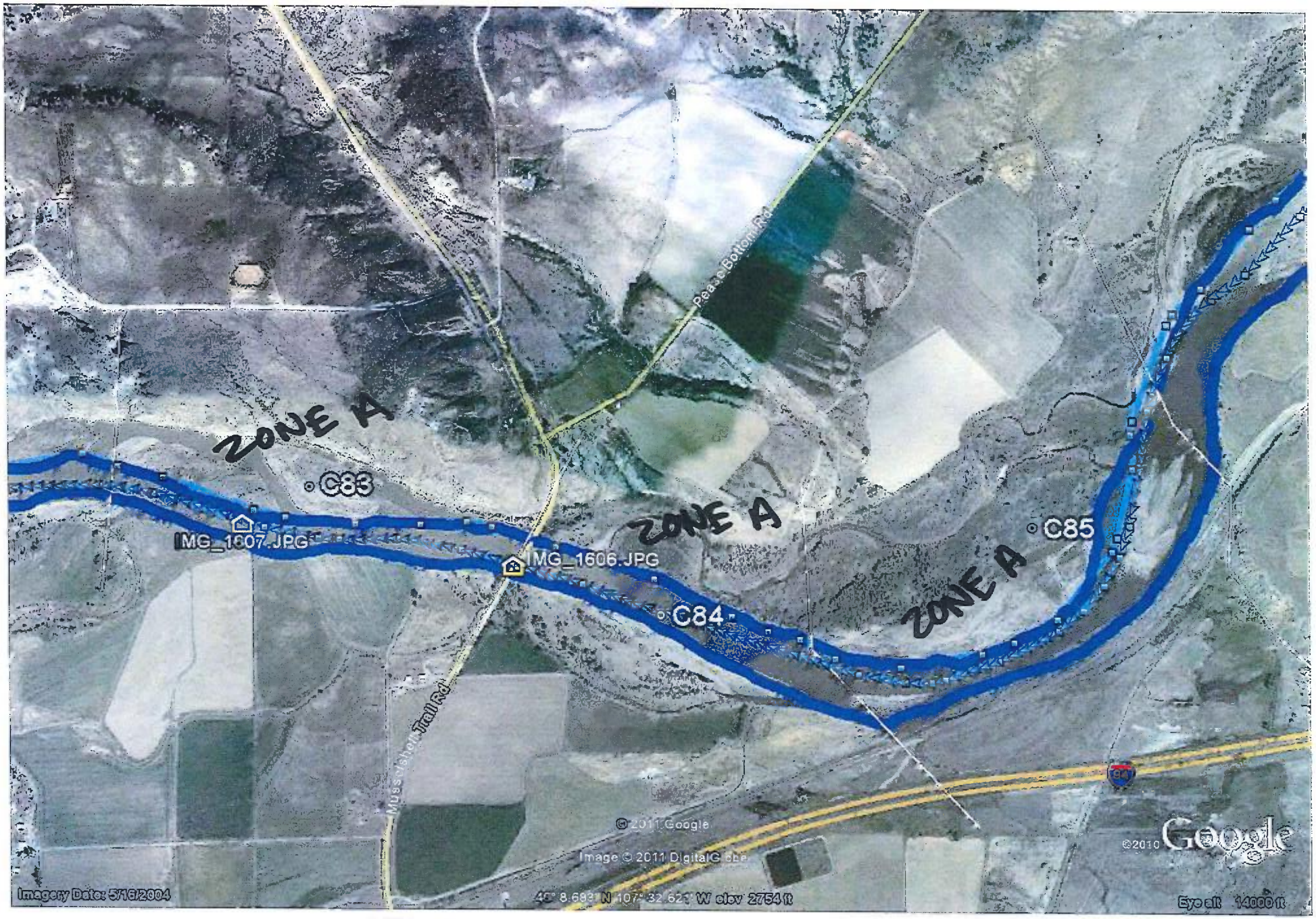
8 COMMENTS ecological/recreational/cultural/economic constraints - shorezone biota and wildlife observations - cleanup recommendations

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

Zone A NOO

Sketch Yes / No Photos Yes / No Frames_____ Photographer_____

Ver. 04 July 2011



C84 LB
Team #6
25/07/11

DB / G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C84 **Left Bank** / Right Bank / Island	08/08/2011		low - mean - **bankfull** - overbank
Operations Division:		1158 hrs to 1414 hrs	falling - steady – rising
Survey by: **Foot** / ATV / Boat / Helicopter / Overlook / _____		**Sun** / Clouds / Fog / Rain / Snow / Windy / Calm	Air Temp + / - 32 deg C

2 SURVEY TEAM # 6	Name	Organization	Signature
	Chris Arredondo	CardnoENTRIX	
	Dominic Ventura	EPA	
	Jessica Ross	DEQ	
	Fred Left Hand	THPO Crow Tribe	

3 SEGMENT *Total Segment/Reach Length* 895 *m* *Segment/Reach Length Surveyed* 895 *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_S_ 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°)(15°)(30°) | straight____ braided X oxbow____ flood plain valley____ | **Forested** / Vegetated / Bare

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

est. width : < 1m 1–10 m **10–100 m** >100m 160m **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 0 bags or 0 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)
					Length	Width	Distrib.														
	MS	LB	UB	OB	m	m	%	TO	CV	CT	ST	FL	FR	MS	TB	PT	TC	SR	AP	NO	
1258 A				X	895	230														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	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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

Zone A: No treatment required.

Note: An oil sheen (10m x 10m) was identified in a backwater slough. Due to the small size and degraded condition of the sheen we are recommending natural attenuation as the treatment method.

Sketch Yes / No **Photos** Yes / No **Frames**_____ **Photographer**____

C84- L

Zone A (L/R/I)??

Team # 6

08/08/11

0 335 670 1,340

Feet

ARCADIS

C85

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C 85 Left Bank / (Right Bank) / Island	25/07/11	1418 hrs to 1424 hrs (falling) steady – rising	low - mean - (bankfull) overbank
Operations Division: C			
Survey by: Foot / ATV / (Boat) / Helicopter / Overlook / _____	(Sun) / Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp + / - 25 deg C

2 SURVEY TEAM # 6

Name	Organization	Signature
Chelsea Murphy	Cardno ENTRIX	[signature]
David Rouse	US Fish and Wildlife	
Jay Watson	MT Fish Wildlife and Parks	

3 SEGMENT Total Segment/Reach Length ~1,300 m Segment/Reach Length Surveyed ~1,370 m

Start GPS: LATITUDE 46 deg. 8.6668 min. LONGITUDE 107 deg. 31.307 min. Datum: WGS 84

End GPS: LATITUDE 46 deg. 8.242 min. LONGITUDE 107 deg. 32.097 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: ____

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/silt

Sloped:___(>5°)(15°)(30°) | straight_____ braided P___ oxbow_____ flood plain valley_____ | Forested / (Vegetated) Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width : < 1m 1–10 m 10–100 m (>100m) 160m | 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 _____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	
1391 A			P		1370	<1	Ø													P	mud/veg

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

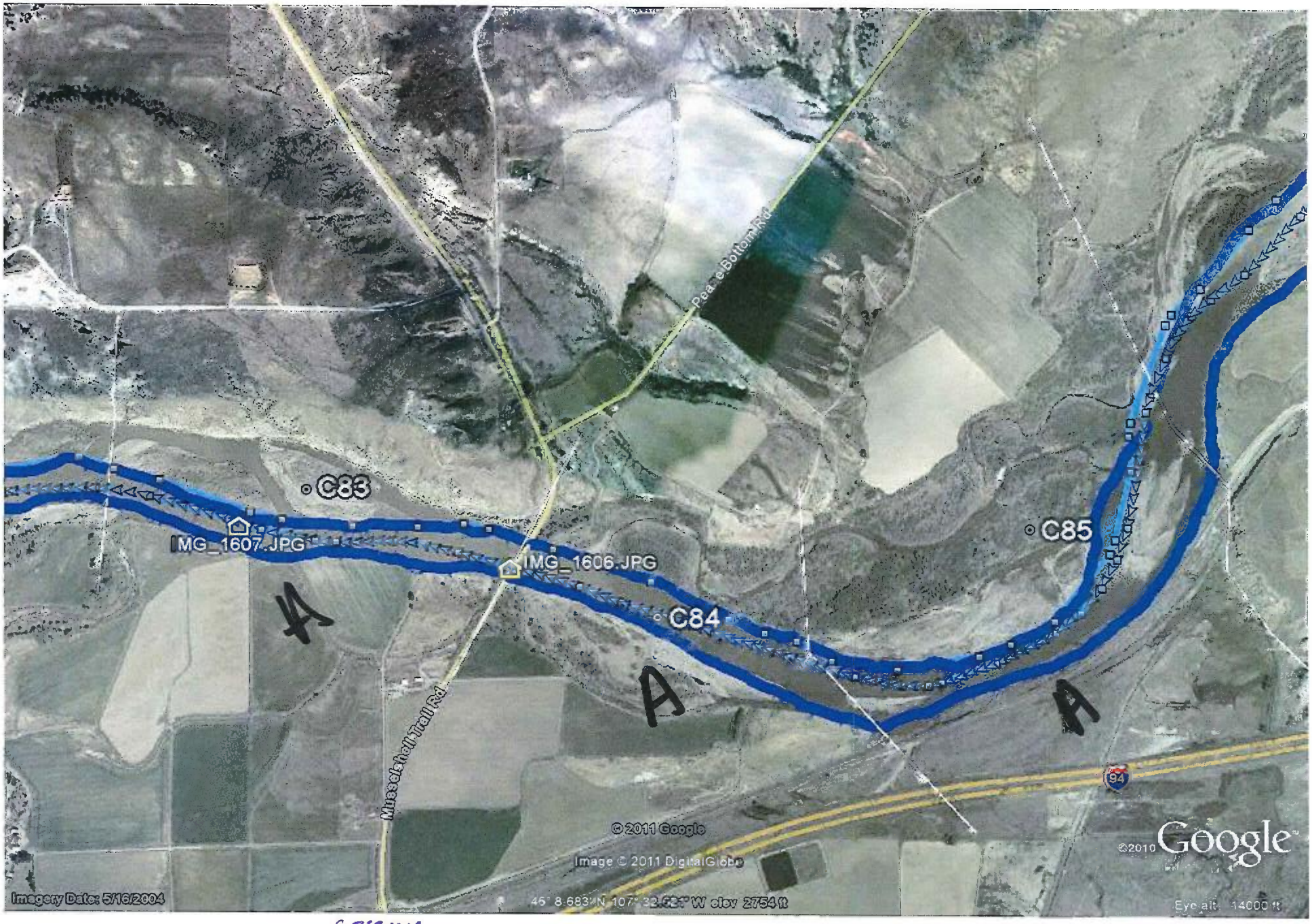
TRENCH or PIT NO.	RIVER BANK ZONE				MAX. PIT DEPTH	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	cm	B, R, S, N	Yes / No	

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

Zone A - NOO - NFT

Sketch (Yes) / No Photos Yes / (No) Frames_____ Photographer_____



C85RB
Team #6
25/07/11

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

1 GENERAL INFORMATION

Segment/Reach ID: C85 Left Bank / (Right Bank) / Island

Operations Division: C

Survey by: (Foot) / ATV / Boat / Helicopter / Overlook / _____

Date (dd/mm/yy): 22/08/11

Time (24h): std / daylight 13:10 hrs to 13:45 hrs

Sun / Clouds / Fog / Rain / Snow / Windy / Calm

Water Level: low - (mean) - bankfull - overbank; (falling) - steady – rising

Air Temp + / - 90 deg F

2 SURVEY TEAM # 6

Name	Organization	Signature
Barrich Turner	DEQ	Barrich Turner
Dave Fuller	FWP	Dave Fuller
Robert Nailon	Cardno ENTRIX	Robert Nailon
David Erick Harlow	Cardno ENTRIX	David Harlow
Bruce Kirkham	Polaris	Bruce Kirkham

3 SEGMENT Total Segment/Reach Length 1330 m Segment/Reach Length Surveyed 1330 m

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

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

4A RIVER BANK TYPE CK 8/23/11 — SELECT only one primary (P) shoreline type and any number of secondary (S) types. CIRCLE those OILED

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

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

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

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

Cliff or Bluff: C Est Height 3 m canyon ____ manmade S meander ____ confined or leveed ____ Substrate Type: mixed

Sloped: S (>5°)(15°)(30°) straight P braided P CK 8/23/11 oxbow ____ flood plain valley S Forested / (Vegetated) / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width: < 1m 1–10 m 10–100 m >100m (160m) 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 ____ 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 MS	LB	UB	OB	OIL COVER Length m	Width m	Distrib. %	OIL THICKNESS TO	CV	CT	ST	FL	OIL CHARACTER FR	MS	TB	PT	TC	SR	AP	NO	SUBST. TYPE(S)
1782 A				P	1330	100	0%													X	veg bank
1783 B	~~S~~ CK 8/24/11			P	20	10	<1% CK 8/23/11		~~S~~ BM 8/23/11	✓ DI							✓				veg 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 MS	LB	UB	OB	MAX. PIT DEPTH cm	OILED ZONE cm-cm	SUBSURFACE OIL CHARACTER SAP	OP	PP	OR	OF	TR	NO	WATER TABLE cm	SHEEN COLOUR B, R, S, N	CLEAN BELOW Yes / No	SUBST. TYPE(S)

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 B - 20 x 10 m gravel bar w/ 1% coverage / cover-coat.
- No treatment recommendations for Zone B.

Zone A - NOO / No treatment

Sketch Yes / No Photos Yes / No Frames _____ Photographer _____

C 85-RB
SCAT-6
22 Aug 2011

C85-RB
SCAT 6
22 Aug 2011

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C 85 Left Bank / Right Bank / Island	25/07/11	1007 hrs to 1009 hrs (falling) steady – rising	low - mean (bankfull) overbank
Operations Division: C			
Survey by: Foot / ATV (Boat) / Helicopter / Overlook / _____	(Sun) / Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp + / - 25 deg C

2 SURVEY TEAM # 6

Name	Organization	Signature
Chelsea Murphy	Cardno ENTRIX	[signature]
David Rouse	US Fish and Wildlife	
Jay Watson	MT Fish Wildlife and Parks	

3 SEGMENT Total Segment/Reach Length ~1,300 m Segment/Reach Length Surveyed ~1,520 m

Start GPS: LATITUDE 46.8.501' deg. ____ min. LONGITUDE 107 deg. 31.446 min. Datum: WGS 84

End GPS: LATITUDE 46 deg. 8.377 min. LONGITUDE 107 deg. 32.271 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: ___

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/silt

Sloped:___(>5°)(15°)(30°) | straight____ braided P___ oxbow____ flood plain valley____ | Forested (Vegetated) Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width : < 1m 1–10 m 10–100 m (>100m) 160m | 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 ____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	
1388 A			P		1,520	<1	Ø													P	veg/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	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	cm	B, R, S, N	Yes / No	

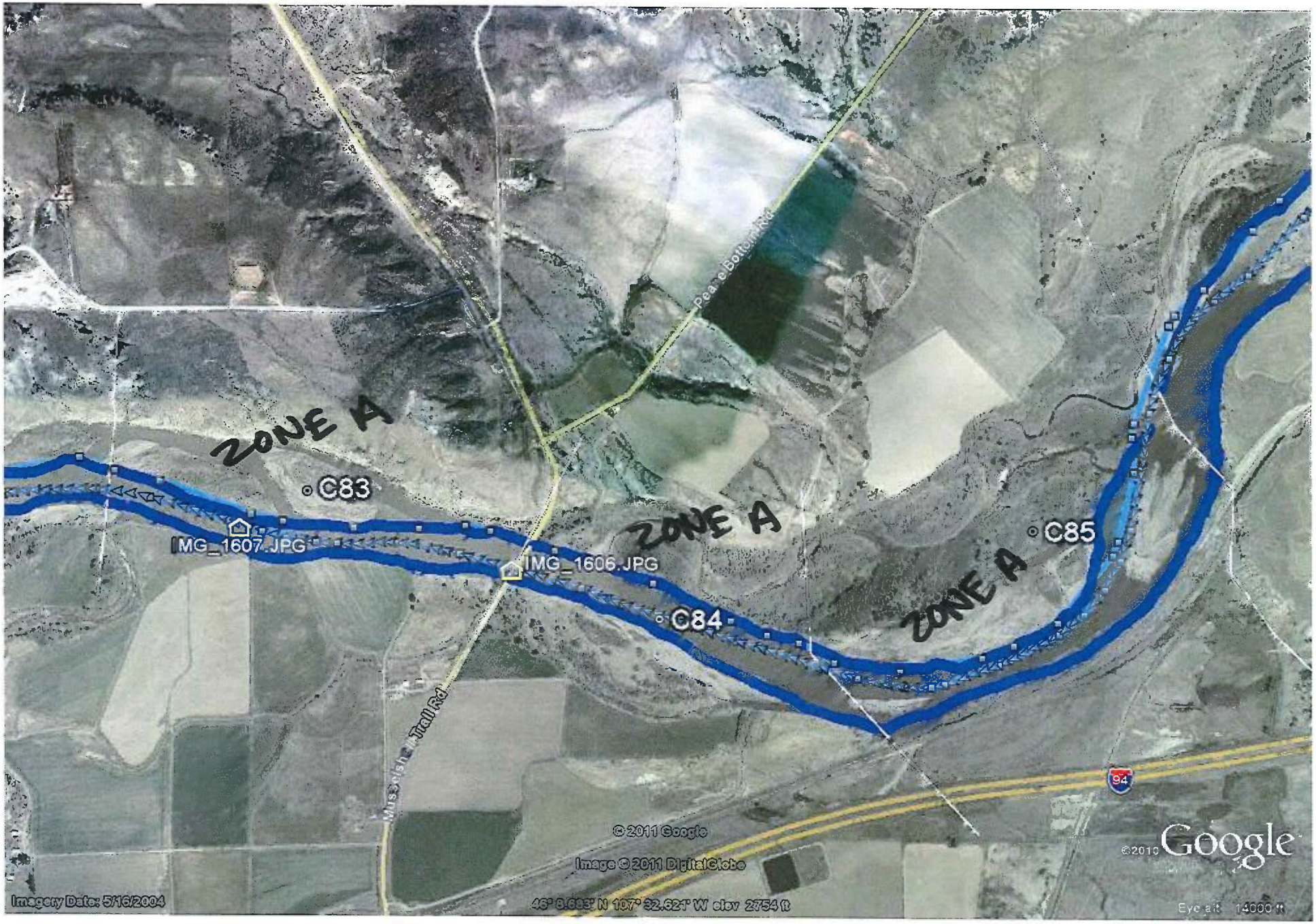
8 COMMENTS ecological/recreational/cultural/economic constraints - shorezone biota and wildlife observations - cleanup recommendations

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

CLM

Zone A - NOO

Sketch (Yes) / No Photos Yes / (No) Frames_____ Photographer_____



C85LB
Team#6
25/07/11

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 2

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C85 **Left Bank** / Right Bank / Island	08/17/2011		low - **mean** - bankfull - overbank
Operations Division:		1300 hrs to 1500 hrs	falling - steady – rising
Survey by: **Foot** / ATV / Boat / Helicopter / Overlook / _____	**Sun** / Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp + / - 35 deg C

2 SURVEY TEAM # 6	Name	Organization	Signature
	Chris Arredondo	CardnoENTRIX	
	Larry Alheim	DEQ	
	Linda Watson	EPA	Linda L Watson
	Ernie McKenzie	~~FWP~~ BLM	E. McKenzie
	Fred Left Hand	TPHO Crow Tribal	

3 SEGMENT *Total Segment/Reach Length* 1178 *m* *Segment/Reach Length Surveyed* 1096 *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 P Shelf ____ ***Manmade:*** Solid ___ Permeable ___ (type) ____ ***Wetland:*** Swamp ____ Bog/Fen ____ Marsh ____

Sediment Bank: Clay/Mud ____ Sand P Mixed S Pebble/Cobble ____ 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 1–10 m **10–100 m** >100m 160m **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 0 bags or 0 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	
1607 A				X	1096	187														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	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	cm	B, R, S, N	Yes / No	

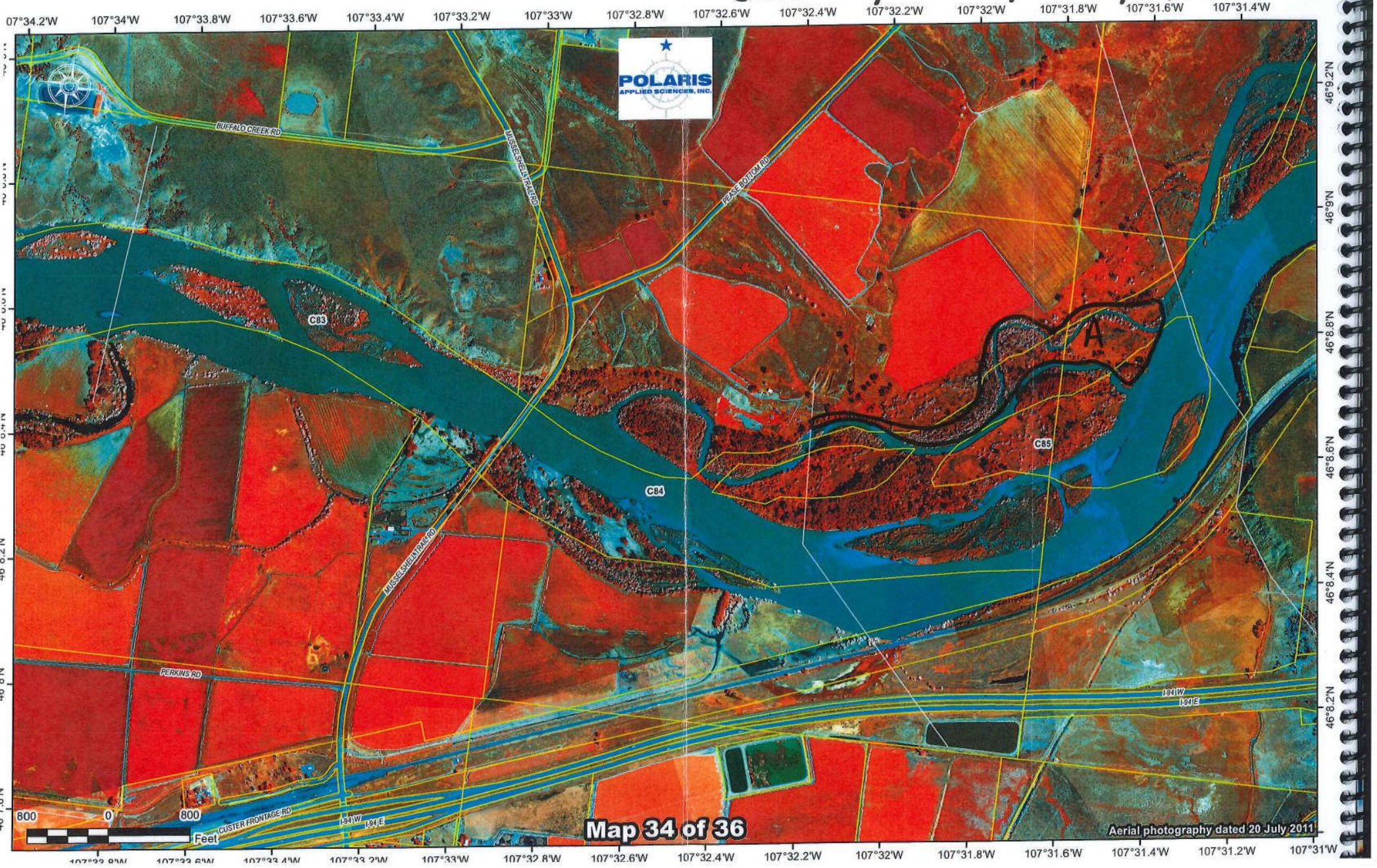
8 COMMENTS ***ecological/recreational/cultural/economic constraints - shorezone biota and wildlife observations - cleanup recommendations***

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

Zone A: No treatment required.

Sketch Yes / No **Photos** Yes / No **Frames** _____ **Photographer**

Section C85/ Left Bank/ Team 6/ 8/17/2011



ARCADIS

C86

D13/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION

Segment/Reach ID: C 86 Left Bank / (Right Bank) / Island

Operations Division: C

Date (dd/mm/yy): 25/07/11

Time (24h): std / daylight 1408 hrs to 1418 hrs (falling) steady – rising

Water Level: low - mean - (bankfull) - overbank

Survey by: Foot / ATV / (Boat) / Helicopter / Overlook / _____ (Sun) / Clouds / Fog / Rain / Snow / Windy / Calm

Air Temp + / - 25 deg C

2 SURVEY TEAM # 6

Name	Organization	Signature
Chelsea Murphy	Cardno ENTRIX	[signature]
David Rouse	US Fish and Wildlife	
Jay Watson	MT Fish Wildlife and Parks	

3 SEGMENT Total Segment/Reach Length ~1,730 m Segment/Reach Length Surveyed ~2,000 m

Start GPS: LATITUDE 46 deg. 9.015 min. LONGITUDE 107 deg. 30.138 min. Datum: WGS 84

End GPS: LATITUDE 46 deg. 8.672 min. LONGITUDE 107 deg. 31.311 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: ____

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/silt

Sloped:___(>5°)(15°)(30°) | straight_____ braided P___ oxbow_____ flood plain valley_____ | Forested / (Vegetated) / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width : < 1m 1–10 m 10–100 m (>100m) 160m | 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 _____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	
1395 A			P		2000	<1	Ø													P	mud/silt/reg

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)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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

Zone A - NOO - NFT

Sketch (Yes) / No Photos Yes / (No) Frames_____ Photographer_____

Ver. 04 July 2011

C86RB
Team #6
25/07/11

DB/9

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

1 GENERAL INFORMATION

Segment/Reach ID: C86 Left Bank / Right Bank / Island

Operations Division: C

Date (dd/mm/yy): 22/08/11

Time (24h): std / daylight 13:35 hrs to 14:53 hrs

Water Level: low - mean - bankfull - overbank; falling - steady - rising

Survey by: Foot / ATV / Boat / Helicopter / Overlook / _____

Sun / Clouds / Fog / Rain / Snow / Windy / Calm

Air Temp + / - 10 deg C

2 SURVEY TEAM # 6

Name	Organization	Signature
David Eric Harlow	Cardno ENTRIX	David Harlow
E. Bruce Kuam	Polaris	Bruce Kuam
Bob Nailon	Cardno ENTRIX	Bob Nailon
Derrick Turner	~~Cardno ENTRIX~~ MT DEQ	Derrick Turner
David Fuller	MT FWP	Dave Fuller

3 SEGMENT Total Segment/Reach Length 1989 m Segment/Reach Length Surveyed 1989 m

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

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

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

Bedrock: Cliff/Ramp____ Shelf____ | Manmade: Solid___ Permeable___ (type)____ | Wetland: Swamp____ Bog/Fen____ Marsh ____

Sediment Bank: Clay/Mud____ Sand S Mixed____ Pebble/Cobble____ 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 ✓ confined or leveed ____

Sloped: ___ (>5°)(15°)(30°) | straight____ braided ✓ oxbow____ flood plain valley____

complete for primary: Substrate Type: veg bank; Forested / Vegetated / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width: < 1m 1–10 m 10–100 m >100m >60m

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 ____ trucks | access restrictions NFT

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	1989	220	—													X	veg bank
B				X	80	1	<1			✓							✓				veg bank

1793
1794

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)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	cm	B, R, S, N	Yes / No	

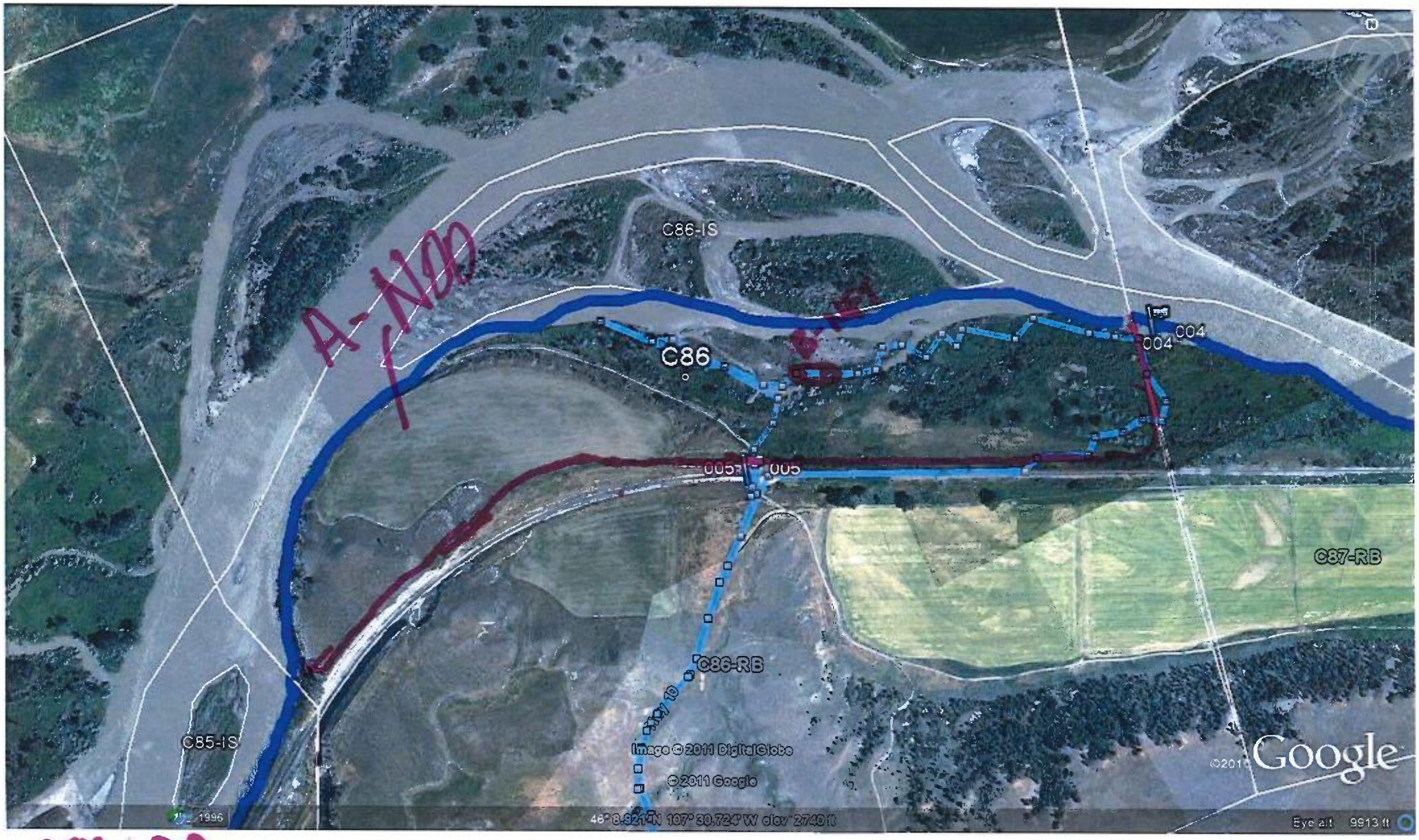
8 COMMENTS ecological/recreational/cultural/economic constraints - shorezone biota and wildlife observations - cleanup recommendations

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

Zone A - NOO

Zone B - NFT (80m x 1m)

Sketch Yes / No Photos Yes / No Frames _____ Photographer _____



C86-RB
SCAT-6
22 Aug 2011

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C 84 (Left Bank) / Right Bank / Island	25/07/11	1005 hrs to 1007 hrs	low - mean - (bankfull) - overbank
Operations Division: C			(falling) - steady – rising
Survey by: Foot / ATV / (Boat) / Helicopter / Overlook / _____	(Sun) / Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp + / - 25 deg C

2 SURVEY TEAM # 6	Name	Organization	Signature
	Chelsea Murphy	Cardno ENTRIX	[signature]
	David Rouse	US Fish and Wildlife	
	Jay Watson	MT Fish Wildlife and Parks	

3 SEGMENT Total Segment/Reach Length ~1,750 m Segment/Reach Length Surveyed ~2,180 m

Start GPS: LATITUDE 46.150968 deg. ____ min. LONGITUDE 107.502516 deg. ____ min. Datum: WGS 84

End GPS: LATITUDE 46.146775 deg. ____ min. LONGITUDE 107.524092 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 S___ Sand____ Mixed____ Pebble/Cobble____ Boulder____ Peat/Organic____ | Vegetated Bank: P___ | Wooded Upland: ____

Sediment Flat: Clay/Mud____ Sand____ Mixed/Coarse____ | Other: ____ | If snow and ice use Winter River SOS

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

Cliff or Bluff:___Est Height ____m | canyon____ manmade____ meander S___ confined or leveed ____ | Substrate Type: mud/silt

Sloped:___(>5°)(15°)(30°) | straight____ braided P___ oxbow____ flood plain valley____ | Forested / (Vegetated) / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width : < 1m 1–10 m 10–100 m (>100m) 160m | 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 ____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	
1392 A					2,180	<1	Ø													P	veg/mud/Rock

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

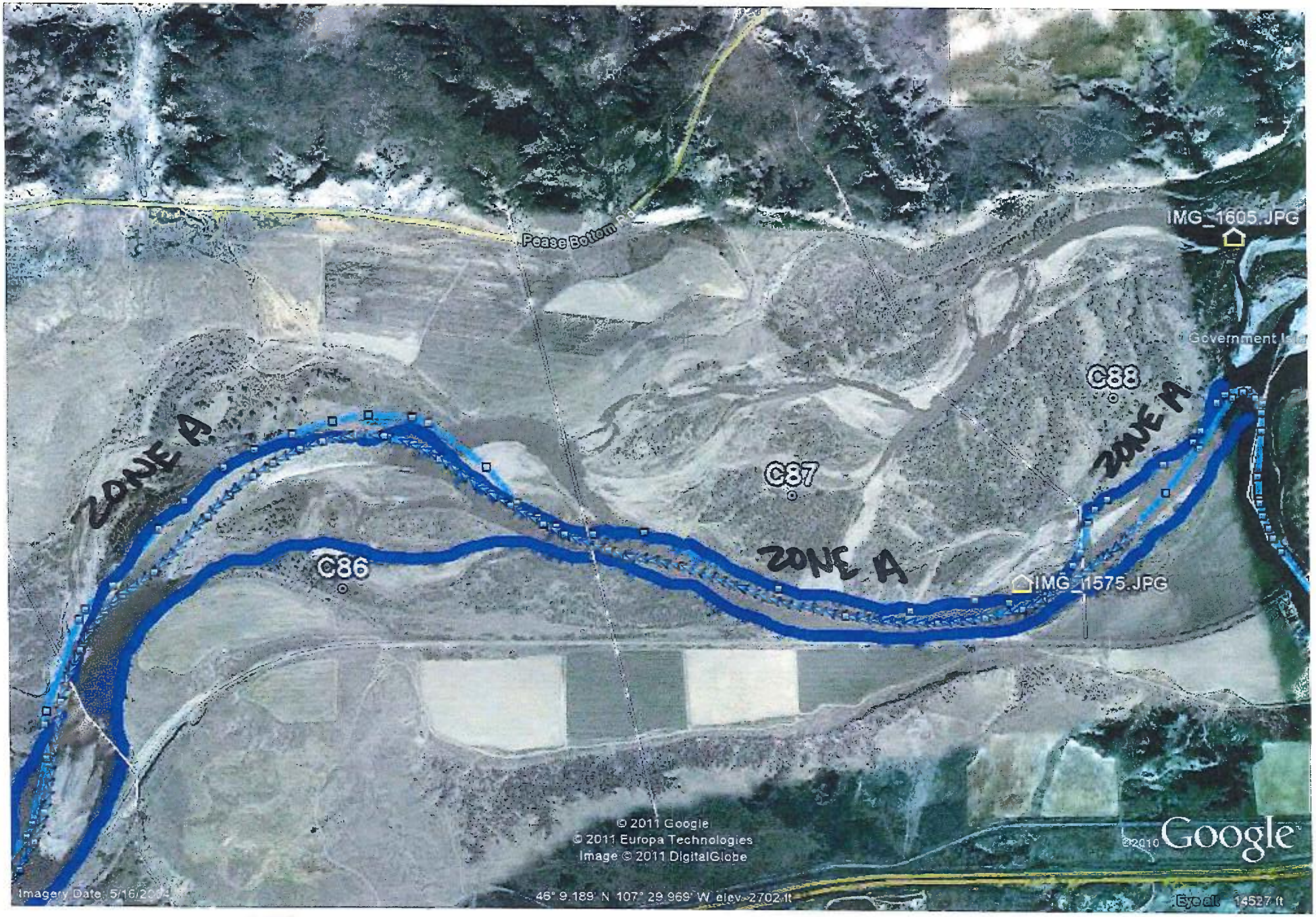
TRENCH or PIT NO.	RIVER BANK ZONE				MAX. PIT DEPTH	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	cm	B, R, S, N	Yes / No	

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

Zone A - NOO

Sketch (Yes) / No Photos Yes (No) Frames_____ Photographer_____



C86LB
Team #6
25/07/11

ARCADIS

C87

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION

Segment/Reach ID: C 87 Left Bank / (Right Bank) / Island

Operations Division: C

Date (dd/mm/yy) 25/07/11

Time (24h): std / daylight 1400 hrs to 1408 hrs (falling) steady – rising

Water Level: low - mean - (bankfull) - overbank

Survey by: Foot / ATV / (Boat) / Helicopter / Overlook / _____ (Sun) / Clouds / Fog / Rain / Snow / Windy / Calm

Air Temp + / - 25 deg C

2 SURVEY TEAM # 6

Name	Organization	Signature
Chelsea Murphy	Cardno ENTRIX	[illegible]
David Rouse	US Fish and Wildlife	
Jay Watson	MT Fish Wildlife and Parks	

3 SEGMENT Total Segment/Reach Length ~1,500 m Segment/Reach Length Surveyed ~1,600 m

Start GPS: LATITUDE 46 deg. 8.760 min. LONGITUDE 107 deg. 28.922 min. Datum: WGS 84

End GPS: LATITUDE 46 deg. 9.014 min. LONGITUDE 107 deg. 30.136 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: ____

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/silt

Sloped:___(>5°)(15°)(30°) | straight____ braided P___ oxbow____ flood plain valley____ | Forested / (Vegetated) / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width : < 1m 1–10 m 10–100 m (>100m) 160m | 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 ____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	
1390 A			P		1600	<1	ϕ													P	neg/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	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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

Zone A - NOO - NFT

Sketch (Yes) / No Photos Yes / (No) Frames_____ Photographer_____

Ver. 04 July 2011

C87RB
Team#6
25/07/11

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

1 GENERAL INFORMATION

Segment/Reach ID: C87 Left Bank / Right Bank / Island

Operations Division: C

Survey by: Foot / ATV / Boat / Helicopter / Overlook / ____

Date (dd/mm/yy): 22/08/11

Time (24h): std / daylight 1600 hrs to 1645 hrs

Water Level: low - mean - bankfull - overbank; falling - steady - rising

Sun / Clouds / Fog / Rain / Snow / Windy / Calm

Air Temp + / - ____ deg C

2 SURVEY TEAM # 6

Name	Organization	Signature
Darrick Turner	DEQ	[signature]
David Fuller	MFEQ FWP	Dave Fuller
Bruce Kvam	Polaris	Bruce Kvam
David Eric Harlow	Cardno ENTRIX	David Harlow
Robert Nailon	Cardno ENTRIX	Robt Nailon

3 SEGMENT

Total Segment/Reach Length 1649 m Segment/Reach Length Surveyed 1649 m

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

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

4A RIVER BANK TYPE

SELECT only one primary (P) shoreline type and any number of secondary (S) types. CIRCLE those OILED

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

Sediment Bank: Clay/Mud ____ Sand S Mixed ____ Pebble/Cobble ____ 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 ✓ confined or leveed ____

Sloped: ____ (>5°)(15°)(30°) | straight ____ braided ____ oxbow ____ flood plain valley ____

complete for primary: Substrate Type: Veg Bank; Forested / Vegetated / Bare

4C RIVER CHANNEL CHARACTER

circle or select as appropriate

est. width: < 1m 1–10 m 10–100 m >100m 160m

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 ____ trucks

access restrictions N/A

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 MS	LB	UB	OB	OIL COVER Length m	Width m	Distrib. %	OIL THICKNESS TO	CV	CT	ST	FL	OIL CHARACTER FR	MS	TB	PT	TC	SR	AP	NO	SUBST. TYPE(S)
1795 A				X	1649	200	0%													✓	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 MS	LB	UB	OB	MAX. PIT DEPTH cm	OILED ZONE cm-cm	SUBSURFACE OIL CHARACTER SAP	OP	PP	OR	OF	TR	NO	WATER TABLE cm	SHEEN COLOUR B, R, S, N	CLEAN BELOW Yes / No	SUBST. TYPE(S)

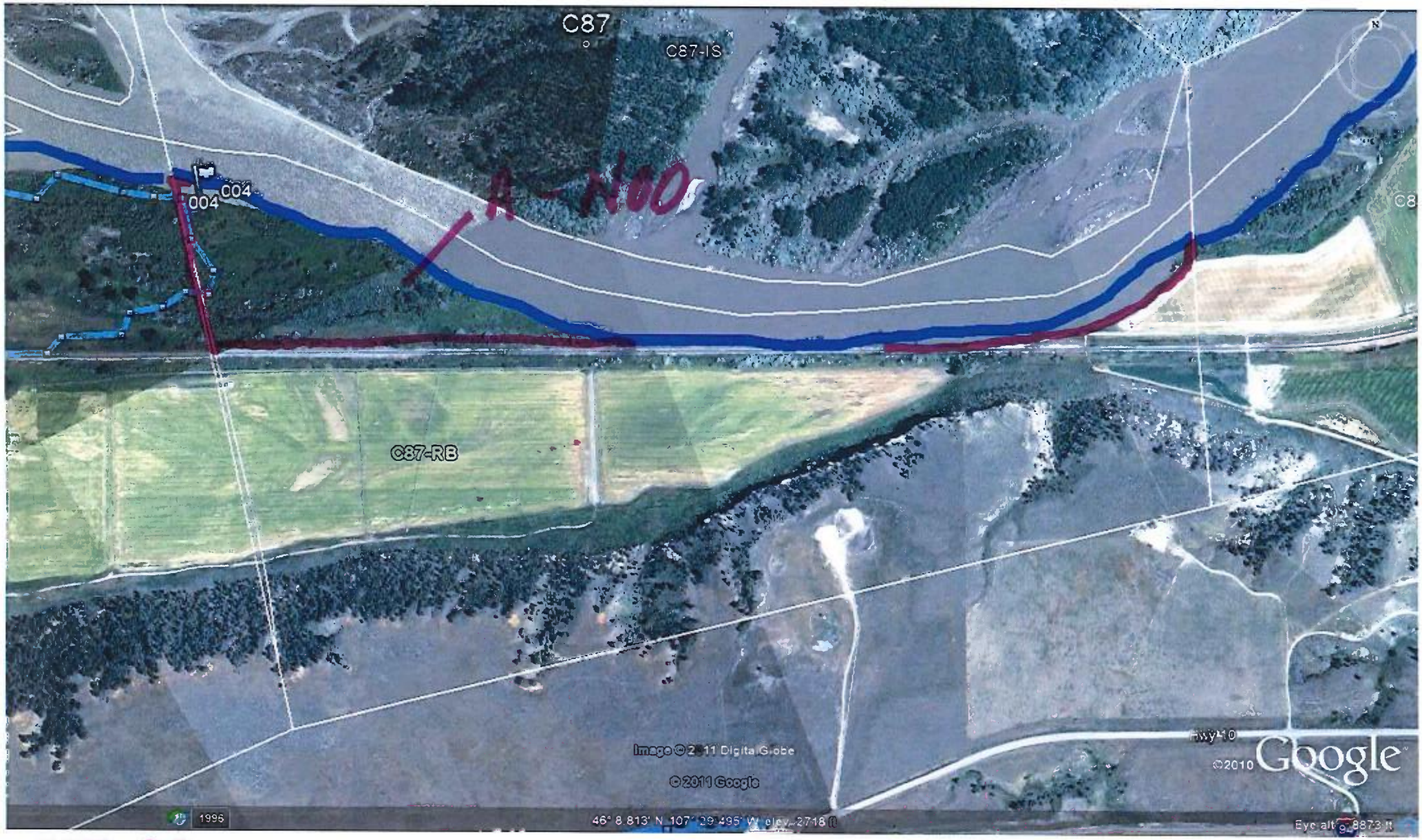
8 COMMENTS

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 - NOO

Sketch Yes / No Photos Yes / No Frames ____ Photographer ____



C87-RB
SCAT-6
22 Aug 2011

D13/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C 837 ~~Left Bank~~ / Right Bank / Island	25/07/11	1002 hrs to 1005 hrs (falling) steady – rising	low - mean - (bankfull) overbank
Operations Division: C			
Survey by: Foot / ATV / (Boat) / Helicopter / Overlook / _____	(Sun) / Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp + / - 25 deg C

2 SURVEY TEAM # 6

Name	Organization	Signature
Chelsea Murphy	Cardno ENTRIX	[signature]
David Rouse	US Fish and Wildlife	
Jay Watson	MT Fish Wildlife and Parks	

3 SEGMENT Total Segment/Reach Length ~1,570 m Segment/Reach Length Surveyed ~1,712 m

Start GPS: LATITUDE 46.150563 deg. ___ min. LONGITUDE 107.482053 deg. ___ min. Datum: WGS 84

End GPS: LATITUDE 46.150933 deg. ___ min. LONGITUDE 107.502398 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 S___ Sand___ Mixed___ Pebble/Cobble___ Boulder___ Peat/Organic___ | Vegetated Bank: P___ | Wooded Upland: ___

Sediment Flat: Clay/Mud___ Sand___ Mixed/Coarse___ | Other: ___ | If snow and ice use Winter River SOS

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

Cliff or Bluff: ___ Est Height ___ m | canyon___ manmade___ meander S___ confined or leveed___ | Substrate Type: mud/silt

Sloped: ___ (>5°)(15°)(30°) | straight___ braided P___ oxbow___ flood plain valley___ | Forested (Vegetated) Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width : < 1m 1–10 m 10–100 m (>100m) 160m | 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 ___ 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	
1393 A					1,712	21	0														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	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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

Zone A - NOO-

Sketch (Yes) / No Photos Yes / (No) Frames ___ Photographer ___

Ver. 04 July 2011

C87LB
Team#6

25/07/11

ARCADIS

C88

RB AA 10/6/11

D B/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

1 GENERAL INFORMATION

Segment/Reach ID: C 88 Left Bank / Right Bank / Island

Operations Division: C

Date (dd/mm/yy) 25/07/11

Time (24h): std / daylight 1357 hrs to 1410 hrs

Water Level: low - mean - bankfull - overbank; falling - steady – rising

Survey by: Foot / ATV / Boat / Helicopter / Overlook / _____ Sun / Clouds / Fog / Rain / Snow / Windy / Calm

Air Temp + / - 25 deg C

2 SURVEY TEAM # 6

Name	Organization	Signature
Chelsea Murphy	Cardno ENTRIX	[illegible]
David Rouse	US Fish and Wildlife	
Jay Watson	MT Fish Wildlife and Parks	

3 SEGMENT Total Segment/Reach Length ~730 m Segment/Reach Length Surveyed ~805 m

Start GPS: LATITUDE 46 deg. 9.270 min. LONGITUDE 107 deg. 28.467 min. Datum: WGS 84

End GPS: LATITUDE 46 deg. 8.962 min. LONGITUDE 107 deg. 28.920 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: ____

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/silt

Sloped:___(>5°)(15°)(30°) | straight____ braided P___ oxbow____ flood plain valley____ | Forested / Vegetated / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width : < 1m 1–10 m 10–100 m >100m 160m | 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 / bankfull / 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 MS	LB	UB	OB	OIL COVER Length m	Width m	Distrib. %	OIL THICKness TO	CV	CT	ST	FL	OIL CHARACTER FR	MS	TB	PT	TC	SR	AP	NO	SUBST. TYPE(S)
1397 A			P		805	<1	0													P	veg/mud

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

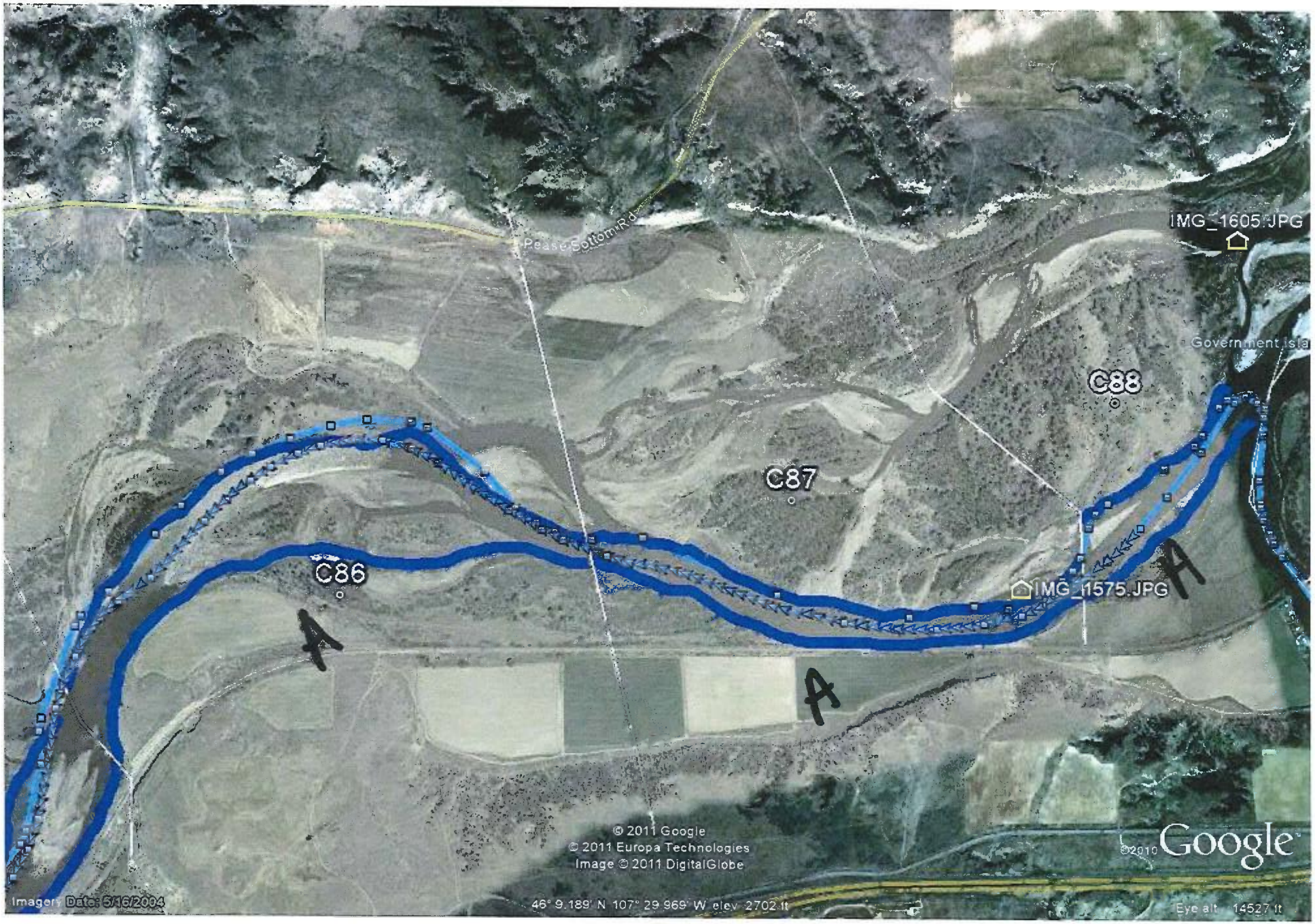
TRENCH or PIT NO.	RIVER BANK ZONE MS	LB	UB	OB	MAX. PIT DEPTH cm	OILED ZONE cm-cm	SUBSURFACE OIL CHARACTER SAP	OP	PP	OR	OF	TR	NO	WATER TABLE cm	SHEEN COLOUR B, R, S, N	CLEAN BELOW Yes / No	SUBST. TYPE(S)

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 - NOD - NFT

Sketch Yes / No Photos Yes / No Frames_____ Photographer_____



C88RB
Team #6
26/07/11

DB / G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page _____ of _____

1 GENERAL INFORMATION	Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID: C88 Left Bank / Right Bank / Island	08/08/11	12:00 hrs to 2:45 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 + / - ____ deg C

2 SURVEY TEAM # 5

Name	Organization	Signature
Larkin Chandler	THPO	
Ron Lynn Jr.	USCG	
Jenna Scholz	Cardno ENTRIX	
Tom Bovington	DEQ	
Joe Busalacch	Cardno ENTRIX	

3 SEGMENT Total Segment/Reach Length _____ m Segment/Reach Length Surveyed 645 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 P

Sediment Bank: Clay/Mud X Sand____ Mixed____ Pebble/Cobble____ Boulder____ Peat/Organic____ | Vegetated Bank: S | Wooded Upland: X

Sediment Flat: Clay/Mud____ Sand____ Mixed/Coarse____ | Other: ____ | If snow and ice use Winter River SOS

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

Cliff or Bluff: ____ Est Height ____ m | canyon____ manmade____ meander ____ confined or leveed ____ | Substrate Type: SILT/MUD

Sloped: X (>5°) (15°) (30°) | straight____ braided ____ oxbow____ flood plain valley X | Forested / Vegetated / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width: < 1m 1–10 m 10–100 m >100m 160m | 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 ____ trucks | access restrictions NTR

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	
1252 A				X	645	130														X	

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

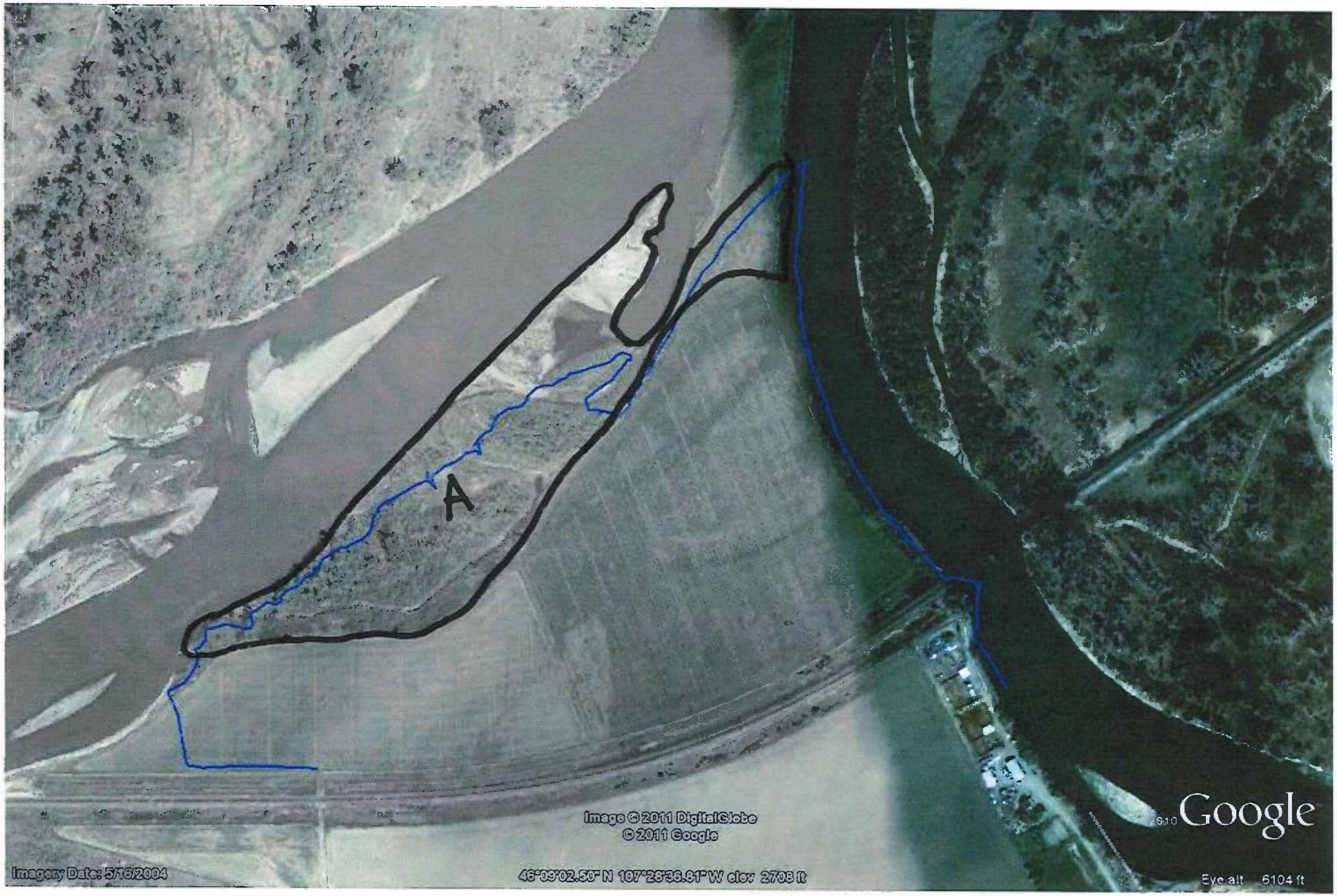
TRENCH or PIT NO.	RIVER BANK ZONE				MAX. PIT DEPTH	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	cm	B, R, S, N	Yes / No	

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

NTR - No oil observed

Sketch Yes / No Photos Yes / No Frames _____ Photographer _____



C88 R
Team #5
08/08/08

DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page 1 of 1

1 GENERAL INFORMATION

Segment/Reach ID: C 88 Left Bank / Right Bank / Island

Operations Division: C

Date (dd/mm/yy): 25/07/11

Time (24h): std / daylight 1000 hrs to 1002 hrs falling / steady – rising

Water Level: low - mean - bankfull - overbank

Survey by: Foot / ATV / Boat / Helicopter / Overlook / _____ Sun / Clouds / Fog / Rain / Snow / Windy / Calm

Air Temp + / - 25 deg C

2 SURVEY TEAM # 6

Name	Organization	Signature
Chelsea Murphy	Cardno ENTRIX	[illegible]
David Rouse	US Fish and Wildlife	
Jay Watson	MT Fish Wildlife and Parks	

3 SEGMENT Total Segment/Reach Length ~700 m Segment/Reach Length Surveyed ~775 m

Start GPS: LATITUDE 45.155323 deg. — min. LONGITUDE 107.476154 deg. — min. Datum: WGS 84

End GPS: LATITUDE 46.151533 deg. — min. LONGITUDE 107.482130 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 S Sand____ Mixed____ Pebble/Cobble____ Boulder____ Peat/Organic____ | Vegetated Bank: P | Wooded Upland: ____

Sediment Flat: Clay/Mud____ Sand____ Mixed/Coarse____ | Other: ____ | If snow and ice use Winter River SOS

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

Cliff or Bluff: ____ Est Height ____ m | canyon____ manmade____ meander S confined or leveed____ | Substrate Type: mud/silt

Sloped: ___ (>5°)(15°)(30°) | straight____ braided P oxbow____ flood plain valley____ | Forested / Vegetated / Bare

4C RIVER CHANNEL CHARACTER circle or select as appropriate

est. width: < 1m 1–10 m 10–100 m >100m 160m | 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 ____ 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	
1394 A					775	<1	Ø													P	reg/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	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	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

NOO - Zone A -

Sketch Yes / No Photos Yes / No Frames_____ Photographer_____

Ver. 04 July 2011

C88LB
Team#6

25/07/11

DB 16

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

1 GENERAL INFORMATION

Segment/Reach ID: C88 **Left Bank** / Right Bank / Island

Operations Division:

Date (dd/mm/yy) 08/17/2011

Time (24h): std / daylight 0930 hrs to 1215 hrs

Water Level low - **mean** - bankfull - overbank falling - steady – rising

Survey by: **Foot** / ATV / Boat / Helicopter / Overlook / _____ **Sun** / Clouds / Fog / Rain / Snow / Windy / Calm

Air Temp + / - 3 5 deg C

2 SURVEY TEAM # 6

Name	Organization	Signature
Chris Arredondo	CardnoENTRIX	[signature]
Larry Alheim [signature]	DEQ	
Linda Watson	EPA	Linda R Watson
Ernie McKenzie	~~FWP~~ BLM	[signature]
Fred Left Hand [signature]	TPHO Crow Tribe	

3 SEGMENT Total Segment/Reach Length 2075 m Segment/Reach Length Surveyed 1315 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 P Shelf ____ **Manmade:** Solid ___ Permeable ___ (type) ____ **Wetland:** Swamp ____ Bog/Fen ____ Marsh ____

Sediment Bank: Clay/Mud ____ Sand S Mixed S 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: **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 1–10 m **10–100 m** >100m 160m **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 0 bags or 0 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 MS	LB	UB	OB	OIL COVER Length m	Width m	Distrib. %	OIL THICKNESS TO	CV	CT	ST	FL	OIL CHARACTER FR	MS	TB	PT	TC	SR	AP	NO	SUBST. TYPE(S)
1603 A				X	1315	201														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 MS	LB	UB	OB	MAX. PIT DEPTH cm	OILED ZONE cm-cm	SUBSURFACE OIL CHARACTER SAP	OP	PP	OR	OF	TR	NO	WATER TABLE cm	SHEEN COLOUR B, R, S, N	CLEAN BELOW Yes / No	SUBST. TYPE(S)

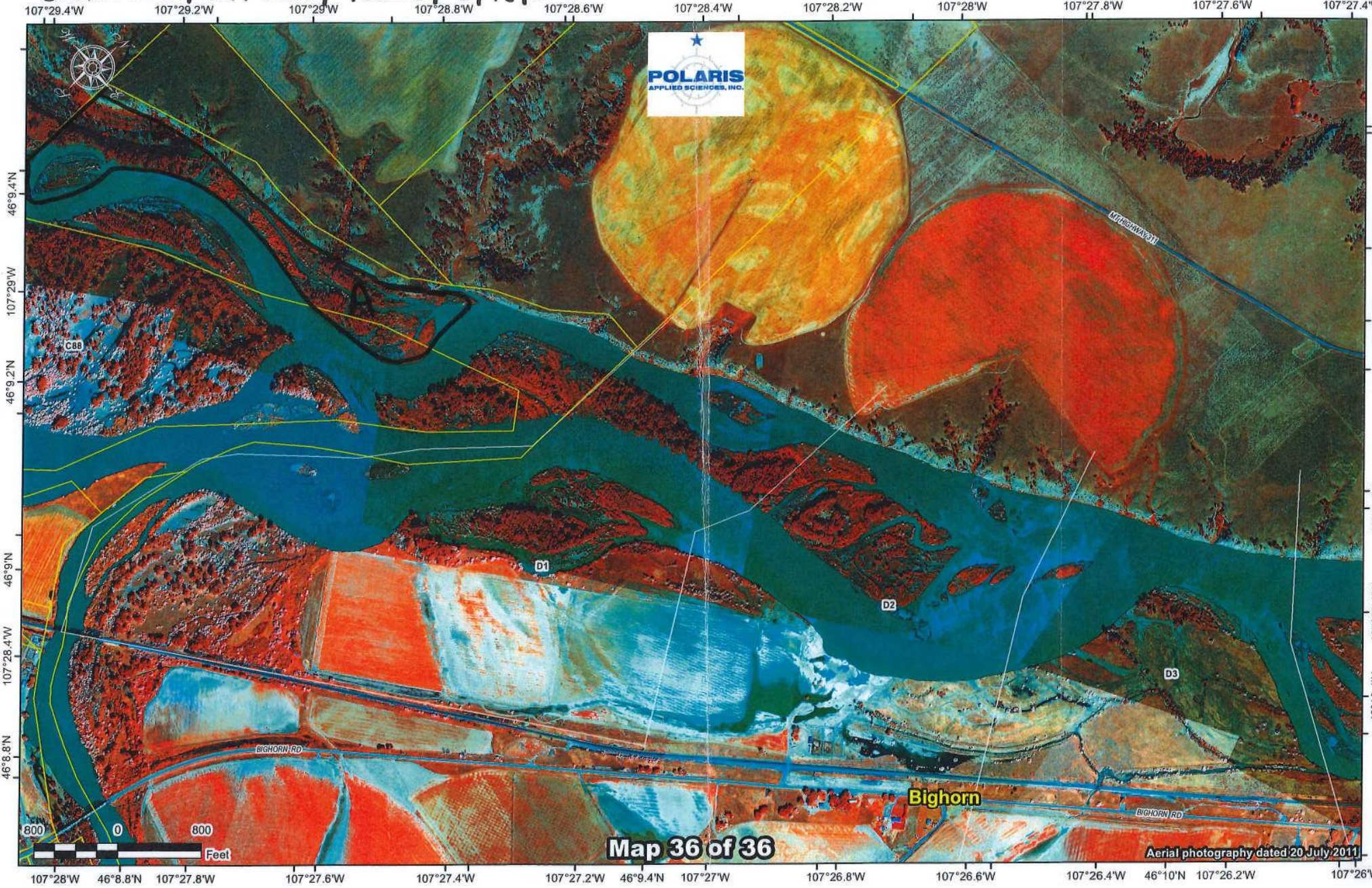
8 COMMENTS *ecological/recreational/cultural/economic constraints - shorezone biota and wildlife observations - cleanup recommendations*

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

Zone A: No treatment required.

Sketch Yes / No **Photos** Yes / No **Frames** _____ **Photographer**

Section C88/Left Bank/Team 6/ 8/18/2011



DB/G

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident

1 GENERAL INFORMATION

Segment/Reach ID: C 88 Left Bank / Right Bank / Island

Operations Division: C

Date (dd/mm/yy): 25/07/11

Time (24h): std / daylight 1000 hrs to 1002 hrs

Water Level: low - mean - bankfull - overbank; falling - steady - rising

Survey by: Foot / ATV / Boat / Helicopter / Overlook / _____ Sun / Clouds / Fog / Rain / Snow / Windy / Calm

Air Temp + / - 25 deg C

2 SURVEY TEAM # 6

Name	Organization	Signature
Chelsea Murphy	Cardno ENTRIX	[illegible]
David Rouse	US Fish and Wildlife	
Jay Watson	MT Fish Wildlife and Parks	

3 SEGMENT

Total Segment/Reach Length ~700 m Segment/Reach Length Surveyed ~775 m

Start GPS: LATITUDE 45.155323 deg. ___ min. LONGITUDE 107.470154 deg. ___ min. Datum: WGS 84

End GPS: LATITUDE 46.151533 deg. ___ min. LONGITUDE 107.482130 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 S Sand___ Mixed___ Pebble/Cobble___ Boulder___ Peat/Organic___

Vegetated Bank: P Wooded Upland: ___

Sediment Flat: Clay/Mud___ Sand___ Mixed/Coarse___

Other: ___

If snow and ice use Winter River SOS

4B RIVER VALLEY CHARACTER

select as appropriate

Cliff or Bluff: ___ Est Height ___ m

Sloped: ___ (>5°)(15°)(30°)

canyon___ manmade___ meander S confined or leveed___

straight___ braided P oxbow___ flood plain valley___

complete for primary

Substrate Type: mud/silt

Forested / Vegetated / Bare

4C RIVER CHANNEL CHARACTER

circle or select as appropriate

est. width: < 1m 1–10 m 10–100 m >100m 160m

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 ___ 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	
1394 A					775	<1	Ø													P	reg/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	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	cm	B, R, S, N	Yes / No	

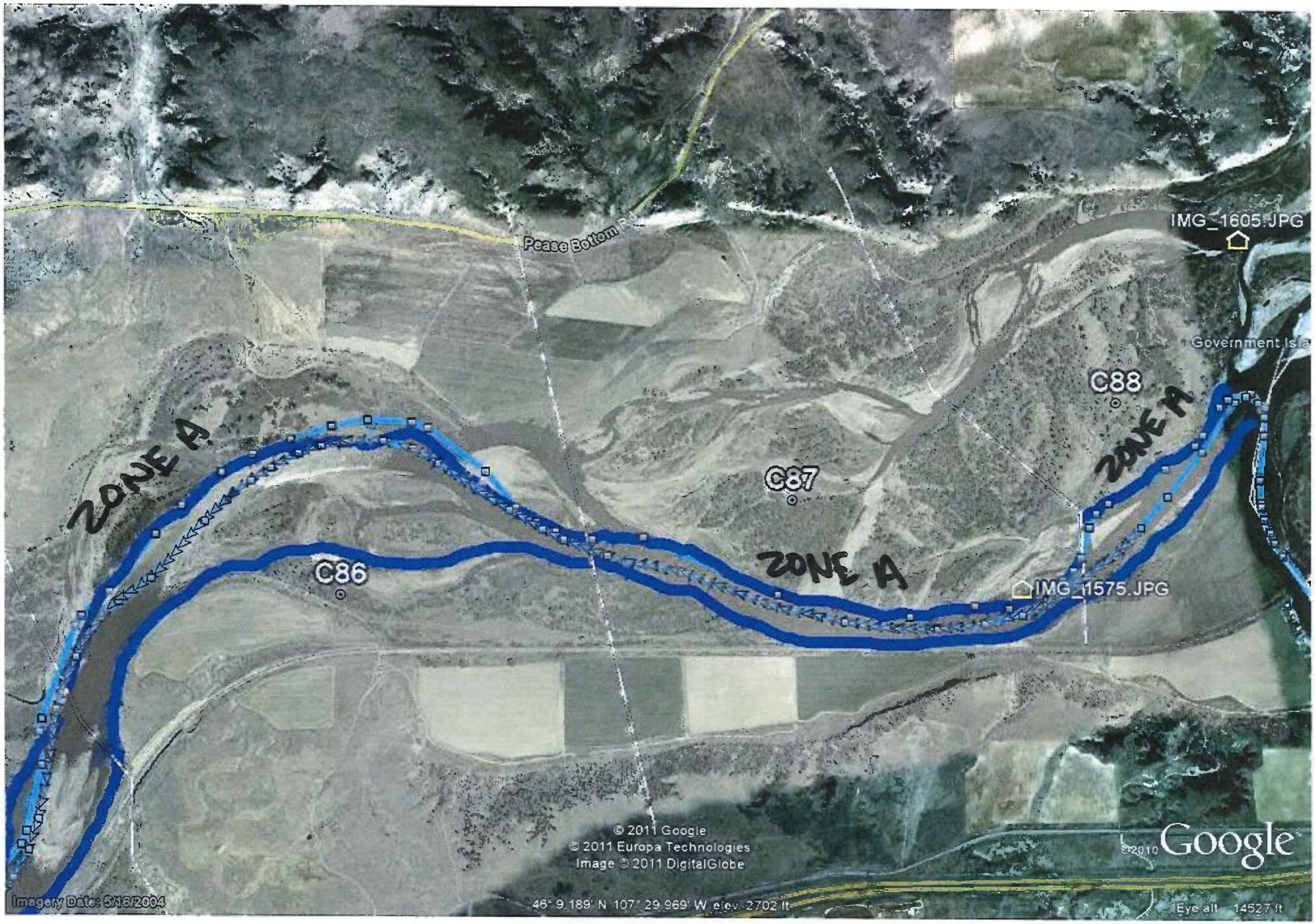
8 COMMENTS

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

NOO - Zone A -

Sketch Yes / No Photos Yes / No Frames_____ Photographer_____



C88LB
Team#6

25/07/11