

KN-103 A ASC 16922 site 2
LOWER PASSAGE

ACE 1369617

DOCUMENTS IN STREAM FILES

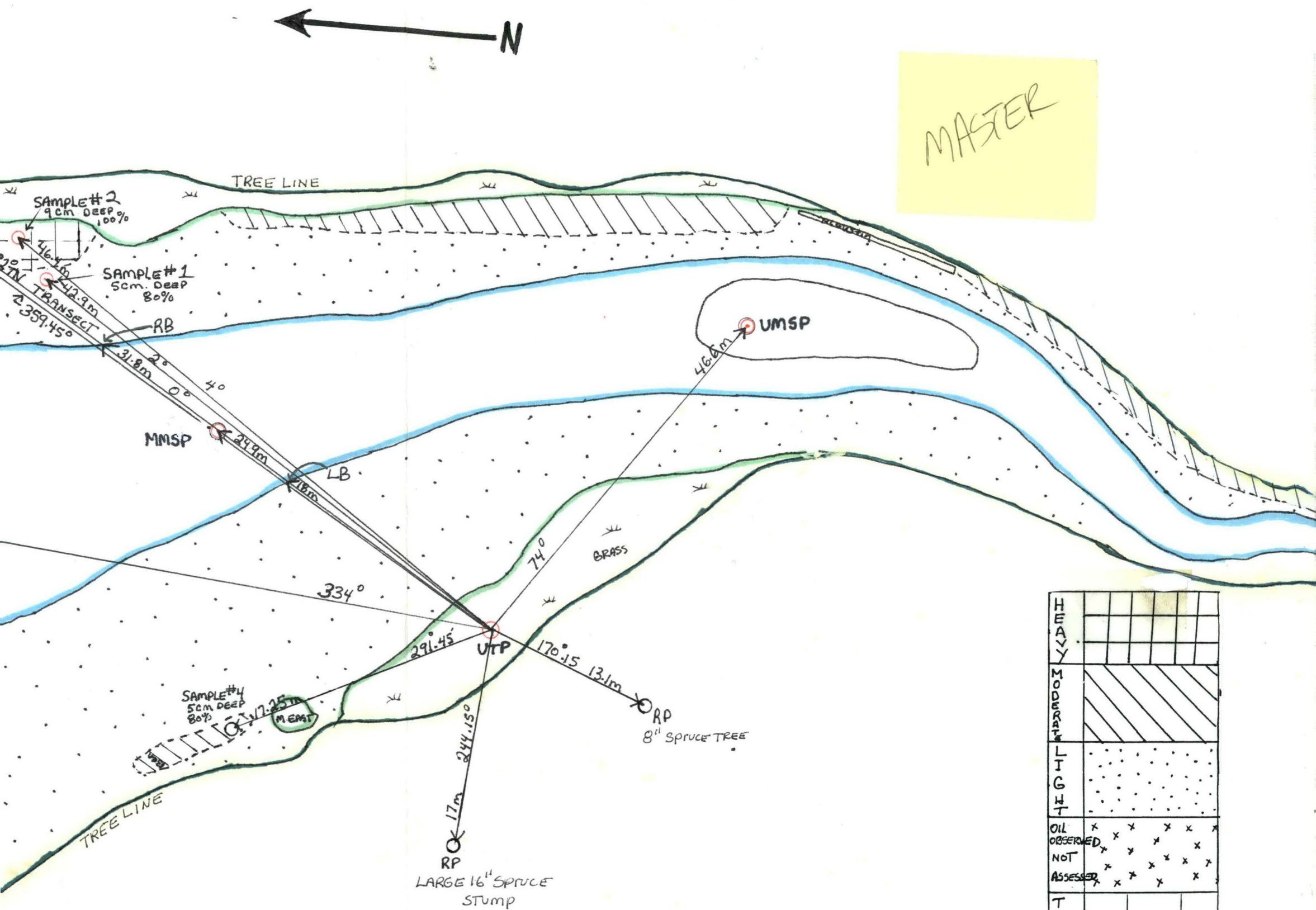
ASC# _____ Segment # _____

____ '89 Intertidal Assessment Survey, Sport/Com. Fish
____ '89 Shoreline Clean-Up Program (SAT)
____ '89 Anadromous Fish Stream Authorization, for instream work
____ '89 Stream Treatment Reports
____ '89 Demobilization Reports ____ Bioremediation ____ other
____ '89 RLS Sheet ____ Oil sed. sample ____ Egg sample
____ '89 Fall Walk-a-thon Survey, ADEC
____ '89 Winter Assess. Study Site ____ Winter Stream Survey Form
____ '89 Other Documents _____

____ '90 Pre-Anadscat Survey, multi-assessment form
____ '90 Anadscat Survey
____ '90 Anadromous Fish Stream Evaluation (work order)
____ '90 Anadromous Fish Stream Addendum to work order
____ '90 Shoreline Evaluation, SAT and work order for segment
____ '90 Anadromous Fish Stream Authorization, Title 16 permit
____ '90 Stream Treatment Report
____ '90 ADEC Demobilization Report for Bio
____ '90 ADF&G Oiling Condition Survey, for ASAP use (Aug. Surv.)
____ '90 ASAP Survey ____ ASAP Rec. ____ ADEC Rec. (Feb.)
____ '90 Other Documents _____

KN103U01MM
 OPAL CREEK LOWER PASSAGE
 KNIGHT ISLAND

MASTER



HEAVY	
MODERATE	
LIGHT	
OIL OBSERVED	x x x x x
NOT ASSESSED	x x x x x
TRE	

ADF&G HABITAT STUDY SITE DESCRIPTION FORM

WINTER STUDY
1989

STUDY SITE # KN103401MM INITIAL LAYOUT DATE 10-16-89
Team Members Ben, East, Gustin Time (start/stop) 0947/1120
Low Tide (time/ht.) 0830 +1.1ft. High Tide (time/ht.) 1442 +15.9 ft.
Weather: (sunny/ cloudy / rain / fog / snow) Seas: (rough/ moderate / calm)
Wave Ht: 1-2' Wind Dir.: (N-NE-E-SE-S-SW-W-NW) Knots: (0-10 10-20 20-30 30+)

LAYOUT AND BEACH PROFILE

TRANSECT LAYOUT: Compass bearing: 32° ^(TRUE NORTH) Length of transect: 54.3 M

STUDY AREA LOCATION AND DIMENSIONS (see maps): Lat. 60°29'36" Long. 147°41'12"
102m long by 64m wide. Head of small, deep bay in Lower Passage
North of Louis Bay.

LOCATION OF TRANSIT POINT; distance and bearing to local features, etc.:

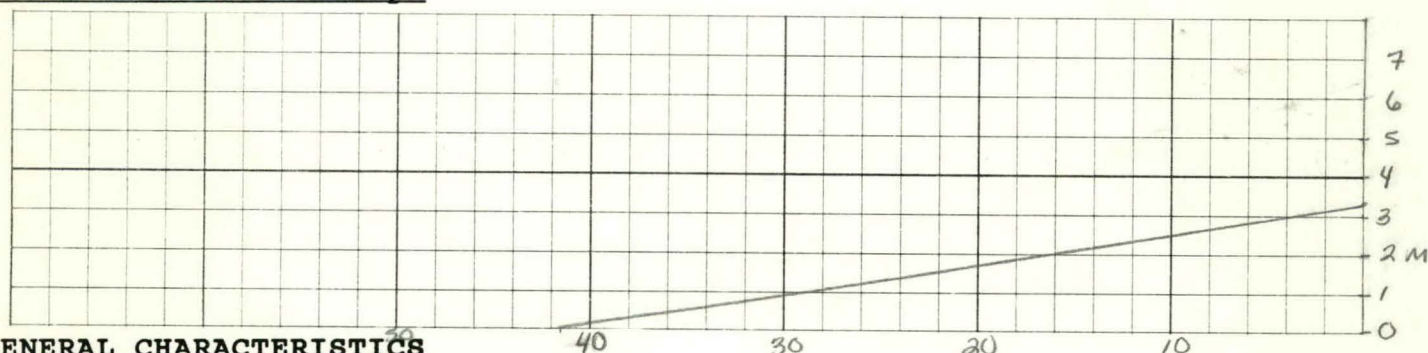
- ① 8" spruce tree 170.15°, 13.1 M - flagged + measured from flagging height.
- ② large spruce stump (16" dia.) 244.15°, 17 M - flagged - measured from spray point spot on stump.

* BEACH ELEVATION PROFILE: Bearing from transit point: 3354° Inst. height: 1.6 M

Point # Location	Total elevation	Actual Elev. (tot-inst ht)	Distance from transit point	Slope (el/dist)
LTP (Lower transect point) midstream	<u>4.8 M</u>	<u>1.6 M</u>	<u>41.7 M</u>	<u>7.7%</u>

* full profile not done

Elevation Profile Graph



GENERAL CHARACTERISTICS

BEACH EXPOSURE: Aspect NE Wave Exposure: Hi Mod X Lo

SHORELINE DESCRIPTION Deep, narrow cove. 2 smaller streams to north of main stream due to heavy rains.

SUBSTRATE TYPES(%EA): Rock 10 Boulder(>10") 10 Cobble(2.5"-10") 30
Pebble(.06"-2.5") 30 Sand/Mud(<.06") 20

GENERAL OILING CONDITIONS: Moderate band of oil becomes heavy along U1TZ on right side of stream (facing downstream). Tar patties + streaks in mid-low U1TZ.
Left side: light-moderate at mid-U1TZ. Light mousse, tar patties and streaks. Lighter oiling than right side.

BIOLOGICAL/OTHER OBSERVATIONS: Biota, fucus in L1TZ sparse, but appears healthy. Grasses at high tide and above.

(10/20 only)

P. 2 - Stream Habitat Evaluation

.5M² Sample Plot
Location, °, dist.
from transit pt.

%Coverage

Avg.
Depth

Oil Type, Consistency

1. Rightbank, LITZ, 2°, 42.9M

80

5 CM

pooled_mousseXcoated_mobile_
tarryXasphalt_stain_

2. R.B. MITZ, 4°, 46.4M

100

9 CM

pooled_mousse_coatedXmobile_
tarryXasphalt_stain_

3. R.B. UITZ, 359°45', 51.6M

100

20 CM+

pooled_mousseXcoatedXmobile_
tarryXasphalt_stain_

4. L.B. MITZ, 291°45', 17.25M

80

5 CM

pooled_mousseXcoatedXmobile_
tarryXasphalt_stain_

pooled_mousse_coated_mobile_
tarry_asphalt_stain_

pooled_mousse_coated_mobile_
tarry_asphalt_stain_

% of Transect Line Intercepting Oil: 70%; Heavy 40 Moderate 10 Light 20

SAMPLES TAKEN: Sediment (S), Gross Oil (GO), or Indicator Organism (ORG)

Type	Sample#	Location (°, dist.), Description	Documentation
S	89WP001V+VD	.5m ² plot #4 291°45', 17.25M MITZ, L.B.	P-89WP001-V, 6+7
S	89WP002V+VD	#1	" 8+9
S	89WP003V+VD	#2	" 10+11
S	89WP004V+VD	#3	" 12+13

Biological Damage, Other Observations:

There was a decrease in surface oil between Oct. 20 and Nov. 4 visits to this site, especially on the left bank. Sample plots and "penetration test" holes on right bank revealed oil pooling on top of water table 30 cm deep. This was not just sheen. Most of the test holes showed a heavy surface coating 2-4 cm thick, on the right bank in addition to the subsurface oil. The surface coating of mousse/tar had become patchier in the two week period between our visits.

ADF&G STREAM HABITAT EVALUATION

STUDY SITE # KN103U01MM DATE 10-16-89, completed 11-4-89
 Location Lower Passage, Louis Bay, Knight Island Lat. 60° 29' 36" Long. 147° 41' 12"
 Team Members Ben, East, Gustin ^(10/16) / Ben, East, Talvi (11/4) Time (start/stp) 0947 - 1120
 Low Tide (time/ht.) 0836 +1.1 ft. High Tide (time/ht.) 1442 15.9 ft.
 Weather: (sunny/ cloudy/ rain/ fog/ snow)
 Seas: (rough/ moderate/ calm) Wave Height: 1-2 feet
 Wind direction: (N-NE-E-SE-S-SW-W-NW) Knots: (0-10 10-20 20-30 30+)

STREAM MORPHOLOGY

Instream Pt. Locations	Bearing from Transit Pt.	Distance from Transit Pt.	Distance to L. Streambank	Distance to R. Streambank
On Transect	<u>0°</u>	<u>24.9 M</u>	<u>18.0 M</u>	<u>31.8 M</u>
Upper ITZ	<u>74°</u> ^{need to check}	<u>46.6 M</u>		
Low-Mid ITZ	<u>334°</u>	<u>61.7 M</u> ^(need to check)		

Observations: (berms, tide pools, etc.) No berms or tidepools - Right bank parallels the stream - narrow high angle boulder/cobble/sand beach. Left bank is wide cobble/pebble/sand beach that continues North from Opal Creek around the cove. Two more small streams come out 2-300 m north of Opal Creek.

PHOTO AND VIDEO DOCUMENTATION (taken from transit point; transect line 0°)

<° (UMSP)	photo: roll#/frame	<u>P-89WP001-V</u>	<u>#1 and 2</u>
<° <u>265°</u>	photo: roll#/frame	<u>P-89WP001-V</u>	<u>3</u>
<° <u>0° (transect line)</u>	photo: roll#/frame	<u>"</u>	<u>4</u>
<° <u>331°</u>	photo: roll#/frame	<u>"</u>	<u>5</u>
<°	photo: roll#/frame		

Video scan (cassette #, footage) V-89WP001-V 1174-1340

Additional video footage (11/4) V-89WP003V 1047-1421 (Rightbank oil assessment)

Aerial video (cassette #, footage) 10/16 V-89WP001-V 1340-1456 11/4 V-89WP003-V 957-1064 height 500+ ft. ^{(11/4) used for map.}

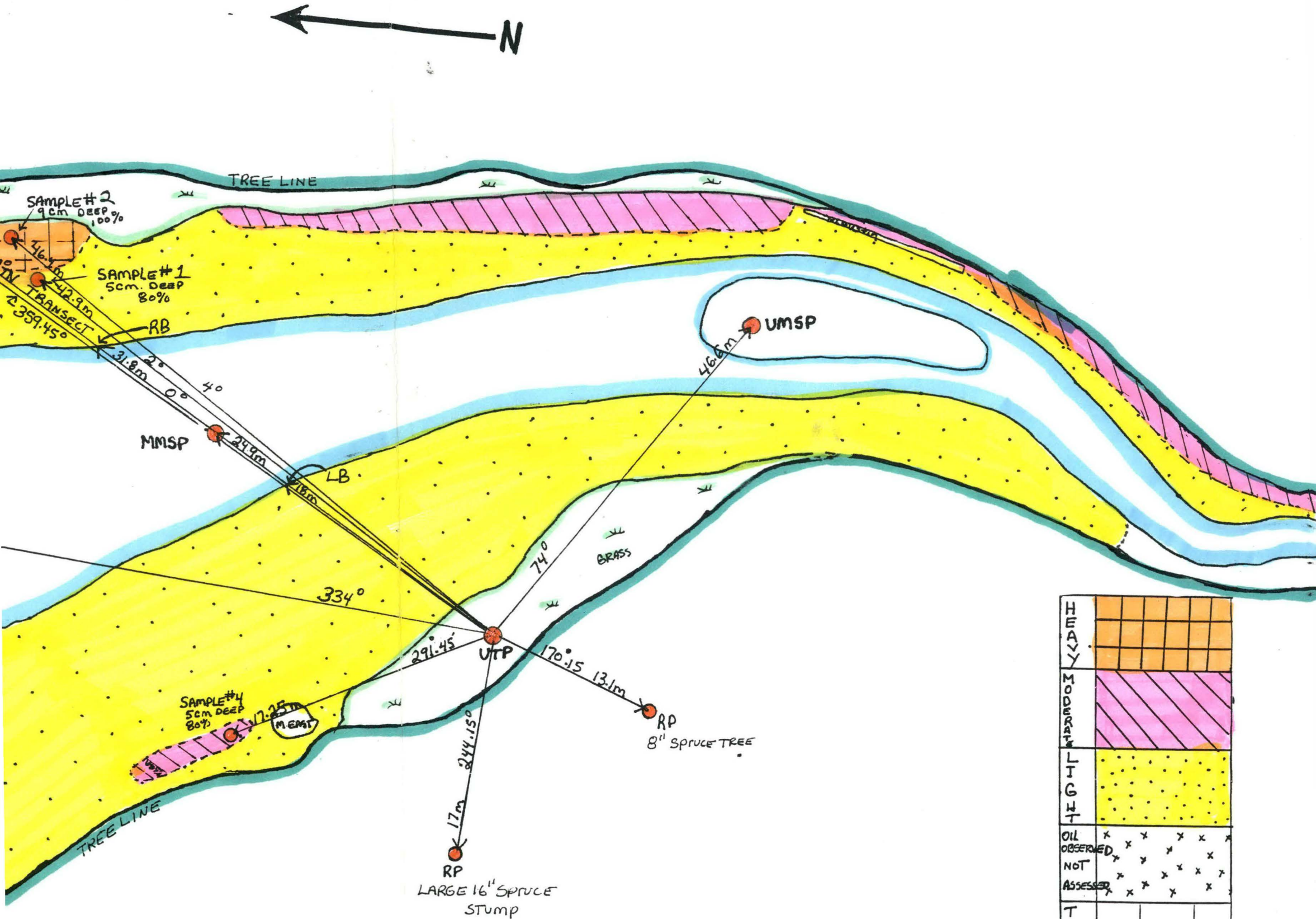
Aerial photo (roll #, frame) P-89WP001-V Frames 14, 15, 16, 17

OIL MEASUREMENT, OBSERVATIONS (see map for details)

Location (tidal zone, bank)	date	AVG. Width and Length of oil band	%Coverage	Subsurface/surface/depth
Left bank MID-UPPER ITZ	10/10	(W) 1.5 x (L) 17.1	80 %	both, to 5 cm
	11/4	(W) 1.0 x (L) 11.0 m	60 %	both, to 3 cm
Right bank M-U ITZ	10/20	6.8 x 120 m	yes 100%	both, to 20 cm
	11/4	4.0 x 100 m broken	85 %	both, to 20 cm

FILE COPY

KN103W01MM
OPAL CREEK LOWER PASSAGE
KNIGHT ISLAND



HEAVY	
MODERATE	
LIGHT	
OIL OBSERVED	
NOT ASSESSED	
TR	

ADF&G STREAM HABITAT EVALUATION

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 Location Lower Passage, Louis Bay, Knight Island Lat. 60° 29' 36" Long. 147° 41' 12"
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Instream Pt. Locations	Bearing from Transit Pt.	Distance from Transit Pt.	Distance to L. Streambank	Distance to R. Streambank
On Transect	<u>0°</u>	<u>24.9 M</u>	<u>180 M</u>	<u>31.8 M</u>
Upper ITZ	<u>74°</u> ^{Need to check}	<u>46.6 M</u>		
Low-Mid ITZ	<u>334°</u>	<u>61.7 M</u> ^(need to check)		

Observations: (berms, tide pools, etc.) No berms or tidepools - Right bank parallels the stream - narrow high angle boulder/cobble/sand beach. Left bank is wide cobble/pebble/sand beach that continues North from Opal Creek around the cove. Two more small streams come out 2-300 M north of Opal Creek.

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Location (tidal zone, bank)	date	AVG. Width and Length of oil band	%Coverage	Subsurface/surface/depth
Left bank mid-upper ITZ	<u>10/16</u>	<u>(W) 1.5 x (L) 17.1</u>	<u>80 %</u>	<u>both, to 5 cm</u>
	<u>11/4</u>	<u>(W) 1.0 x (L) 11.0 M</u>	<u>60 %</u>	<u>both, to 3 cm</u>
Right bank M-U ITZ	<u>10/20</u>	<u>6.8 x 120 M</u>	<u>yes 100 %</u>	<u>both, to 20 cm</u>
	<u>11/4</u>	<u>4.0 x 100 M broken</u>	<u>85 %</u>	<u>both, to 20 cm</u>

(10/20 only)

P. 2 - Stream Habitat Evaluation

.5M² Sample Plot
Location, °, dist.
from transit pt.

%Coverage

Avg.
Depth

Oil Type, Consistency

1. Rightbank, LITZ, 2°, 42.9M	80	5 CM	pooled_mousseXcoated_mobile_ tarryXasphalt_stain_
2. R.B. MITZ, 4°, 46.4M	100	9 CM	pooled_mousse_coatedXmobile_ tarryXasphalt_stain_
3. R.B. MITZ, 359°45', 51.6M	100	20 CM+	pooled_mousseXcoatedXmobile_ tarryXasphalt_stain_
4. L.B. MITZ, 291°45', 17.25M	80	5 CM	pooled_mousseXcoatedXmobile_ tarryXasphalt_stain_ pooled_mousse_coated_mobile_ tarry_asphalt_stain_ pooled_mousse_coated_mobile_ tarry_asphalt_stain_
_____	_____	_____	_____
_____	_____	_____	_____

% of Transect Line Intercepting Oil: 70%; Heavy 40 Moderate 10 Light 20

SAMPLES TAKEN: Sediment (S), Gross Oil (GO), or Indicator Organism (ORG)

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_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

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ADF&G HABITAT STUDY SITE DESCRIPTION FORM

STUDY SITE # KN103401 M.V. INITIAL LAYOUT DATE 10-16-89
 Team Members Ben, East, Gustin Time (start/stop) 0947/1120
 Low Tide (time/ht.) 0830 +1.1 ft. High Tide (time/ht.) 1442 +1.5 ft.
 Weather: (sunny/cloudy/rain/fog/snow) Seas: (rough/moderate/calm)
 Wave Ht.: 1-2' Wind Dir.: (N-NE-E-SE-S-SW-W-NW) Knots: (0-10 10-20 20-30 30+)

LAYOUT AND BEACH PROFILE

TRANSECT LAYOUT: Compass bearing: 32° ^(TRUE NORTH) Length of transect: 54.3 M

STUDY AREA LOCATION AND DIMENSIONS (see maps): Lat. 60°29'36" Long. 147°41'12"
102m long by 64 m wide. Head of small, deep bay in lower Passage
North of Louis Bay.

LOCATION OF TRANSIT POINT; distance and bearing to local features, etc.:

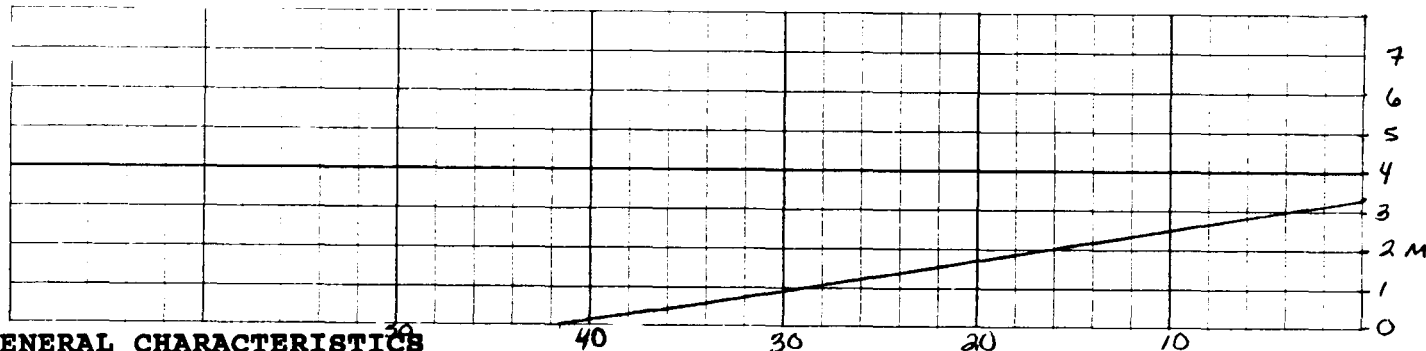
- ① 8" spruce tree 170.15°, 13.1 M - flagged + measured from flagging height.
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* BEACH ELEVATION PROFILE: Bearing from transit point: 3354° Inst. height: 1.6 M

Point # Location	Total elevation	Actual Elev. (tot-inst ht)	Distance from transit point	Slope (el/dist)
LTP (Lower transect point) midstream	<u>4.8 M</u>	<u>1.6 M</u>	<u>41.7 M</u>	<u>7.7°</u>

* full profile not done

Elevation Profile Graph



GENERAL CHARACTERISTICS

BEACH EXPOSURE: Aspect NE Wave Exposure: Hi Mod X Lo

SHORELINE DESCRIPTION Deep, narrow cove. 2 smaller streams to north of main stream due to heavy rains.

SUBSTRATE TYPES(%EA): Rock 10 Boulder(>10") 10 Cobble(2.5"-10") 30
 Pebble(.06"-2.5") 30 Sand/Mud(<.06") 20

GENERAL OILING CONDITIONS: Moderate band of oil becomes heavy along U1TZ on right side of stream (facing downstream). Tar patties + streaks in mid-low U1TZ.
Left side: light-moderate at mid-U1TZ. Light mousse, tar patties and streaks. Lighter oiling than right side.

BIOLOGICAL/OTHER OBSERVATIONS: Biota, fucus in L1TZ sparse, but appears healthy. Grasses at high tide and above.

WINTER STUDY
-1989

500.0

KN103

ACE 7378339

Approximate
Study Site Location

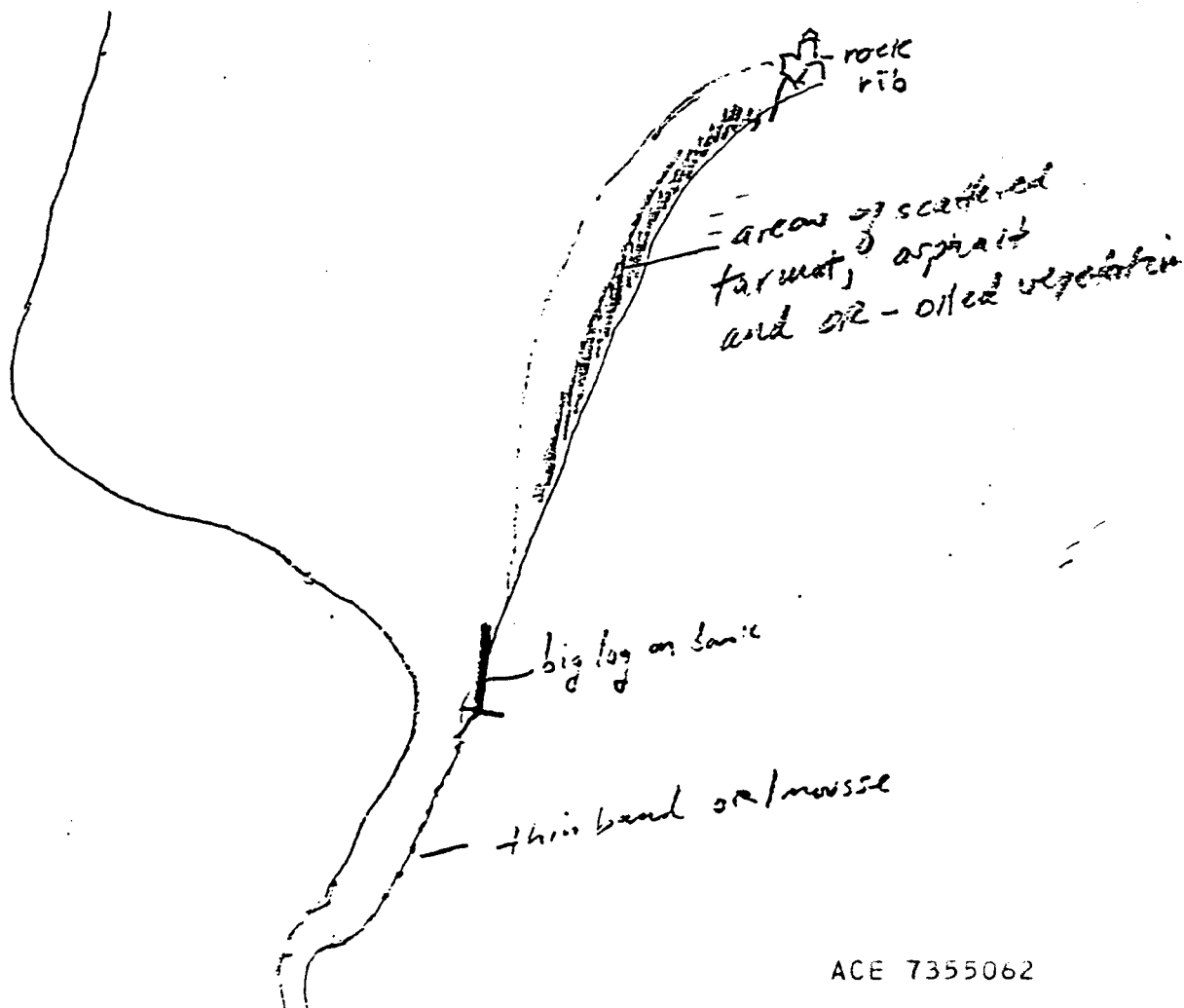
K

ANADROMOUS FISH STREAMS/OILING CONDITION
PWS

Segment # KN10U ASC# 226-10-16912 Location Karst Is.
Date 8/15/90 Recorder/Observer R. Gustin / T. Cane
Oil in streambed No Oil on streambanks Yes
Oil within 50m of mouth Yes Anadromous Fish present Yes

Description of oil and comments Primary area of concern is on
the left bank facing upstream just the back out towards
the rock point. Oil only consists of small patches of asphalt
for most and some of the more oil sediments.
Oil is primarily in upper intertidal right up to the 4000s,
much of this oil was assessed by manual probes
in this hole to sign off all streams by July 10.
Because of presence of fish recommend reassessment
in Spring 1991.

Oil Distribution Diagram



ADF&G MULTI-ASSESSMENT DATA FORM

Pre-ANADSCAT-90 AJW

SURVEY TYPE: BS SS DS TS AVS SCHA MMS PTA2 REGION: PWS KP, CI K, APMETHOD: Aerial Ground Boat3 DATE: 4-12-9015 HIGH TIDE TIMES: 121 TEAM RECORDER: P. Gustui4 START TIME: 120516 HIGH TIDE HTS: 122 OBSERVERS: 1 pilot5 STOP TIME: 120917 LOW TIDE TIMES: 123 AGENCY: APFG HAB6 SEGMENT #: KN10318 LOW TIDE HTS: 124 PHOTOS TAKEN: Y (N)

7 STATION #:

19 TIDE HT AT SURVEY:

Roll #: Frame:

8 K-UNIT:

Ebb Slack Flood Slack

25 VIDEO TAKEN: Y (N) TAPE#:

9 STAT AREA:

20 USCG QUAD:

Start: End:

10 LAT:

11 LONG:

26 SAMPLES TAKEN? Y (N) Number12 SOURCE: Map Loran13 LOCATION: KNIGHT ISLAND14 DESCRIPTION: NORTH END

Oil

Sediment

Biological

Water

EXTENT OF OIL

27 SURFACE COVERAGE

28 SURFACE THICKNESS

29 PENETRATION

30 OVERALL OIL IMPACT: N VL L M H31 OIL TYPE: Pooled Mousse Tar Asphalt Sticky Stain32 OILED DEBRIS? (Y) N33 SHORELINE TYPE: Headland Low-lying Rocks Beach Cove
Lagoon Marsh34 WAVE EXPOSURE: High Moderate Low35 SUBSTRATE TYPE: Bedrock Boulder Cobble ✓Gravel ✓ Sand Mud/silt36 CATALOGED ANAD. FISH STREAM? (Y) N37 CATALOG #: 226-10-100 16922 AJW

38 STREAM NAME:

39 OIL IN STREAM BED? (Y) N40 OIL ON STREAM BANKS? (Y) N41 OIL ON BEACH ADJACENT TO MOUTH? (Y) N
(within 50 meters)42 OIL WITHIN 1 MILE OF STREAM? (Y) NWhere: upper inter-tidal43 ANADROMOUS FISH PRESENT? Y (N)44 ANADROMOUS FISH OBSERVATION
Species Aerial Ground

COMMENTS: heavy deposits of asphalt/mousse.penetration 3-4 inches.mousse paddies oiled sands.may take dredging to clean up this.

ACE 7378337 +15

FRAME(S)

DESCRIPTION

46 OIL DISTRIBUTION DIAGRAM

See map KN103 UO1MM
 OPAL CREEK LOWER PASSAGE
 KNIGHT IS.

WINTER STUDY.

IT'S AN INDEPTH MAP OF
 ENTIRE OILED AREA
 THAT HASNT CHANGED
 ONE DAMN BIT SINCE
 NOV. 4 1989.

KN103/104 AJW
 226-10-16922

ASC NUMBER:	SEGMENT NUMBER:	YR CATALOGED:
LOCATION:		
STREAM NAME:		LATITUDE:
KODIAK K-UNIT:	LOCAL STREAM #:	LONGITUDE:
USGS QUADRANGLE:		LEGAL: S
SHORELINE TYPE:	ALL SEGMENTS:	

ASC NUMBER: 226-10-16922
 SURVEY TYPE:
 METHOD:
 DATE: 4/12/90
 START TIME:
 STOP TIME:

TEAM RECORDER:
 OBSERVERS:

AGENCY(IES):

PHOTOS TAKEN?
 Roll #: Frames:
 VIDEO TAKEN? Tape Number:
 Counter Start:

SAMPLES TAKEN?

SAMPLE I.D. NUMBERS: 1. 2. 3.
 4. 5. 6.

from map	LENGTH	WIDTH	M2	%	THICK	PEN	OIL TYPE
SITE 1	50 M	2 M		40			AP
SITE 2							
SITE 3							
SITE 4							
SITE 5							

OVERALL OIL IMPACT:

OIL IN STREAM CHANNEL?

OIL ON BEACH WITHIN 50M OF STREAM MOUTH?

SUBSTRATE	
Bedrock	Granule
Boulder	Sand
Cobble	Silt
Pebble	Veget.

SPECIES					
COUNT					

COMMENTS:

ANADSCAT-96 2

ADF&G MULTI-ASSESSMENT DATA FORM

1 SURVEY TYPE: ES SS CS TS AVS SC-H MMS PTA

2 REGION: PWS KP, CI K, AP

METHOD: Aerial Ground Boat

3 DATE: 4-21-90

15 HIGH TIDE TIMES: 1

21 TEAM RECORDER: Aimee Weseman

4 START TIME: 1300

16 HIGH TIDE HTS: 1

22 OBSERVERS: Rick Gustin

5 STOP TIME: 1405

17 LOW TIDE TIMES: 1730

23 AGENCY: ADFG

6 SECTANT #: KN-103

18 LOW TIDE HTS: 1

24 PHOTOS TAKEN: Y (N)

7 STATION #: _____

19 TIDE HT AT SURVEY: _____

Roll #: _____ Frame: _____

8 K-UNIT: _____

Ebb Slack Flood Slack

25 VIDEO TAKEN: (Y) N TAPE#: 90RL6001555

9 STAT AREA: _____

20 USCG QUAD: S B 2

Start: 1356 End: 1490

10 LAT: _____

11 LONG: _____

26 SAMPLES TAKEN? Y (N) Number

12 SOURCE: Map Loran

Oil _____

13 LOCATION: Knight Island

Sediment _____

14 DESCRIPTION: NE tip south of passage pnt

Biological _____

EXTENT OF OIL

Water _____

27 SURFACE COVERAGE

SHORELINE				STREAM			
L	W	M ²	%	L	W	M ²	%

36 CATALOGED ANAD. FISH SREAM? (Y) N

28 SURFACE THICKNESS

5-8	2	1					

37 CATALOG #: 226-10-16922

29 PENETRATION

38 STREAM NAME: 3rd Creek

30 OVERALL OIL IMPACT: N VL L M H

39 OIL IN STREAM BED? Y (N)

31 OIL TYPE: Pooled Mousse Tar Asphalt Sticky Stain

40 OIL ON STREAM BANKS? (Y) N

32 OILED DEBRIS? (Y) N tree

41 OIL ON BEACH ADJACENT TO MOUTH? (Y) N
(within 50 meters)

33 SHORELINE TYPE: Headland Low-lying Rocks Beach Cove
Lagoon Marsh

42 OIL WITHIN 1 MILE OF STREAM? (Y) N

Where: East west banks

34 WAVE EXPOSURE: High Moderate Low

43 ANADROMOUS FISH PRESENT? (Y) N Fry Presumed

35 SUBSTRATE TYPE: Bedrock Boulder 5 Cobble 55
Gravel 30 Sand 15 Mud/silt _____

44 ANADROMOUS FISH OBSERVATION
Species Aerial Ground

COMMENTS: shallow surface 50cm-1m wide oiled band on east side of stream
in LITZ. When crust is broken oil appears dark black/brown & very mobile
sporadic 30cm wide band running in LITZ on west side - no penetration

KN-103

3

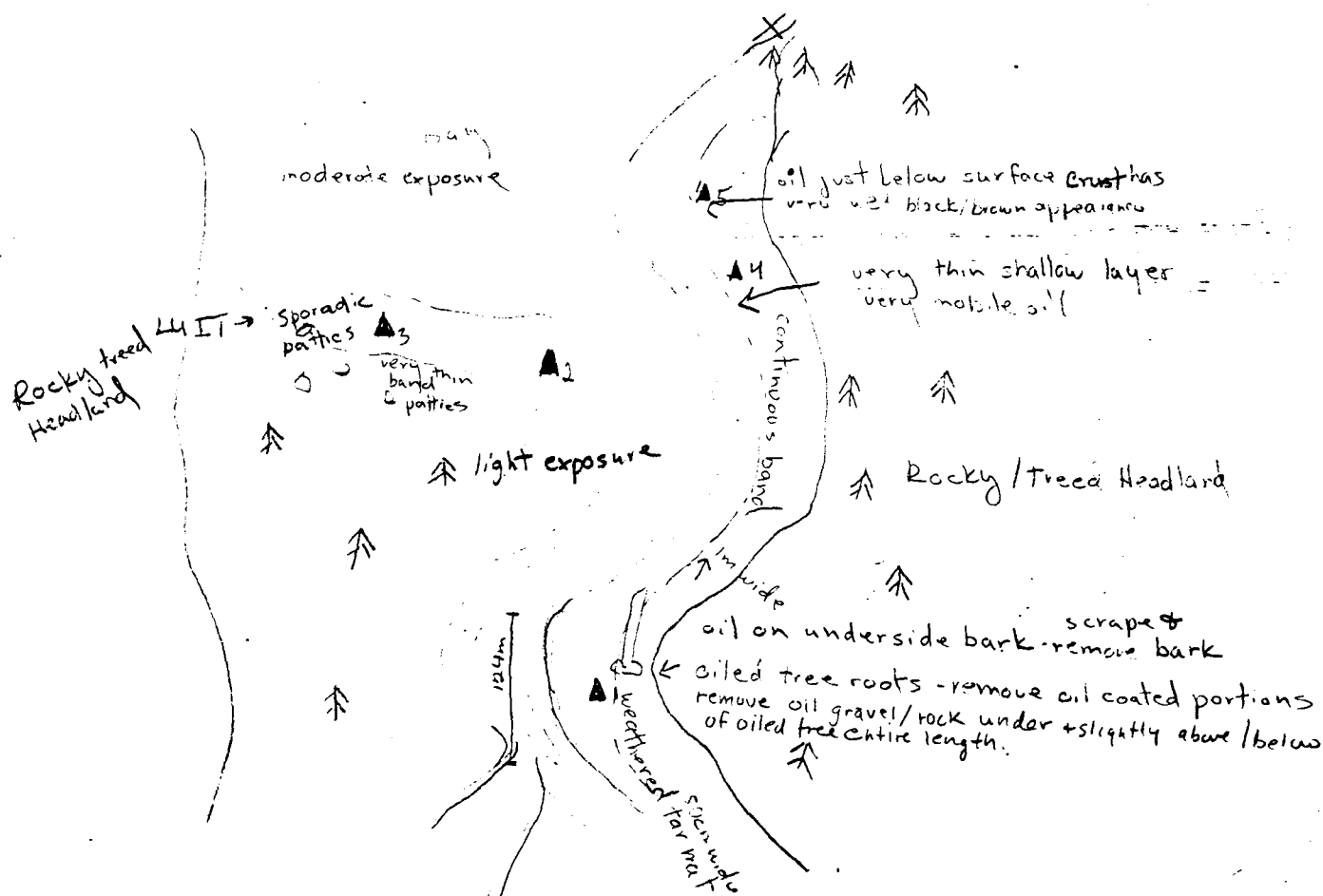
45 PHOTOLOG

226-10-16922

FRAME(S)

DESCRIPTION

Pit 1 - 38cm - no oil
 Pit 2 - 30cm - no oil
 Pit 3 - 20cm - no oil
 Pit 4 - 12cm - no oil
 Pit 5 - 28cm - 5-8% penetration - sheer on pooled water
 Pit 6 - 12cm - 1cm oil penetration
 130 meters from X to dead fall

46 OIL DISTRIBUTION DIAGRAM

Treatment Recommendations

remove & wipe larger rocks in oiled band on east side of stream then scrape up thin oil layer with rake or shovel & remove

Remove oiled parts of downed tree on east bank

move sporadic tar patties & discontinuous oiled tar band on west side

majority of work needs to be done on the east side

Treat during window period.

ACE 7378329

Agree with ADFS recommendations

Ken Butcher

Remove oiled parts of downed tree on east bank
Remove graphic tarpaltes & discontinuous oiled tar
band on west side.
The majority of work needs to be done on the east
side.
Treat during window period.

ADF&G MULTI-ASSESSMENT DATA FORM

1 SURVEY TYPE: BS SS DS TS AVS SCHM MMS PTA

2 REGION: PWS KP, CI K, AP

METHOD: Aerial Ground Boat

3 DATE: 4-21-90

15 HIGH TIDE TIMES: 1

21 TEAM RECORDER: Aimee Weseman

4 START TIME: 1300

16 HIGH TIDE HTS: 1

22 OBSERVERS: Rick Gustin

5 STOP TIME: 1405

17 LOW TIDE TIMES: 1730

23 AGENCY: ADFG

6 SEGMENT #: KN-103

18 LOW TIDE HTS: 1

24 PHOTOS TAKEN: Y N

7 STATION #:

19 TIDE HT AT SURVEY:

Roll #: Frame:

8 K-UNIT:

Ebb Slack Flood Slack

25 VIDEO TAKEN: Y N TAPE#: 90RL601555

9 STAT AREA:

20 USCG QUAD: S B 2

Start: 1356 End: 1490

10 LAT:

11 LONG:

26 SAMPLES TAKEN? Y N Number

12 SOURCE: Map Loran

13 LOCATION: Knight Island

14 DESCRIPTION: NE tip south of passage pnt

EXTENT OF OIL

	SHORELINE				STREAM			
	L	W	M ²	%	L	W	M ²	%
27 SURFACE COVERAGE								
28 SURFACE THICKNESS								
29 PENETRATION	5-8	2	1					

30 OVERALL OIL IMPACT: N VL L M H

31 OIL TYPE: Pooled Mousse Tar Asphalt Sticky Stain

32 OILED DEBRIS? Y N tree

33 SHORELINE TYPE: Headland Low-lying Rocks Beach Cove
Lagoon Marsh

34 WAVE EXPOSURE: High Moderate Low

35 SUBSTRATE TYPE: Bedrock Boulder 5 Cobble 55
Gravel 30 Sand 15 Mud/silt

36 CATALOGED ANAD. FISH SREAM? Y N

37 CATALOG #: 226-10-16922

38 STREAM NAME: Opal Creek

39 OIL IN STREAM BED? Y N

40 OIL ON STREAM BANKS? Y N

41 OIL ON BEACH ADJACENT TO MOUTH? Y N
(within 50 meters)

42 OIL WITHIN 1 MILE OF STREAM? Y N

Where: East west banks

43 ANADROMOUS FISH PRESENT? Y N Fry Presumed

44 ANADROMOUS FISH OBSERVATION
Species Aerial Ground

COMMENTS: shallow surface 50cm-1m wide oiled band on east side of stream
in LITZ. When crust is broken oil appears dark black/brown & very mobile
sporadic 30cm wide band running in LITZ on west side - no penetration

KN-103

3

45 PHOTOLOG

226-10-16922

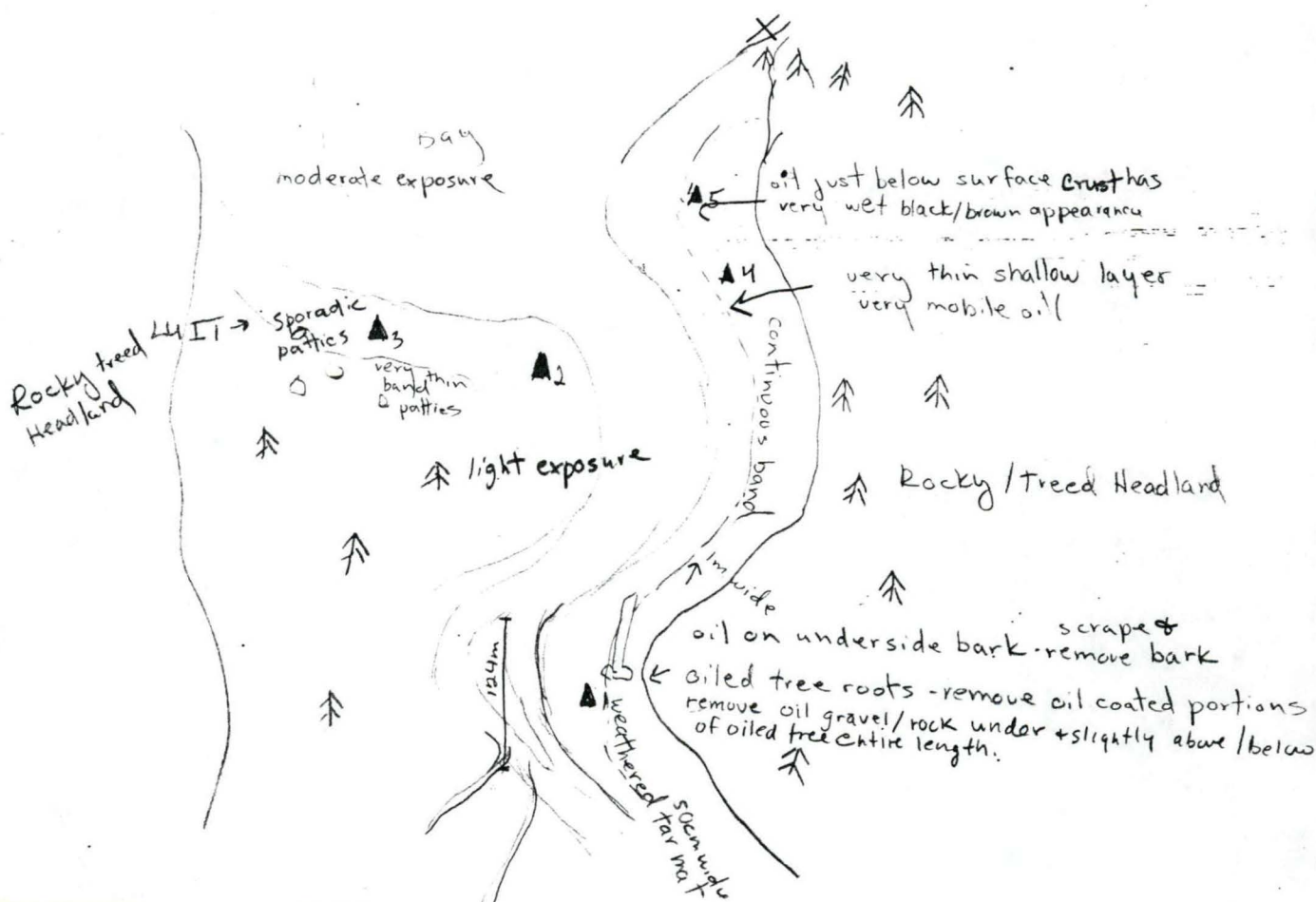
E(S)

DESCRIPTION

Pit 1 - 38cm - no vis oil
 Pit 2 - 30cm - no vis oil
 Pit 3 - 20cm - no vis oil
 Pit 4 - 2cm - no subsurface 2cm surface oil
 Pit 5 - 28cm - 5-8 oil penetration - sheen on pooled water
 Pit 6 - 12cm km oil penetration

130 meters from X to dead fall

46 OIL DISTRIBUTION DIAGRAM

**Treatment Recommendations**

remove & wipe larger rocks in oiled band on east side of stream then
 scrape up thin oil layer with rake or shovel & remove

Remove oiled parts of downed tree on east bank

Remove sporadic tar patches & discontinuous oiled tar band on west side

The majority of work needs to be done on the east side

Treat during window period.

ACE 7378329

Sample taken
 Photo frame # and
 shot direction.

Agree with ADFG recommendations

Ken Crotchlow

ASC NUMBER:	SEGMENT NUMBER:	YR CATALOGED:
LOCATION:		
STREAM NAME:		LATITUDE:
KODIAK K-UNIT:	LOCAL STREAM #:	LONGITUDE:
USGS QUADRANGLE:		LEGAL: S
SHORELINE TYPE:	ALL SEGMENTS:	

ASC NUMBER: 226-10-16922
 SURVEY TYPE:
 METHOD:
 DATE: 4/24/90
 START TIME:
 STOP TIME:

TEAM RECORDER:
 OBSERVERS:

AGENCY(IES):

PHOTOS TAKEN?

Roll #:

Frames:

VIDEO TAKEN?

Tape Number:

Counter Start:

SAMPLES TAKEN?

SAMPLE I.D. NUMBERS: 1.
 4.

2.
 5.

3.
 6.

	LENGTH	WIDTH	M2	%	THICK	PEN	OIL TYPE
SITE 1	50 m	1 m		40			AP
SITE 2		30 cm					AP/TR
SITE 3							
SITE 4							
SITE 5							

OVERALL OIL IMPACT:

OIL IN STREAM CHANNEL?

OIL ON BEACH WITHIN 50M OF STREAM MOUTH?

SUBSTRATE

Bedrock	Granule
Boulder	Sand
Cobble	Silt
Pebble	Veget.

SPECIES					
COUNT					

COMMENTS:

ADF&G MULTI-ASSESSMENT DATA FORM

- 1) SURVEY TYPE: BS SS 2) REGION: PWS KP, CI K, AP
- 3) METHOD: Aerial Ground Boat
- 4) DATE: 5/1/91 16) HIGH TIDE TIME: _____ 22) TEAM RECORDER: Aimee Weseman
- 5) START TIME: 1200 17) HIGH TIDE HTS: _____ 23) OBSERVERS: Tom Crowe
- 6) STOP TIME: 1315 18) LOW TIDE TIMES: 0930 24) AGENCY: ADF&G
- 7) SEGMENT #: KN103A 19) LOW TIDE HTS: -1 25) PHOTOS TAKEN: Y N
- 8) K-UNIT: _____ 20) TIDE HT AT SURVEY: +2 to 3 ROLL #: _____ FRAMES: _____
- 9) LAT: _____ Ebb Slack Flood Slack 26) VIDEO TAKEN: Y N
- 10) LONG: _____ 21) USCG QUAD: _____ TAPE # _____
- 11) ASC #: 226-10-16922 START: _____ STOP: _____
- 12) STREAM NAME: _____ 27) SAMPLES TAKEN? Y N
- 13) LOCATION: near Louis Bay, Knight I SAMPLE I.D. _____
- 14) WAVE EXPOSURE: High Moderate Low
- 15) SHORELINE TYPE: Headland Low-lying Rocks Beach
- Cove Lagoon Marsh

28) EXTENT OF OIL

	LENGTH m	WIDTH m	M2	%	THICK cm	PEN cm	OIL TYPE
SITE 1	<u>20</u>	<u>1</u>		<u><1</u>	<u>3</u>		<u>AP/HSOR</u>
SITE 2	<u>10m</u>	<u>.5</u>		<u><10</u>	<u>3</u>		<u>HSOR/AP</u>
SITE 3							
SITE 4							
SITE 5							

29) OVERALL OIL IMPACT:

- H = >6m band with $\geq 50\%$ oil coverage
- M = >6m band with $\leq 50\%$ oil coverage or $\geq 3m$ to $\leq 6m$ with $\geq 10\%$ oil coverage
- L = <3m band with $> 10\%$ oil coverage
- VL = $\leq 10\%$ oil coverage regardless of band width
- N = No oil observed

33) ANADROMOUS FISH PRESENT: Y N

30) OIL IN STREAMBED: Y N

31) OIL ON BEACH ADJACENT TO MOUTH: Y N

32) SUBSTRATE TYPE (PERCENT):

Bedrock _____ Boulder 5 Gravel 30 Sand 15 Cobble 50 ~~85~~ Mud/Silt _____

34) WILDLIFE OBSERVATION

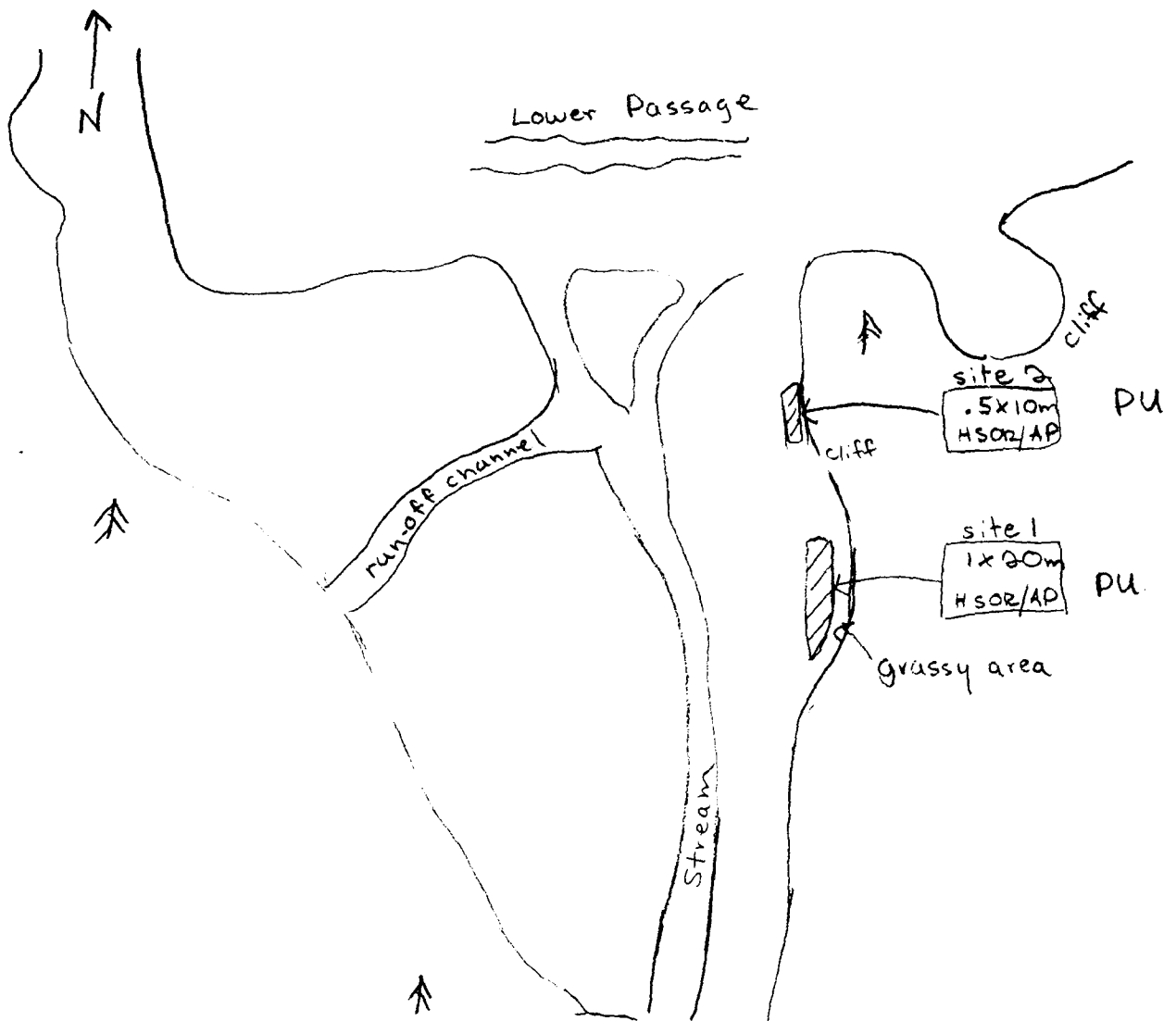
Species	Number
<u>Heron</u>	<u>1</u>
<u>Sea Otter</u>	<u>1</u>
<u>Eagle</u>	<u>1</u>

35) COMMENTS:

The small amount of remaining AP/HSOR sediments were removed during the survey. Remaining LSOR sediments were tilled. No subsurface oil detected. No treatment recommended

MAYSAP
5/1/91
A. Weseman

KN 103 A ASC# 226-10-16922



ADF&G HABITAT STUDY SITE DESCRIPTION FORM

STUDY SITE # KN103401MM INITIAL LAYOUT DATE 10/16/89
 Team Members BEN, EAST, GUSTIN TIME (Start/Stop) 0947 - 1120
 LOW TIDE (time/ht.) 0836, 1.1' HIGH TIDE (time/ht.) 1442, 15.9'
 Weather: (Sunny/ Cloudy / Rain / Fog / Snow) Seas: (Rough/ Moderate / Calm)
 Wave Ht: 1-2' Wind Dir.: (N-NE-E-SE-S-SW-W-NW) Knots: (0-10 10-20 20-30 30+)

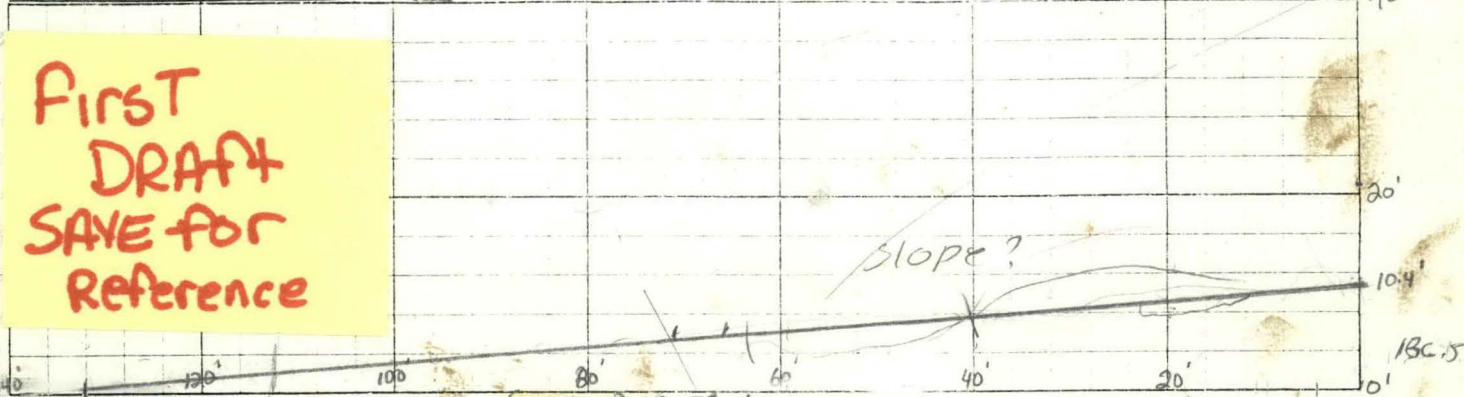
LAYOUT AND BEACH PROFILE

LOCATION OF TRANSIT REFERENCE POINT (Distance to Local Features, etc.):

N Side of stream - ULTZ - ~~2~~ 8" spruce 1368°, 13.1 M, Spruce 825°, 17.0 M
to S side of stream ULTZ

BEACH ELEVATION PROFILE: Bearing: 8.9 (351.1°) Time: 1030
 Vertical Elevation (15.7') - Instrument Ht. (53") = Reference Point Ht. (10.4').
 Distance to present tide line: 41.7 M Slope: 3.17 M

Elevation Profile Graph



TRANSECT LAYOUT: Bearing (326.5) 6.5° N Time: 1004
 Length (distance to present tide line) 54.6 M
other stake at ULTZ on S Bank

GENERAL CHARACTERISTICS

BEACH EXPOSURE: Aspect NE Wave Exposure: Hi Mod X Lo

SHORELINE DESCRIPTION Deep narrow cove. 2 smaller streams flowing to N of main stream due to heavy rains.

STUDY AREA LOCATION AND DIMENSIONS (see segment map) 54.6 M Across.

SUBSTRATE TYPES(%EA): Rock 10 Boulder 10 Cobble 20 Pebble 20
 Granule 20 Sand 20 Mud

GENERAL OILING CONDITIONS: Moderate. Band of oil to fairly heavy along ULTZ on S side of stream. Lt-mod at MITZ N Side - mossy patches + streaks.

POTENTIAL FOR RE-OILING:

OTHER OBSERVATIONS Fucus in LITZ sparse but appears healthy, grasses + algae above intertidal.

ADF&G HABITAT STUDY SITE DESCRIPTION FORM

STUDY SITE # KN103UO1MM
 Team Members BEN, EAST, GUSTIN INITIAL LAYOUT DATE 10/16/89
 LOW TIDE (time/ht.) 0836, 1.1' TIME (Start/Stop) 0947, 1120
 HIGH TIDE (time/ht.) 1442, 15.9'
 Weather: (Sunny/ Cloudy / Rain / Fog / Snow) Seas: (Rough/ Moderate / Calm)
 Wave Ht: 1-2' Wind Dir.: (N-NE-E-SE-S-SW-W-NW) Knots: (0-10 10-20 20-30 30+)

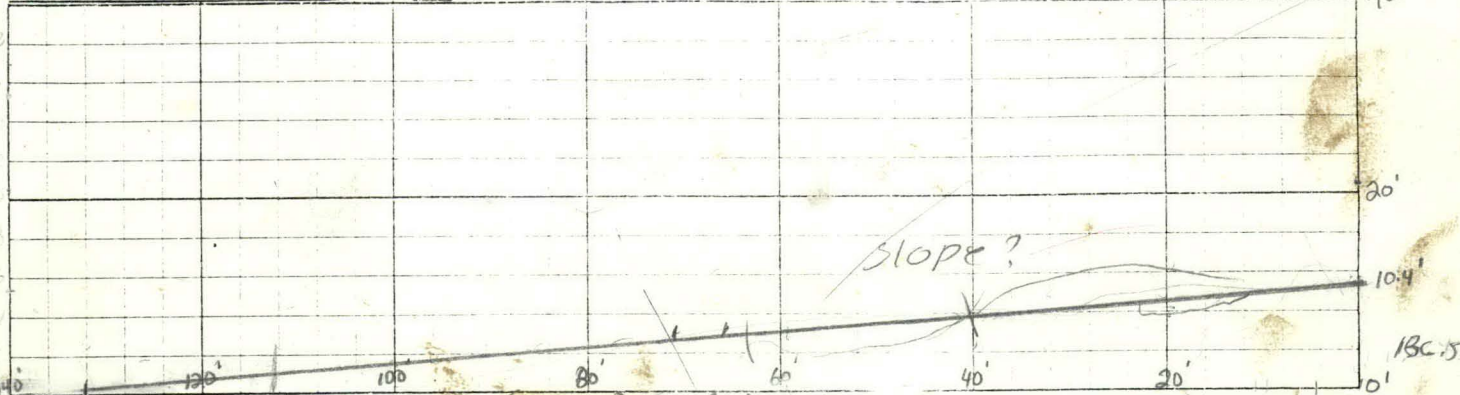
LAYOUT AND BEACH PROFILE

LOCATION OF TRANSIT REFERENCE POINT (Distance to Local Features, etc.):

N Side of stream - U1TZ - 2nd spruce 1568°, 13.1 M, Spruce 825°, 17.0 M
to S side of stream U1TZ

BEACH ELEVATION PROFILE: Bearing: 8.9° (351.1°) Time: 1030
 Vertical Elevation (15.7') - Instrument Ht. (53") = Reference Point Ht. (10.4')
 Distance to present tide line: 41.7 M Slope: 3.17 M

Elevation Profile Graph



TRANSECT LAYOUT: Bearing (326.5) 6.5° N Time: 1004
 Length (distance to present tide line) 54.6 M
other stake at U1TZ on S Bank

GENERAL CHARACTERISTICS

BEACH EXPOSURE: Aspect NE Wave Exposure: Hi Mod X Lo

SHORELINE DESCRIPTION Deep narrow cove. 2 smaller streams flowing to N of main stream due to heavy rains.

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SUBSTRATE TYPES(%EA): Rock 10 Boulder 10 Cobble 20 Pebble 20
 Granule 20 Sand 20 Mud

GENERAL OILING CONDITIONS: Moderate. Band of oil to fairly heavy along U1TZ on S side of stream. Lt-mod at MITZ. N Side - mosses patches + streaks.

POTENTIAL FOR RE-OILING:

OTHER OBSERVATIONS Fucus in LITZ sparse but appears healthy, grasses + mounds above intertidal.

ADF&G STREAM HABITAT EVALUATION

STUDY SITE # KN103 401 MM DATE 10/16/89
 Location Lower Passage, N. of Louis Bay, Knight I Lat. 60°29'36" Long. 147°41'12"
 Team Members D. BEN, M. EAST, R. GUSTIN TIME (start/stp) 0947 - 1120
 Low Tide (time/ht.) 0836, 1.1' High Tide (time/ht.) 1442, 15.9'
 Weather: (Sunny/ Cloudy/ Rain/ Fog/ Snow)
 Seas: (Rough/ Moderate/ Calm) Wave Height: 1-2'
 Wind direction: (N-NE-E-SE-S-SW-W-NW) Knots: (0-10 10-20 20-30 30+)

STREAM MORPHOLOGY (measured from transit point)

<° and distance to UITZ 43.6m, 74° LITZ 8.9, 41.7m midstream points
 <° and distance to left streambank 18.0m 326.5° right streambank 31.8m
 Observations: (berms, tide pools, etc.)

PHOTO DOCUMENTATION (taken from transit point)

<° 74° photo roll/number P-89WP001-V, 1 and 2
 <° 26.5° photo roll/number P-89WP001-V, 3
 <° 326.5°, 331° photo roll/number P-89WP001-V, 4 and 5
 Video scan No video camera will get next time. V-89WP001-V, 1340-1450
 Aerial photo Not done due to high winds P-89WP001-V frames 14, 15, 16, 17

OIL MEASUREMENT, OBSERVATIONS

Area of Impact	Width of band	Length of band	Continuous? (Y/N)	%Coverage	Surface/ Subsurface
UITZ					
MITZ (LB)	<u>15M</u>	<u>17.1M</u>	<u>NO</u>	<u>80%</u>	<u>both, 2" down</u>
LITZ					

1/2M² Sample Plot

Location(<°, dist.)	%Coverage	Depth	Oil Type, Consistency
(3) UITZ <u>357.45° (RB) 51.2m</u>	<u>100%</u>	<u>7' (at least)</u>	pooled <u>×</u> mousse <u>×</u> coated <u>×</u> mobile <u>×</u> tarry <u>×</u> asphalt <u>×</u> stain <u>×</u>
recheck (3) MITZ <u>40° (RB) 46.2</u>	<u>100%</u>	<u>3.5"</u>	pooled <u>×</u> mousse <u>×</u> coated <u>×</u> mobile <u>×</u> tarry <u>×</u> asphalt <u>×</u> stain <u>×</u>
" (1) LITZ <u>2° (RB) 42.9</u> <u>2' above boulder (1 1/2 x 2")</u>	<u>80%</u>	<u>2"</u>	pooled <u>×</u> mousse <u>×</u> coated <u>×</u> mobile <u>×</u> tarry <u>×</u> asphalt <u>×</u> stain <u>×</u>
(4) <u>291.45° (LB) 17.25m</u>	<u>80%</u>	<u>2"</u>	

SAMPLES TAKEN: Sediment (S), Gross Oil (GO), or Indicator Organism (ORG)

[illegible]

Biological Damage, Other Observations:

ACE 6332059

BEACH PROFILE MAP

STUDY SITE # KN103U01MM

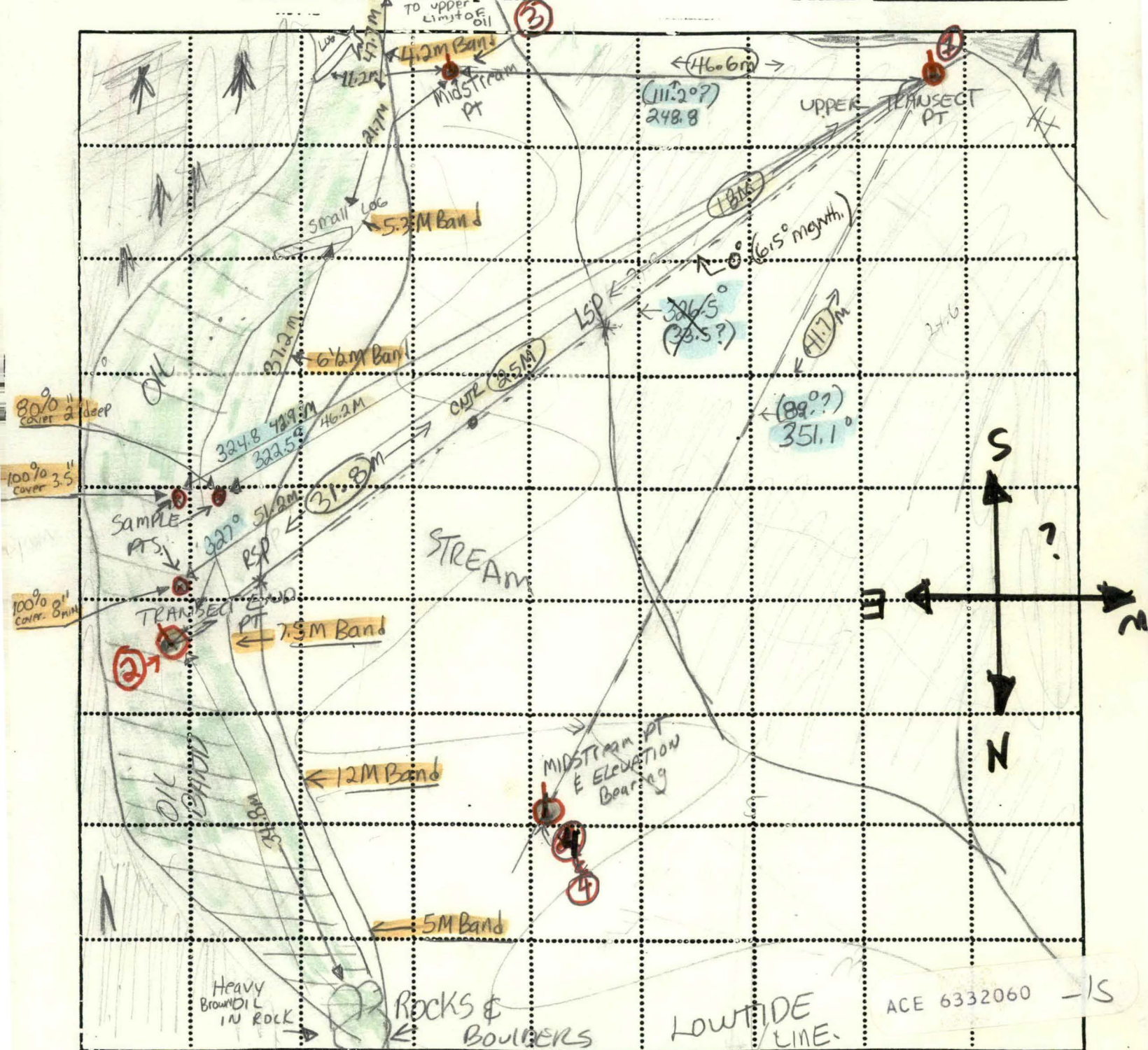
DATE 10-16-89

LOCATION LOUIS BAY KNIGHT ISLAND

TIME 0947-1120

Key: 1-Transit Point (Upper end transect) 2-Lower End Transect
3-UITZ midstream point (90° from transit point)
4-LITZ midstream point

SCALE: NONE



CHECK BEARINGS

OIL
Bearings
oil description
DISTANCES

1 Set POINT Rebar
2 degree only
3 KEY POINTS

ANADROMOUS FISH STREAM EVALUATION

*Extra
Copies of
Anadscat*

SEGMENT ST/ KN-103 STREAM NO: 226-10-16922 DATE 4/21/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

1A Salmon stream mouth - fry outmigration (3/1 to 5/15)
1B Salmon stream mouth - spawning (7/10 to 8/31)
5T-1 All bald eagle nests (3/1 to 6/1) within 400m
6Y Recreation: Special use destination

See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Subject stream is located within subdivision A (1 of 1). No additional ecological constraints.

ARCHAEOLOGICAL CONSTRAINTS:

If cultural resources are uncovered during shoreline treatment, stop work in the vicinity, mark the location of the find and contact Exxon's Cultural Resource Program immediately (564-3276 (Anchorage) or 229-1508 (24 hrs.)).

SHPO SIGNATURE: Rachel Dan O'm DATE: 5/22/90

Subsurface Oil Observed: Yes X No Maximum Depth 8cm

RECOMMENDATIONS:

<u> </u> No Treatment Recommended	<u> </u> Snare/Absorbent Booms
<u>X</u> Treatment Recommended	<u> </u> Oil Snares (pom poms)
<u>X</u> Manual Pickup	<u> </u> Absorbents (pads, rolls, etc)
<u>X</u> Bioremediation	<u> </u> Spot Washing: <u> </u> Wands
<u>X</u> Tarmat Removal	<u> </u> Beach Cleaner
	<u> </u> Other (see comments)

COMMENTS: Recommend manual removal of pavement in the UITZ and bark from oiled log in the UITZ as indicated on the attached sketch map. Work from 6/2 to 7/9 with approval of USFWS regarding eagle nest.

TAG COMMENTS: BIOREMEDIATE (CUSTOMER) IF REQUIRED FOLLOWING TARMAT Removal

TAG APPROVAL DATE: 5/18/90

ADEC AAR WEINER AAR Weiner

EXXON AMY TAN AAR

NOAA GARY PETROS GARY Petros

USCG G.A. REITER G.A. Reiter

FOSC

[Signature]

DATE: MAY 25 1990

15/51

SEGMENT STI KN103

STREAM 226-10-16922

DATE 4 121 90 2 →

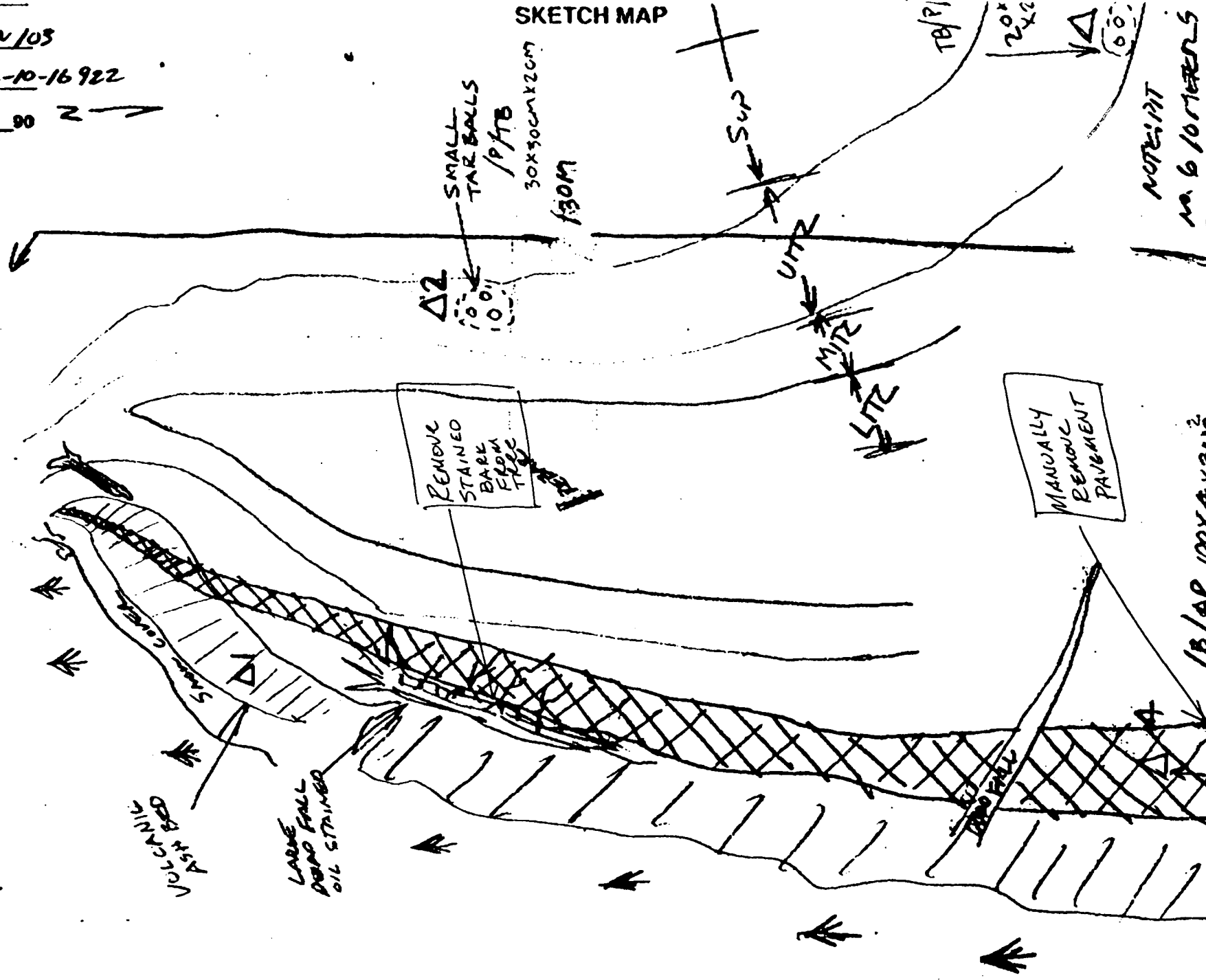
CHECKLIST

- N Arrow
- Approx. Scale
- Seg/Sub Body
- Of Dist.
- Width
- Length
- % Cover
- Substrate Character
- Est. 1994 LVL
- SBL
- Profile Location(s)
- Profile(s)
- Pk Location(s)
- Photo Location(s)

LEGEND

- 1 Δ
- PR - No Subsurface Oil
- 2 Δ
- PH - Subsurface Oil
- CT/C
- Continuous Distribution
- CT/B
- Broken Distribution
- CT/P
- Patchy Distribution
- CT/S
- Splashed Distribution
- eee
- Old Vegetation
- 1 →
- Photo location, direction, and number

SKETCH MAP



Oil Character Length (m): AP PO CV CT 120 ST MS PT TB 6 @ 10cm FL NO

ACE 7378307

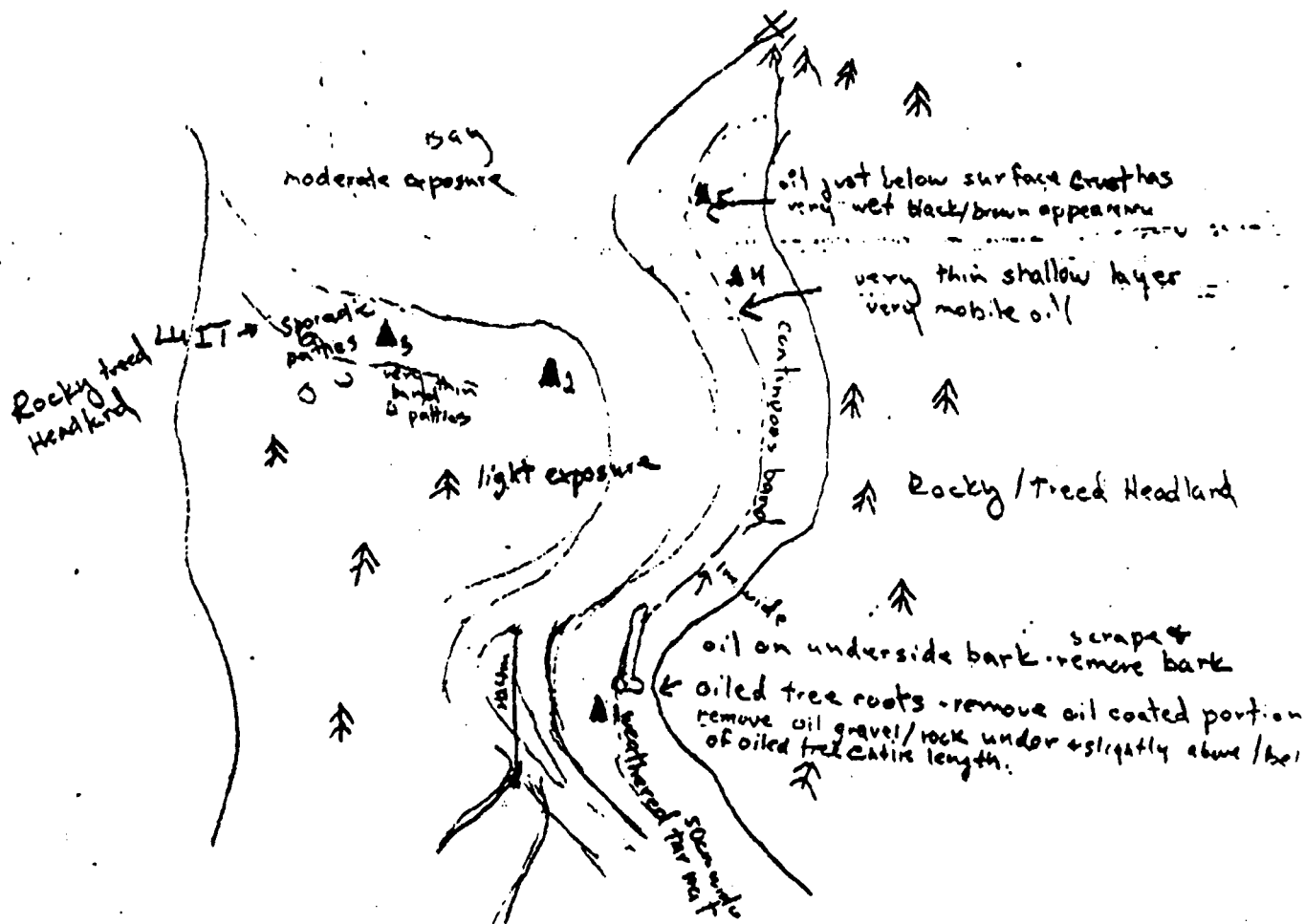
HPF-22-1990 12126 FROM MICH. DIV. OF HIGHWAY

KN-103 35/51

43 PHOTOLOG

FRAME(S)	DESCRIPTION
	Pit 1 - 38cm - no vis oil
	Pit 2 - 30cm - no vis oil
	Pit 3 - 20cm - no vis oil
	Pit 4 - 2cm - no subsurface 2cm surface
	Pit 5 - 28cm - 5.8cm penetration - sheen on pooled water
	Pit 6 - 12cm - km oil penetration
	130 meters from X to dead fall

48 OIL DISTRIBUTION DIAGRAM



Treatment Recommendations

remove & wipe larger rocks in oiled band on east side of stream then
scrape up thin oil layer with rake or shovel & remove

Remove oiled parts of downed tree on east bank

Remove sporadic tar patches & discontinuous oiled tar band on west side

The majority of work needs to be done on the east side

Treat during window period.

ACE 7378308

Sample taken

Agree with ADFG recommendations

50/51

FIELD SHORELINE COMMENT SHEET

SEGMENT ST / KN-103 SUBDIVISION: ^{Asc#} 226-10-16922 DATE 4-21-90

USCG

NAME Kerwin L. Drahan SIGNATURE CWO2 K. L. Drahan

☐ NO TREATMENT RECOMMENDED
COMMENTS

☒ TREATMENT SUGGESTED

Agree

~~ADEC~~ → ADFG

NAME Rick Gustin SIGNATURE Richard J. Gustin

☐ NO TREATMENT RECOMMENDED

☒ TREATMENT SUGGESTED

COMMENTS We recommend removal + wiping of larger rocks in oiled band on the east side of the stream, followed by scraping up the thin oil layer with rake or shovel and remove.

Remove oiled parts of downed tree on east bank.

Remove sporadic tar patties + discontinuous oiled tar band on west side

The majority of work needs to be done on the east side.

Treat during window period.

~~LAND MANAGER~~ → NONE

NAME _____ SIGNATURE _____

☐ NO TREATMENT RECOMMENDED

☐ TREATMENT SUGGESTED

COMMENTS

SHORELINE OILING SUMMARY (ANAO)

REVISION NO. 04/13/

OG GAL LARSON USCG DREHER, CWE SEGMENT ST/ KN103
 BIO KEN CRITCHLOW LAND REP STREAM 226-10-16922 (OF)
 EXXON DALLAS YVES ADFG RAKAVIN-AIMEE WESEMAN TIME 12:55 to 1:00
 TEAM NO. 104 TIDE LEVEL +6 FT DATE 4/21/90
 EST. SUBDIVISION LENGTH: 230 m ☒ Sun ☐ Clouds ☐ Fog ☐ Rain ☐ Snow
 UPLANDS DESCRIPTION: ☐ Grass ☐ Forest ☐ Rock
 SURVEYED FROM: ☐ Foot ☐ Boat ☐ Helo
 SURFACE SEDIMENTS: R 5 % B 5 % C 55 % P 10 % G 20 % S 10 % M 0 % V 0
 SLOPE: Long 50 % Hang 70 % Vert 0 % WAVE EXPOSURE: ☐ Low ☒ Med ☐ High
 OIL CATEGORY LENGTH: W 0 m M 120 m N 0 m VL 0 m NO 110 m

SURFACE OIL

CHARACTER	DISTRIBUTION				OIL / FILM COLOR				IMPACTED ZONES			
	C	R	P	S	SW	W	M	U	SW	W	M	U
ASPHALT PAVEMENT	✓				✓				✓			
POOLED												
COVER												
COAT	✓				✓				✓			
STAIN												
MOUSSE												
PATTIES												
TARBALLS			X		✓				✓			
FILM												
NO OIL									✓	✓	✓	✓

PAVEMENT H F (3) 480 sq. m by .3 c

PATTIES / TARBALLS 0 BAGS

NEAR SHORE SHEEN? NO BR RW SL TL

OILED DEBRIS	AMOUNT		
	SM	MD	LG
Logs			
Vegetation			
Trash			
Debris			

Did You Collect DEBRIS
☐ YES ☒ NO

TYPE 0

#BAGS 0

Photographs:

Roll No. 0

Frames 0

SUBSURFACE OIL

PIT NO.	PIT DEPTH (cm)	SUBSURFACE OIL CHARACTER					OILED INTERVAL	BELOW		OIL / FILM COLOR				PIT ZONE				A N A	SHEEN (Y/N)	↓	SURFACE SUBSURFACE SEDIMENTS
		OP	OR	OL	OP	NO		NO	UC	SW	W	M	U	SW	W	M	U				
1	30					✓	0							✓				N	✓		ASH/ASH
2	30					✓	0							✓				N	✓		OR, SO / OR, SO
3	20					✓	0							✓				N	✓		OR, SO / OR, SO
4	28					✓	0							✓				N	✓		OR, SO / OR, SO
5	28	✓	✓				5-8	✓	✓					✓				Y	✓		OR, SO / OR, SO
6	12					✓	0							✓				N	✓		OR, SO / OR, SO

COMMENTS WEST SIDE OF COVE OILED BAND EXTENDING BEYOND 120 METER
 NO SHEEN OBSERVED. VOLCANIC ASH OBSERVED UPPER U.T.2:

ACE 7378318

REVIEWED AW

DATE 5-1-90

3A/51

ADFG MULTI-ASSESSMENT DATA FORM

1 SURVEY TYPE: BS (33) OS TS AVS SCH MMS PTA2 REGION: (PWS) KP,CI X,APMETHOD: Aerial (Ground) Boat3 DATE: 4-21-9015 HIGH TIDE TIMES: 121 TEAM RECORDER: Aimee Wesemc4 START TIME: 130016 HIGH TIDE HTS: 122 OBSERVERS: Rick Gustin5 STOP TIME: 140517 LOW TIDE TIMES: 173023 AGENCY: ADFG6 SEGMENT #: KN-10318 LOW TIDE HTS: 124 PHOTOS TAKEN: Y (N)

7 STATION #: _____

19 TIDE HT AT SURVEY: _____

Roll #: _____ Frame: _____

8 K-UNIT: _____

(Ebb) Slack Flood Slack25 VIDEO TAKEN: (Y)N TAPES: 90RL601555

9 STAT AREA: _____

20 USCG QUAD: SBAStarts: 1356 Ends: 1490

10 LAT: _____

11 LONG: _____

26 SAMPLES TAKEN Y (N) Number12 SOURCE: (Map) Loran

Oil _____

13 LOCATION: Knight Island

Sediment _____

14 DESCRIPTION: NE tip south of passage pnt

Biological _____

Water _____

EXTENT OF OIL

	SHORELINE				STREAM			
	L	V	M	S	L	V	M	S
27 SURFACE COVERAGE								

36 CATALOGED ANAD. FISH STREAM? (Y)N

	L	V	M	S	L	V	M	S
28 SURFACE THICKNESS								
29 PENETRATION	5-8	2	1					

37 CATALOG #: 226-10-1692238 STREAM NAME: Opal Creek39 OIL IN STREAM BED? Y (N)40 OIL ON STREAM BANKS? (Y)N30 OVERALL OIL IMPACT: N VL (L) (M) H41 OIL ON BEACH ADJACENT TO MOUTH? (Y)N
(within 50 meters)31 OIL TYPE: Pooled House Tar (Asphalt) (Sticky) (Stain)42 OIL WITHIN 1 MILE OF STREAM? (Y)N32 OILED DEBRIS? (Y)N treeWhere: East west banks33 SHORELINE TYPE: Headland Low-lying Rocks Beach (Cove)
Lagoon Marsh43 ANADROMOUS FISH PRESENT? (Y)N Presume34 WAVE EXPOSURE: High (Moderate) (Low)44 ANADROMOUS FISH OBSERVATION
Species Aerial Ground35 SUBSTRATE TYPE: Bedrock Boulder 5 Cobble 55Gravel 30 Sand 15 Mud/silt _____

Species	Aerial	Ground

Comments: shallow surface 50cm-1m wide oiled band on east side of stream
in UTTZ. When crust is broken oil appears dark black/brown & very mobile.
Sporadic 30cm wide band running in UTTZ on west side - no penetration

SHORELINE EVALUATION

SEGMENT ST/ KN-103 SUBDIVISION A (1 OF 1) DATE 4/9/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

1A Salmon stream mouth - fry outmigration (3/1 to 5/15)

1B Salmon stream mouth - spawning (7/10 to 8/31)

5T All bald eagle nest (3/1 to 6/1)-Active eagle nest (3/1 to 9/1)

6Y Recreation: Special use destination

See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Avoid any unnecessary disturbance or damage to uncoiled biota and substrate.

ARCHAEOLOGICAL CONSTRAINT: An Exxon archaeological monitor is required on-site during shoreline treatment.

rk
of
4-

>>> PHONE 564-3274 (Anchorage) OR 229-1508 (24 hrs.) <<<

SHPO SIGNATURE: Rachel Joan Dale DATE: 5/22/90

OILING CATEGORIZATION:

Wide 74 m: Medium 0 m: Narrow 744 m: V.Light 1044 m: No Oil 0 m
Subsurface Oil Observed: Yes No X Maximum Depth

RECOMMENDATIONS:

<u> </u> No Treatment Recommended	<u> </u> Snare/Absorbent Booms
<u>X</u> Treatment Recommended	<u> </u> Oil Snares (pom poms)
<u>X</u> Manual Pickup	<u> </u> Absorbents (pads, rolls, etc)
<u> </u> Bioremediation	<u> </u> Spot Washing: <u> </u> Wands
<u>X</u> Tarmat: <u> </u> Breakup	<u> </u> Beach Cleaner
<u> </u> <u>X</u> Removal	<u> </u> Other (see comments)

COMMENTS: Recommend manual removal of tarmats and manual pick up of
patties and tarballs. Work should be conducted from 5/16 to 7/9 based
on salmon constraints and with approval from ADF&G and USFWS regarding
eagle nest.

TAG COMMENTS: DUE TO RICH LOWER INTERTIDAL NO BIORECOMMENDED
MONITORS TO REASSESS SITUATION DURING TREATMENT.

TAG APPROVAL DATE: 4/18/90

ADEC ART WEINER Art Weiner

EXXON ART TOL Art Tol

NOAA Burt Weisheit Burt Weisheit

USCG G.A. REITER G.A. Reiter

FOSC [Signature]

DATE: MAY 25 1990
MAY 25 1990

FOOTING (AL) 100%

UITZ 2-3m wide ST/A
ST on tops of seeds CT/P
CT on sides and bottoms of seeds AP/S
AP to 50 cm diameter, 4cm thick

1A, 1B
ST. 1
67

KN-103-A
2282 m

WITZ tops
of clip ST/P
6-8m wide
50m long

ST/P CT/P PT/S UITZ

ST/P AP/B UITS C/P/G
2-3 m wide x 25 m long
AP soft, 2-3 cm thick

On backsides
of large B
on U12

UITZ

S	/	S
P	/	S

WITZ

ST/S
CT/S

 →

WITZ ST/S

m-UITZ 10/5
Tar splatters on UITZ B
Tar balls at head of stream

SKETCH MAP AREA

UITZ
LangCP
P/C/U

ST/S
UITZ
Lang C/P/B

ST	P	WITZ
IB	S	HangR
R	C	Sm Tong

Handwritten notes:

10/13/73
ST/CT
Hang C/PL
L/ETZ

Hang grassy
CIP bank
UITZ

4 cm - 3 m wide
17.5 m long
Hard AP to 4 cm thick

ACE 7378326 45

Map Key: PWS-283

NAME: C. DILLON

04/07/90

XXXX Wide

//// Medium

----- Narrow

TTTT Varv linki

KN-103

EXXON SEGMENT LENGTH : 2282m

ADEC Segment Length: 1862m

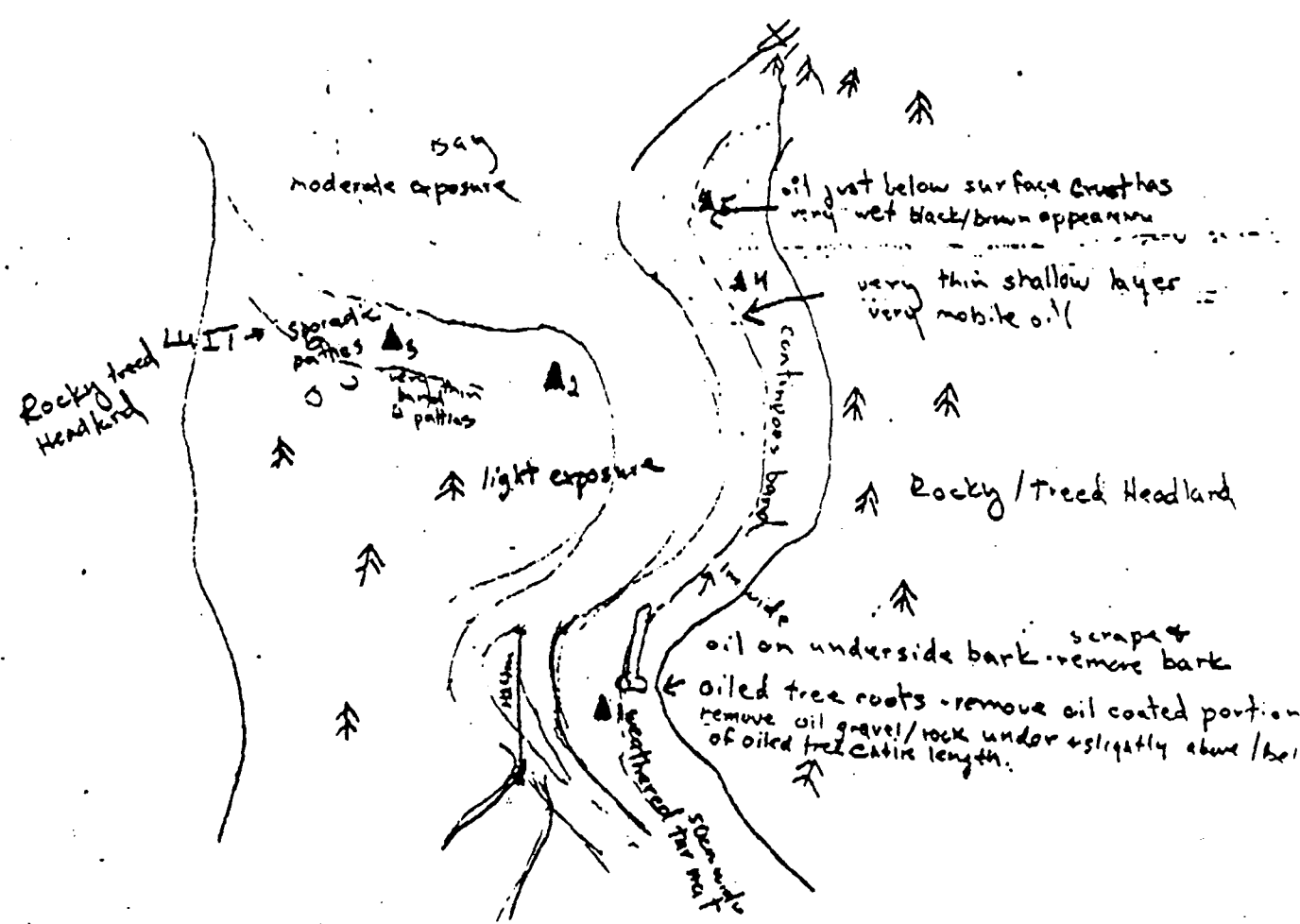
A

KN-103 35/51

43 PHOTOLOG

FRAME(S)	DESCRIPTION
	Pit 1 - 38cm - no vis oil
	Pit 2 - 30cm - no vis oil
	Pit 3 - 20cm - no vis oil
	Pit 4 - 2cm - no subsurface 2cm surface
	Pit 5 - 25cm - 5-8cm oil penetration - sheen on pooled water
	Pit 6 - 12cm - km oil penetration
	130 meters from X to dead fall

48 OIL DISTRIBUTION DIAGRAM



Treatment Recommendations

remove & wipe larger rocks in oiled band on east side of stream then
scrape up thin oil layer with rake or shore (if remove)

Remove oiled parts of downed tree on east bank

Remove sporadic tar patties & discontinuous oiled tar band on west side

The majority of work needs to be done on the east side

Treat during window period.

ACE 7378325

Sample taken

with other recommendations

SEGMENT ST1/KN/03

STREAM 226-10-16 922

DATE 4 121 90 2-7

CHECKLIST

- ___ N Arrow
- ___ Approx. Scale
- ___ Dog/Dub Bndry
- ___ Off Dist.
- ___ Width
- ___ Length
- ___ % Cover
- ___ Substrate Character
- ___ Est. HPA/LA/VL
- ___
- ___ Profile Location(s)
- ___ Profile(s)
- ___ Pit Location(s)
- ___ Photo Location(s)

LEGEND

- 1 Δ**
PH - No Subsurface Oil

- 2 ▲
PH - Subsurface Oil

CT/C

Continuous Distribution

CT/B

Broken Distribution

CT/P

Patchy Distribution

CT/5

Splashed Distribution

lll
Ond Vegetation

1 

Place location, direction,
and number

SKETCH MAP

SMALL
TAR BALLS

30x30cmx2cm

404

Δ2

REMOVE
STAINED
BARK
FROM
Tree...

MANUALLY
REMOVE
PAVEMENT

REVISIONS

Oil Character Length (in): AP _____ PO _____ CV _____ CT 120 ST _____ MS _____ PT _____ TB 60 FL _____ NO _____

ACE 7378324

ANADROMOUS FISH STREAM EVALUATION

SEGMENT ST/ KN-103 STREAM NO: 226-10-16922 DATE 4/21/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

1A Salmon stream mouth - fry outmigration (3/1 to 5/15)

1B Salmon stream mouth - spawning (7/10 to 8/31)

5T-1 All bald eagle nests (3/1 to 6/1) within 400m

6Y Recreation: Special use destination

See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Subject stream is located within subdivision A (1 of 1). No additional ecological constraints.

ARCHAEOLOGICAL CONSTRAINTS:

If cultural resources are uncovered during shoreline treatment, stop work in the vicinity, mark the location of the find and contact Exxon's Cultural Resource Program immediately (564-3276 (Anchorage) or 229-1508 (24 hrs.)).

SHPO SIGNATURE: Rachel Dan O'ne DATE: 5/22/90

Subsurface Oil Observed: Yes X No Maximum Depth 8cm

RECOMMENDATIONS:

 No Treatment Recommended

 X Treatment Recommended

 X Manual Pickup

 X Bioremediation

 X Tarmat Removal

 Snare/Absorbent Booms

 Oil Snares (pom poms)

 Absorbents (pads, rolls, etc)

 Spot Washing: Wands

 Beach Cleaner

 Other (see comments)

COMMENTS: Recommend manual removal of pavement in the UITZ and bark from oiled log in the UITZ as indicated on the attached sketch map. Work from 6/2 to 7/9 with approval of USFWS regarding eagle nest.

TAG COMMENTS: BIOREMEDIATE (CUSTOMER) IF REQUIRED FOLLOWING TARMAT REMOVAL

TAG APPROVAL DATE: 5/18/90

ADEC ART WEINER Art Weiner

EXXON AMY VAN Ala

NOAA GARY PETRO Gary Petro

USCG G.A. REITER G.A. Reiter

FOSC [Signature]

DATE: MAY 25 1990

ECOLOGICAL PLANT

UITZ 2-3m wide ST on top of seeds ST B

CT on sides and bottoms of seeds CT P

AP to 50 cm diameter, 4cm thick AP S

1A, 1B
ST-1
6Y

KN-103-A
2282m

Uitz tops
of clip
6-8m wide
50m long

On backsides
of large T3
on U1T2

WITZ

5/5
PT/5

WITZ $\frac{ST/S}{CT/S}$

UITZ ST/S
M-UITZ TB/S

m-UITZ []
Tar splatters on UITZ B
Tar balls at head of stream

SUBJECT STERN

7-26-10-16922 (P3.11/81)

LC (1771) - 1771 KN 103 A

$$(1 \rightarrow f1)$$

SKETCH MAP AREA

UITZ
Lang CP
F/E/J/E

ST/ CT
Hang C/P
UETZ

Hand grassy
C/P bank

CTD UITZ

4 cm - 3 m wide
175 m long
Hard AP to 4 cm thick

STP	UITZ
IB/S	HangR
RC	Sm Tong

UITZ
Lang C/P/E

BIRD
EAGLE
NEST

XXXX Wide
 //// Medium
 ---- Narrow
 TTTT Very Light

KN-103

EXON SEGMENT LENGTH: 2282m
ADEC Segment Length: 1862m

ACE 7378322 -15/58

Map Key: PWS-283

Name: C. DILLON

04/09/90

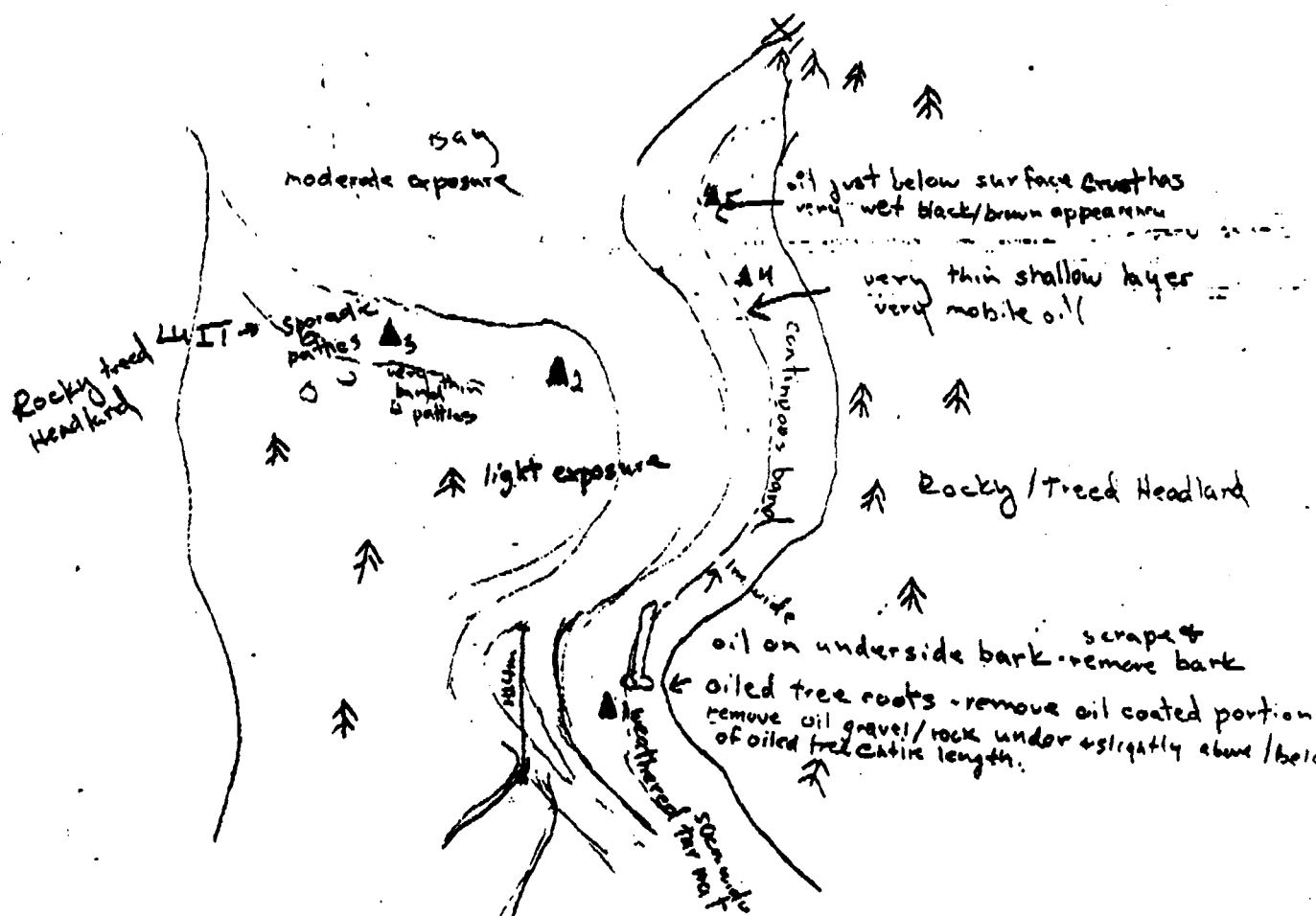
Not a Real name

KN-103 3/5/51

43 PHOTOLOG

FRAME(S)	DESCRIPTION
	Pit 1 - 38 cm - no vis oil
	Pit 2 - 20 cm - no vis oil
	Pit 3 - 20 cm - no vis oil
	Pit 4 - 2 cm - no subsurface 2 cm surface
	Pit 5 - 28 cm - 5-8 cm penetration - sheen on pooled water
	Pit 6 - 12 cm - no oil penetration
	130 meters from X to dead fall

46 OIL DISTRIBUTION DIAGRAM



Treatment Recommendations

remove & wipe larger rocks in oiled band on east side of stream then scrape up thin oil layer with rake or shovel & remove

Remove oiled parts of downed tree on east bank

Remove sporadic tar patches & discontinuous oiled tar band on west side

The majority of work needs to be done on the east side

Treat during window period.

ACE 7378321

Sample taken
Photo frame # and
location of

Agree with ADFG recommendations

K. Patel 10 -

PREVIOUS: 304150

ANADROMOUS FISH STREAM EVALUATION

SEGMENT ST/ KN-103 STREAM NO: 226-10-16922 DATE 4/21/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

1A Salmon stream mouth - fry outmigration (3/1 to 5/15)

1B Salmon stream mouth - spawning (7/10 to 8/31)

5T-1 All bald eagle nests (3/1 to 6/1) within 400m

6Y Recreation: Special use destination

See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Subject stream is located within subdivision A (1 of 1). No additional ecological constraints.

ARCHAEOLOGICAL CONSTRAINTS:

If cultural resources are uncovered during shoreline treatment, stop work in the vicinity, mark the location of the find and contact Exxon's Cultural Resource Program immediately (564-3276 (Anchorage) or 229-1508 (24 hrs.)).

SHPO SIGNATURE: _____ DATE: _____

Subsurface Oil Observed: Yes X No _____ Maximum Depth 8cm

RECOMMENDATIONS:

 No Treatment Recommended

 X Treatment Recommended

 X Manual Pickup

 Bioremediation

 X Tarmat Removal

 Snare/Absorbent Booms

 Oil Snares (pom poms)

 Absorbents (pads, rolls, etc)

 Spot Washing: _____ Wands

 Beach Cleaner

 Other (see comments)

COMMENTS: Recommend manual removal of pavement in the UITZ and bark
from oiled log in the UITZ as indicated on the attached sketch map. Work
from 6/2 to 7/9 with approval of USFWS regarding eagle nest.

TAG COMMENTS: _____

TAG APPROVAL DATE: _____

ADEC _____

EXXON _____

NOAA _____

USCG _____

FOSC: _____ DATE: _____

1/11 2/70

RECEIVED
MAY 15 1993

DEPT. OF
ENVIRONMENTAL CONSERVATION

ANADROMOUS FISH STREAM ASSESSMENT

REGION: PRINCE WILLIAM SOUND

SEGMENT: KN-103

SUBDIVISION: A

STREAM NO: 226-10-16922

*P/c pavement & Tarballs
Obs at pit 5,*

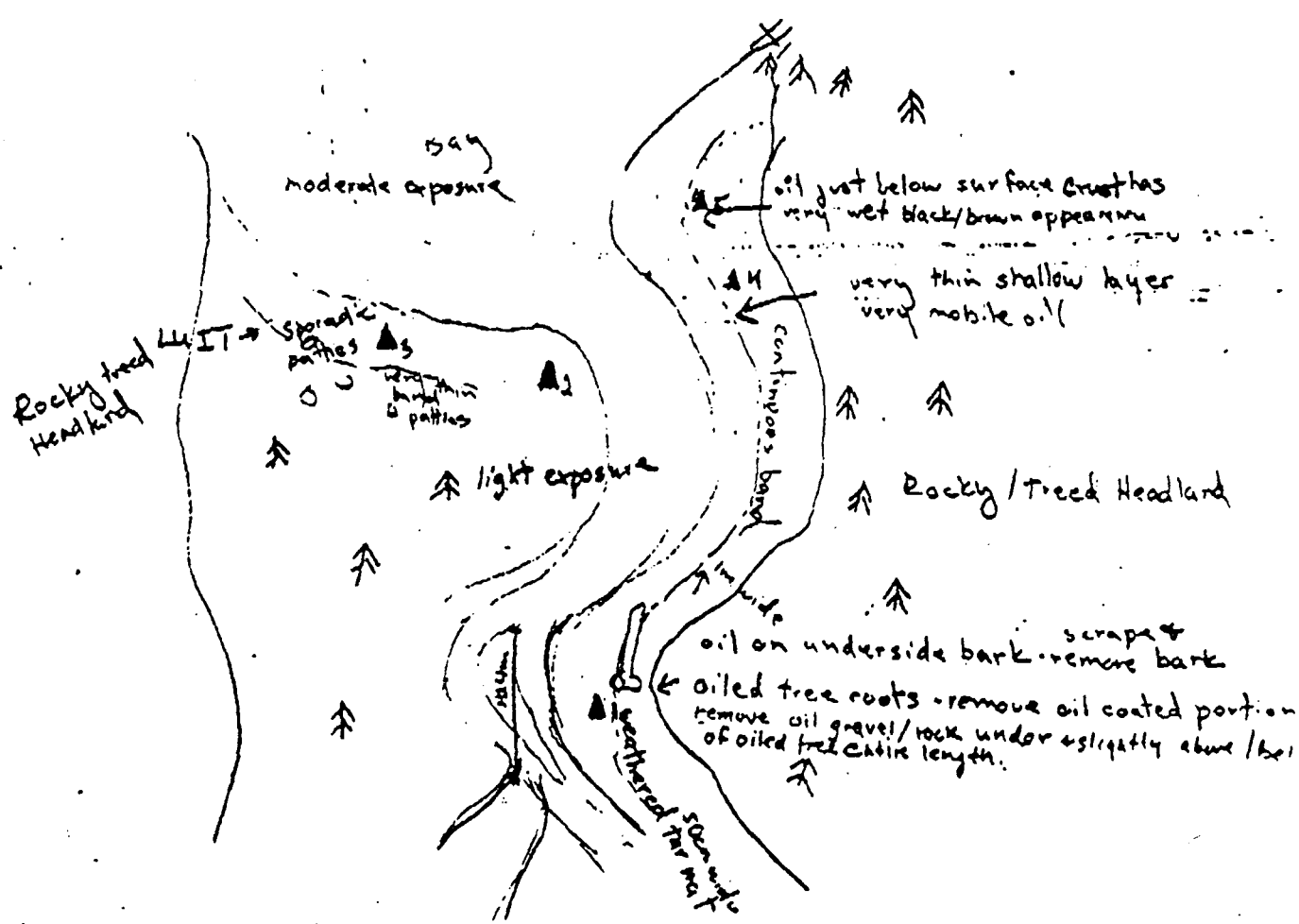
ACE 7378314 +/S

KN-103 3/5/51

43 PHOTOLOG

FRAME(S)	DESCRIPTION
	Pit 1 - 38 cm - no vis oil
	Pit 2 - 30 cm - no vis oil
	Pit 3 - 20 cm - no vis oil
	Pit 4 - 2 cm - no subsurface 2 cm surface
	Pit 5 - 28 cm - 5-8 oil penetration - sheen on pooled water
	Pit 6 - 12 cm - km oil penetration
	130 meters from X to dead fall

46 OIL DISTRIBUTION DIAGRAM



Treatment Recommendations

remove & wipe larger rocks in oiled band on east side of stream then
scrape up thin oil layer with rake or shore / & remove

Remove oiled parts of downed tree on east bank

Remove sporadic tar patches & discontinuous oiled tar band on west side

The majority of work needs to be done on the east side

Treat during window period.

ACE 7378312

Sample taken

Dr. J. L. ...

DATE 4-21-90 2-7

CHECKLIST

_____ N Arrow
 _____ Approx. Scale
 _____ Beg/End Bndry
 _____ Off Dist.
 _____ Width
 _____ Length
 _____ % Cover
 _____ Substrate Character
 _____ Est. HPR/LA/VL
 _____ SOL
 _____ Profile Location(s)
 _____ Profile(s)
 _____ Pk Location(s)
 _____ Photo Location(s)

LEGEND

1 Δ
FW - No Subsurface Oil

2 ▲
PH - Subsurface Oil

CT/C

Continuous Distribution

CT/B

Broken Distribution

CT/P

Patchy Distribution

CT/5

Splashed Distribution

Old Vegetation

Photo location, direction,
and number

ALC 7378311

1
JUL 22 1966

LARGE FALL
DEAD FALL
OIL STRAINER

REMOVE
STAINED
BARK
FLOOR...

SMALL
TAR BALLS

30x30cm x 2cm

505

SKETCH MAP

35

5

MI

5

18/21

102

MANUALLY
REMOVED
PAVEMENT

NOTES

NO. 61075

Oil Character Length (in): AP PO CV CT 120 ST MS PT TB 60 FL NO

REFERENCES

ANADROMOUS FISH STREAM EVALUATION

SEGMENT ST/ KN-103 STREAM NO: 226-10-16922 DATE 4/21/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

1A Salmon stream mouth - fry outmigration (3/1 to 5/15)

1B Salmon stream mouth - spawning (7/10 to 8/31)

5T-1 All bald eagle nests (3/1 to 6/1) within 400m

6Y Recreation: Special use destination

See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Subject stream is located within subdivision A (1 of 1). No additional ecological constraints.

ARCHAEOLOGICAL CONSTRAINTS:

If cultural resources are uncovered during shoreline treatment, stop work in the vicinity, mark the location of the find and contact Exxon's Cultural Resource Program immediately (564-3276 (Anchorage) or 229-1508 (24 hrs.)).

SHPO SIGNATURE: Riche Jan Oen DATE: 5/22/90

Subsurface Oil Observed: Yes X No Maximum Depth 8cm

RECOMMENDATIONS:

<u> </u> No Treatment Recommended	<u> </u> Snare/Absorbent Booms
<u> X </u> Treatment Recommended	<u> </u> Oil Snares (pom poms)
<u> X </u> Manual Pickup	<u> </u> Absorbents (pads, rolls, etc)
<u> X </u> Bioremediation	<u> </u> Spot Washing: <u> </u> Wands
<u> X </u> Tarmat Removal	<u> </u> Beach Cleaner
	<u> </u> Other (see comments)

COMMENTS: Recommend manual removal of pavement in the UITZ and bark from oiled log in the UITZ as indicated on the attached sketch map. Work from 6/2 to 7/9 with approval of USFWS regarding eagle nest.

TAG COMMENTS: BIOREMEDIATE (CUSTOMER) IF REQUIRED FOLLOWING TARMAT REMOVAL

TAG APPROVAL DATE: 5/18/90

ADEC Art Weiner Art Weiner

EXXON Andy Tan Andy Tan

NOAA Gary Petros Gary Petros

USCG G.A. Reiter G.A. Reiter

FOSC [Signature]

DATE: MAY 25 1990

AN/ OMOUS FISH STREAM EVALUAT I

SEGMENT ST/ KN-103 STREAM NO: 226-10-16922 DATE 4/21/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

1A Salmon stream mouth - fry outmigration (3/1 to 5/15)
 1B Salmon stream mouth - spawning (7/10 to 8/31)
 5T-1 All bald eagle nests (3/1 to 6/1) within 400m
 6Y Recreation: Special use destination
 See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Subject stream is located within subdivision A (1 of 1). No additional ecological constraints.

ARCHAEOLOGICAL CONSTRAINTS:

If cultural resources are uncovered during shoreline treatment, stop work in the vicinity, mark the location of the find and contact Exxon's Cultural Resource Program immediately (564-3276 (Anchorage) or 229-1508 (24 hrs.)).

SHPO SIGNATURE: Rachel Ann Oan DATE: 5/22/90

Subsurface Oil Observed: Yes X No Maximum Depth 8cm

RECOMMENDATIONS:

<u> </u> No Treatment Recommended	<u> </u> Snare/Absorbent Booms
<u> X </u> Treatment Recommended	<u> </u> Oil Snares (pom poms)
<u> X </u> Manual Pickup	<u> </u> Absorbents (pads, rolls, etc)
<u> X </u> Bioremediation	<u> </u> Spot Washing: <u> </u> Wands
<u> X </u> Tarmat Removal	<u> </u> Beach Cleaner
	<u> </u> Other (see comments)

COMMENTS: Recommend manual removal of pavement in the UITZ and bark from oiled log in the UITZ as indicated on the attached sketch map. Work from 6/2 to 7/9 with approval of USFWS regarding eagle nest.

TAG COMMENTS: BIOREMEDIATE (CUSTOMER) IF REQUIRED FOLLOWING TARMAT REMOVAL

TAG APPROVAL DATE: 5/18/90.

ADEC ART WEINER Art Weiner

EXXON AMY VAN Ala

NOAA GARY PETROE Gary Petroe

USCG G.A. REITER G.A. Reiter

FOSC: [Signature]

DATE: MAY 25 1990

ANADROMOUS FISH STREAM EVALUATION

SEGMENT ST/ KN-103 STREAM NO: 226-10-16922 DATE 4/21/90

SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

1A Salmon stream mouth - fry outmigration (3/1 to 5/15)

1B Salmon stream mouth - spawning (7/10 to 8/31)

5T-1 All bald eagle nests (3/1 to 6/1) within 400m

6Y Recreation: Special use destination

See attached Ecological Constraint sheet for specific constraints and contacts.

SUBDIVISION ECOLOGICAL CONSTRAINTS:

Subject stream is located within subdivision A (1 of 1). No additional ecological constraints.

ARCHAEOLOGICAL CONSTRAINTS:

If cultural resources are uncovered during shoreline treatment, stop work in the vicinity, mark the location of the find and contact Exxon's Cultural Resource Program immediately (564-3276 (Anchorage) or 229-1508 (24 hrs.)).

SHPO SIGNATURE: Reche Jan Oan DATE: 5/22/90

Subsurface Oil Observed: Yes X No Maximum Depth 8cm

RECOMMENDATIONS:

 No Treatment Recommended

X Treatment Recommended

X Manual Pickup

X Bioremediation

X Tarmat Removal

 Snare/Absorbent Booms

 Oil Snares (pom poms)

 Absorbents (pads, rolls, etc)

 Spot Washing: Wands

 Beach Cleaner

 Other (see comments)

COMMENTS: Recommend manual removal of pavement in the UITZ and bark from oiled log in the UITZ as indicated on the attached sketch map. Work from 6/2 to 7/9 with approval of USFWS regarding eagle nest.

See Addendum Dated 6/9/90 UTK

TAG COMMENTS: BIOREMEDIATE (CUSTOMER) IF REQUIRED FOLLOWING TARMAT Removal

TAG APPROVAL DATE: 5/18/90

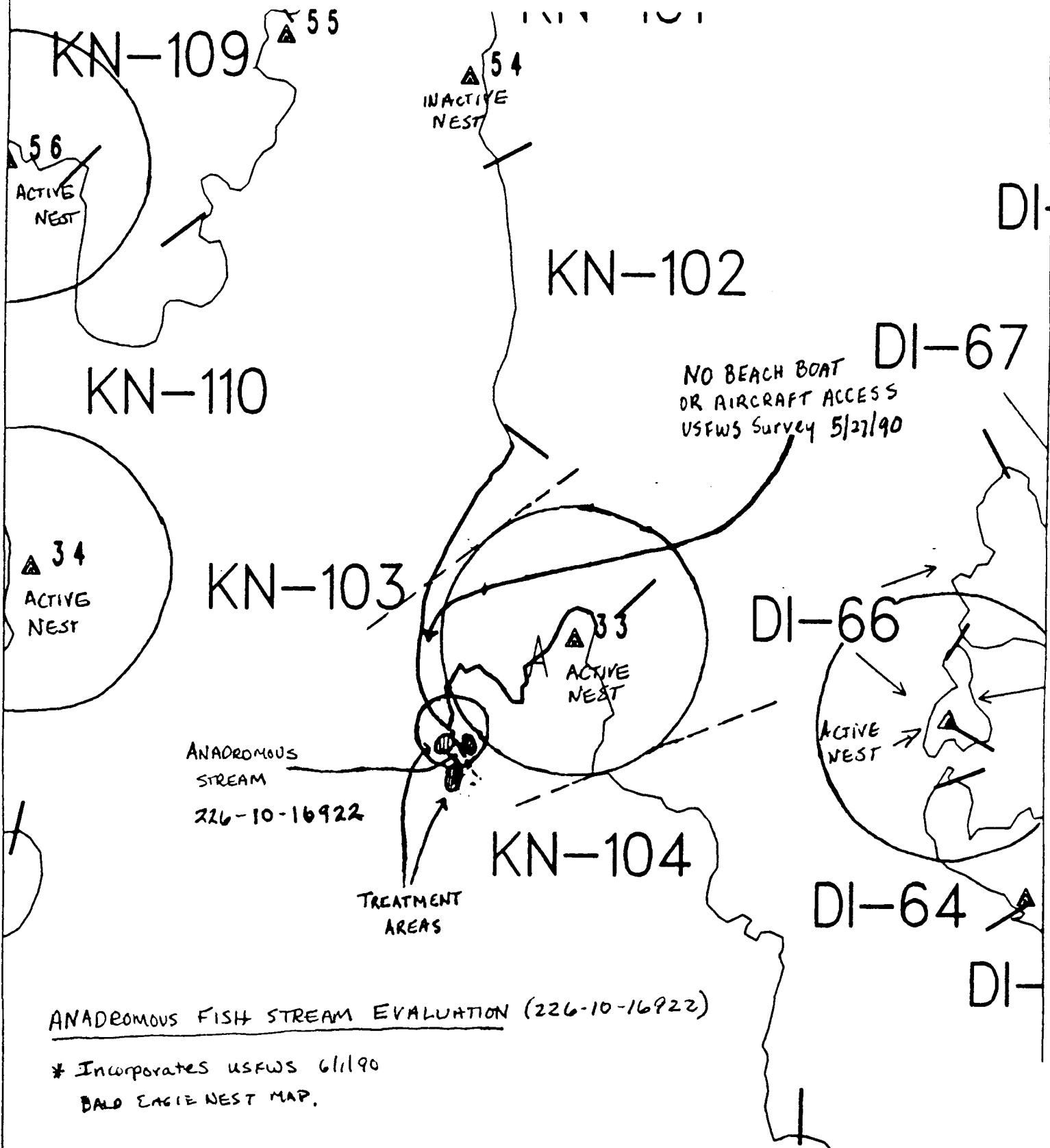
ADEC Art Weiner Art Weiner

EXXON Andy Tan Andy Tan

NOAA Gary Petros Gary Petros

USCG G.A. Reiter G.A. Reiter

FOSC: DATE:



ANADROMOUS FISH STREAM EVALUATION (226-10-16922)

* Incorporates USFWS 6/1/90
BALD EAGLE NEST MAP.



Exxon Company, USA

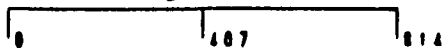
Map Key: KN1-KN103

May 11, 1990



ECOLOGY MAP
SEGMENT KN-103
SUBDIVISION A (1 of 1)

METERS



Seabird Colony



Eagle Nest

1 inch = 1336 feet

ACE 7378303

OGI Rei 1
 SEGMENT ST/ KN-103
 SUBDIVISION A
 DATE 8/16/90

ASAP SKETCH MAP (Site # 2)

226-10-16922

CHECKLIST

N Arrow
 Approx. Scale
 Seg/Sub Bndry
 Oil Dist.
 Width
 Length
 % Cover
 Substrate Character
 Est. HWL/LWL
 SSL
 Profile Location(s)
 Profile(s)
 Pit Location(s)
 Photo Location(s)

LEGEND

1 Δ
 Pit - No Subsurface Oil

2 $\blacktriangle$
 Pit - Subsurface Oil

CT/C
 Continuous Distribution

CT/B
 Broken Distribution

CT/P
 Patchy Distribution

CT/S
 Splashed Distribution

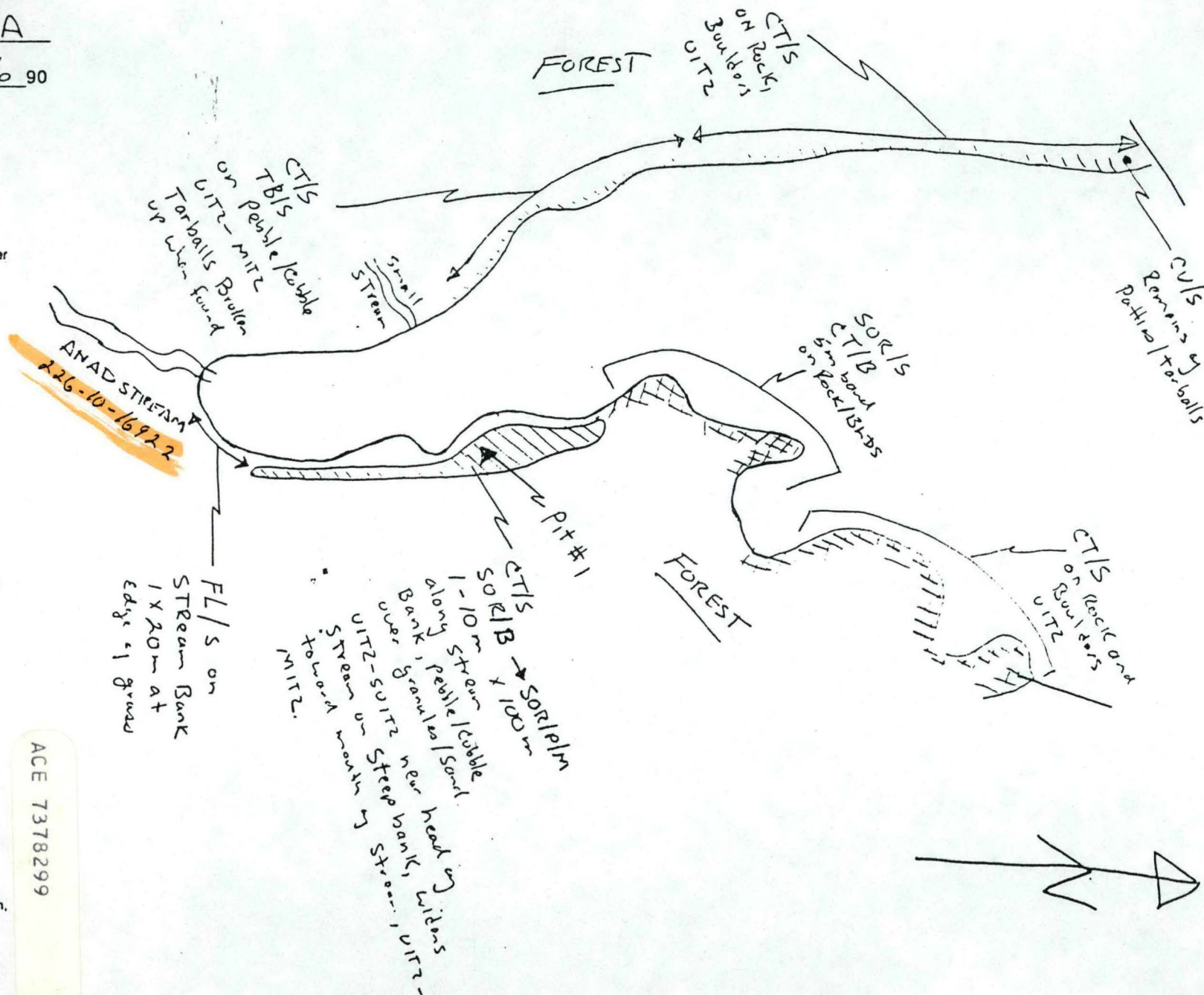
Died Vegetation

1 $\rightarrow$
 Photo location, direction,
 and number

ACE 7378299

Character Length (m): AP _____ PO _____ CV _____ CT _____ ST _____ MS _____ PT _____ TB _____ FL _____ NO _____

REVISION: 03/24/90



ASAP

TEAM NO ONE EXXON MARTINEZ SEGMENT AS/ KN-103
 OG Reimer USCG BROWN SUBDIVISION A
 ADEC HAYES LAND REP GIBSON TOTAL NO. SITES 3
 DATE 8/16/90 TIME 15:00 to 16:25 TIDE LEVEL 5.5 to 5

TOTAL EST LENGTH OF SHORELINE SURVEYED: 1862 m
 SURVEYED FROM: ☒ Foot ☐ Boat ☐ Helo WEATHER: ☐ Sun ☒ Clouds ☐ Fog ☐ Rain ☐ Snow
 OIL CATEGORY LENGTH: W 60 m M 0 m N 210 m VL 1402 m NQ 90 m US 0 m

SURFACE OIL									SITE 1									SITE 2									SITE 3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
CHARACTER	DISTRIBUTION				OILED ZONES																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		

SUBSURFACE OIL

SITE NO.	PIT NO.	PIT DEPTH (cm)	SUBSURFACE OIL CHARACTER				OILED INTERVAL (CM-CM)	CLEAN BELOW (Y/N)	PIT ZONE				SURFACE-SUBSURFACE SEDIMENTS
			OP	OR	OF	NO			SU	UI	MI	LI	
2	1	5		M			0-3	Y	M				BC - CPG
							.						
3	1	15		M			0-3	Y	M				BC - CPG
							.						
							.						
							.						
							.						
							.						
							.						
							.						
							.						
							.						
							.						

Photographs:
 Roll No. 100-108
 Frames 1217

COMMENTS The Segment was broken into 3 sites due to size and oiling conditions.
 Site #1 is a Rocky Boulder/Cobble shoreline with very sporadic splash except for a few areas where Broken Coat and SOR was found in the UITE. These areas have been manually worked.
 Site #2 (ANAD STREAM 226-10-16922) has the heaviest oiling. The western

ACE 7378296

Comments Continued

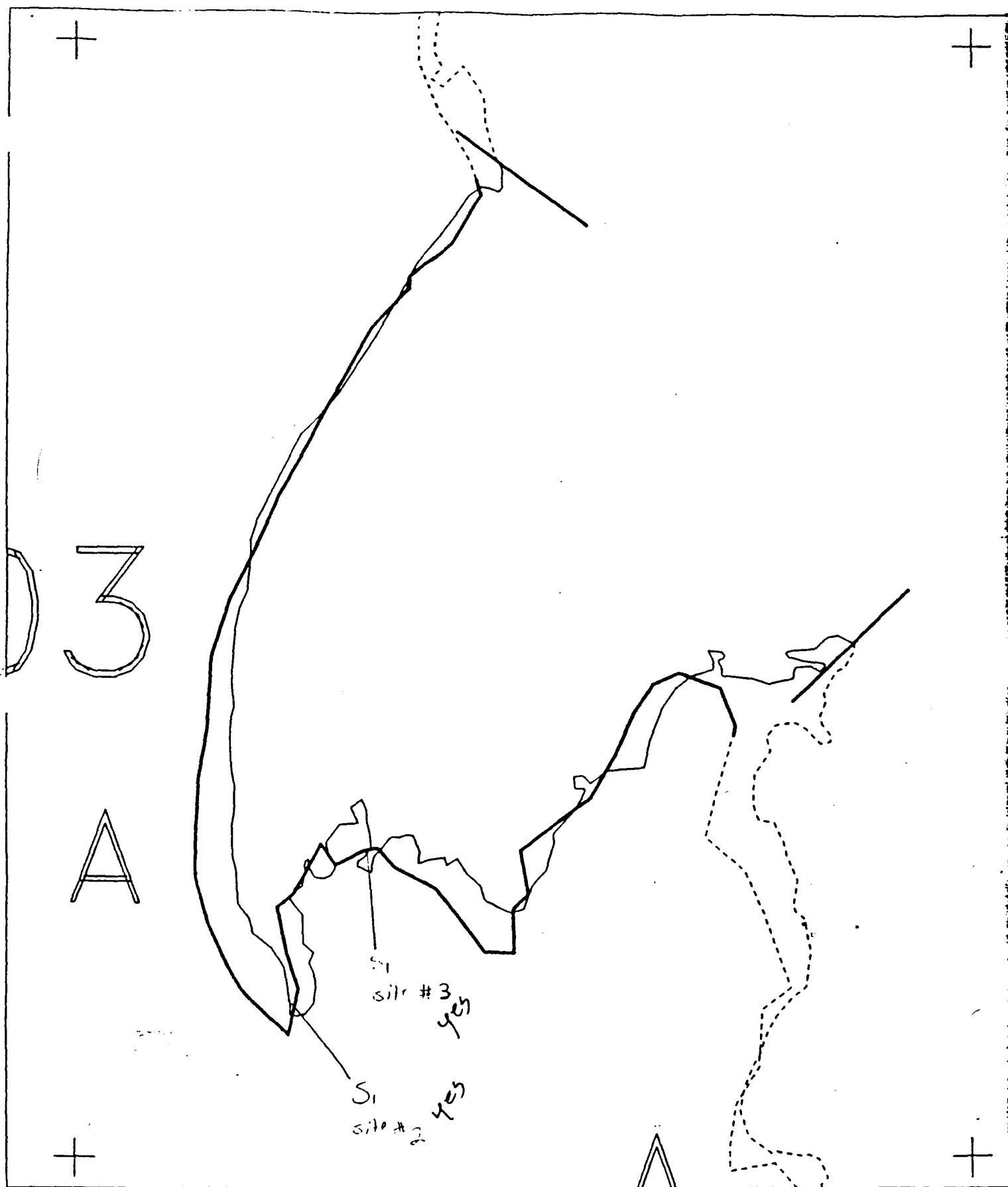
KN-103 A

ASAP 8/16/90 Reimer

Stream 100 meters to the north. This band is only 1-2 m wide along a steep bank near the head of the stream, however widens to 10 meters and extends across pebble/cobble flats. Continuing to the north a 5 m band of broken coal and sor was found along a rocky Boulder Bank. ↗

Site #3. This site is again characterized by sporadic splash on rock and boulders, however two areas of heavier concentration were found in pocket coves where patchy sor and coal were found.

Sor sediments by the stream on site #2 are characterized as a hole as sor/B, however there are patchy areas where this increases to a moderate oily sor/P/M



XXXX
 ////

 TTTT
 0000

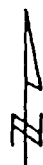
Wide
 Medium
 Narrow
 Very Light
 No Oil

KN-103 A

ADEC Subsegment Length: 1862m

METERS

0 120 257



NOXON

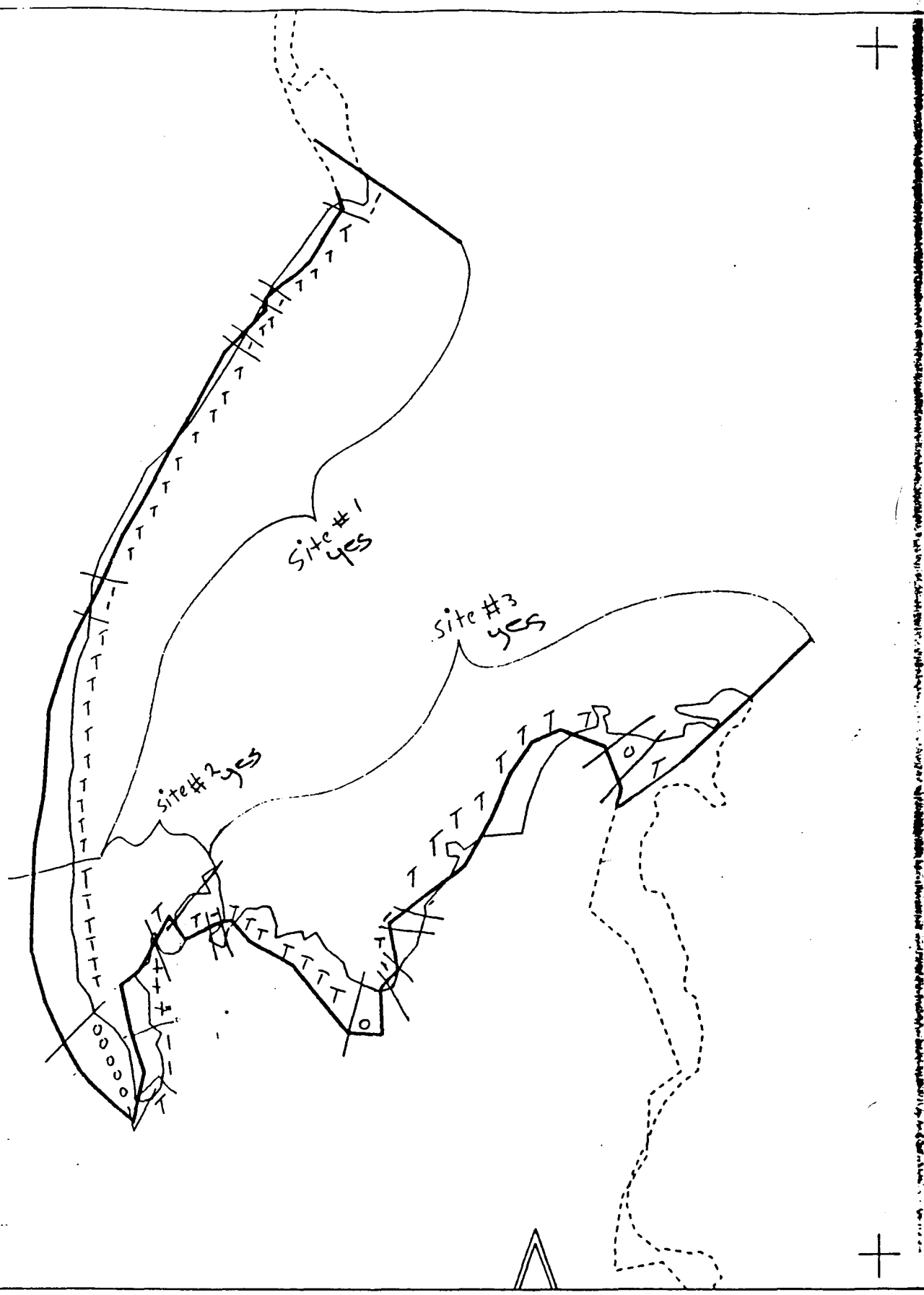
Subdivision Field Map

Map Key: KNIKN-103A

Name: Reimer

Date: 8/16/90

3
A

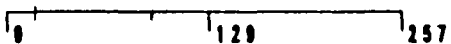


Wide
Medium
Narrow
Very Light

KN-103 A

ADEC Subsegment Length: 1862m

METERS



Subdivision Field Map

Map Key: KN1KN-103A

Name: Reimer

Date: 8/16/90

ACE 7378300-7S

EXON

ASAP survey '90

[Handwritten initials]

SEGMENT AS / KN-103 SUBDIVISION: A SITE: 2 DATE 8/17/90

USCG

NAME MSDC Michael D. Brown SIGNATURE *[Signature]*

☒ YES ☐ NO PRIORITY SITE FOR REASSESSMENT IN 1991
REASON:

The AREA encompasses the stream. whole area needs Re-Aio and Re-RAKE.
Highly recommend 1991 assessment.

ADEC

NAME John Hayes SIGNATURE *[Signature]*

☒ YES ☐ NO PRIORITY SITE FOR REASSESSMENT IN 1991
REASON:

Aradromer stream with oiling within 50m of banks. ADF+6
Comments should be considered when discussing this site. Oiling in stream
area is film on vegetation + gravel at SOR/P/m.

LAND MANAGER

NAME DOUGLAS GIBSON SIGNATURE *[Signature]*

☒ YES ☐ NO PRIORITY SITE FOR REASSESSMENT IN 1991
REASON:

I BELIEVE THAT SUFFICIENT OIL IS PRESENT TO
JUSTIFY A REASSESSMENT IN 1991 FOR THIS
SEGMENT.

EXXON

NAME Martinez N.S. SIGNATURE *[Signature]*

☒ YES ☐ NO PRIORITY SITE FOR REASSESSMENT IN 1991
REASON:

Given the stream + moderate amount
of oil it would be good to reassess
this site in 1991

CATALOG NUMBER: 2261016922				SEGMENT NUMBER: KN103 A					
STREAM NAME:				SHORELINE TYPE:					
LOCATION: KNIGHT ISLAND, LOWER PASSAGE				DATE: 04/12/90 TIME: COVE -1209					

SITE	WIDTH (m)	LENGTH (m)	AREA (sqm)	PERCENT OIL	THICKNESS (cm)	PENETRATION (cm)	SURFACE SUBSURF	OIL TYPES	COMMENTS
1							SURFACE	AP /ms	

COMMENTS:
HEAVY DEPOSITS OF ASPHALT/MOUSSE. PENETRATION 3-4". MOUSSE PATTIES, OILED SANDS. MAY TAKE DREDGING TO CLEAN UP THIS. OIL ON STREAM BANKS: YES OIL WITHIN 1 MILE OF STREAM: YES, UPPER INTERTIDAL

see winter study sketch for details - it hasn't changed since Nov 4, 1989

CATALOG NUMBER: 2261016922				SEGMENT NUMBER: KN103 A					
STREAM NAME:				SHORELINE TYPE:					
LOCATION: KNIGHT ISLAND, LOWER PASSAGE				DATE: 04/21/90 TIME: COVE -1405					

SITE	WIDTH (m)	LENGTH (m)	AREA (sqm)	PERCENT OIL	THICKNESS (cm)	PENETRATION (cm)	SURFACE SUBSURF	OIL TYPES	COMMENTS
1	50cm-1				2cm	8	SURFACE	AP/MS/OR	<i>East bank - UITZ - continuous band - mobile oil under crust oiled interval 5-80 ft</i>
2	1				11-50	5	SURFACE	AP-GOR PT/AP	

COMMENTS:
SHALLOW SURFACE 50CM - 1M WIDE OILED BAND ON EAST SIDE OF STREAM IN UITZ. WHEN CRUST IS BROKEN OIL APPEARS DARK BLACK/BROWN & VERY MOBILE. SPORADIC 30CM WIDE BAND RUNNING IN LUITZ ON WEST SIDE - NO PENETRATION. FRY PRESUMED. RECOMMENDATIONS: REMOVE & WIPE LARGER ROCKS IN OILED BAND ON EAST SIDE OF STREAM THEN SCRAPE UP THIN OIL LAYER WITH RAKE OR SHOVEL & REMOVE. REMOVE OILED PARTS OF DOWNED TREE ON EAST BANK. REMOVE SPORADIC TAR PATTIES & DISCONTINUOUS OILED TAR BAND ON WEST SIDE. THE MAJORITY OF WORK NEEDS TO BE DONE ON THE EAST SIDE. TREAT DURING WINDOW PERIOD. AGREE WITH ADF&G RECOMMENDATIONS: KEN CRITCHLOW. OIL ON STREAM BANKS: YES OIL WITHIN 1 MILE OF STREAM: YES, EAST & WEST BANKS

CATALOG NUMBER: 2261016922				SEGMENT NUMBER: KN103 A					
STREAM NAME:				SHORELINE TYPE:					
LOCATION: KNIGHT ISLAND, LOWER PASSAGE				DATE: 04/21/91 TIME: COVE -1356					

SITE	WIDTH (m)	LENGTH (m)	AREA (sqm)	PERCENT OIL	THICKNESS (cm)	PENETRATION (cm)	SURFACE SUBSURF	OIL TYPES	COMMENTS
1							PIT	N	<i>NO VISIBLE OIL NO VISIBLE OIL NO VISIBLE OIL SURFACE OIL SHEEN ON POOLED WATER OIL</i>
2							PIT	N	
3						2	PIT	N	
4						2	PIT		
5						8	PIT		
6						1	PIT		

delete

COMMENTS:

CATALOG NUMBER: 2261016922

STREAM NAME:

LOCATION: KNIGHT ISLAND, LOWER PASSAGE

SEGMENT NUMBER: KN103 A

SHORELINE TYPE:

DATE: 05/01/91 TIME: COVE -1315

SITE	WIDTH (m)	LENGTH (m)	AREA (sqm)	PERCENT OIL	THICKNESS (cm)	PENETRATION (cm)	SURFACE SUBSURF	OIL TYPES	COMMENTS
1	1	20		<1	3		SURFACE	AP HSOR	
2	.5	10		<10	3		SURFACE	HSOR AP	

COMMENTS:

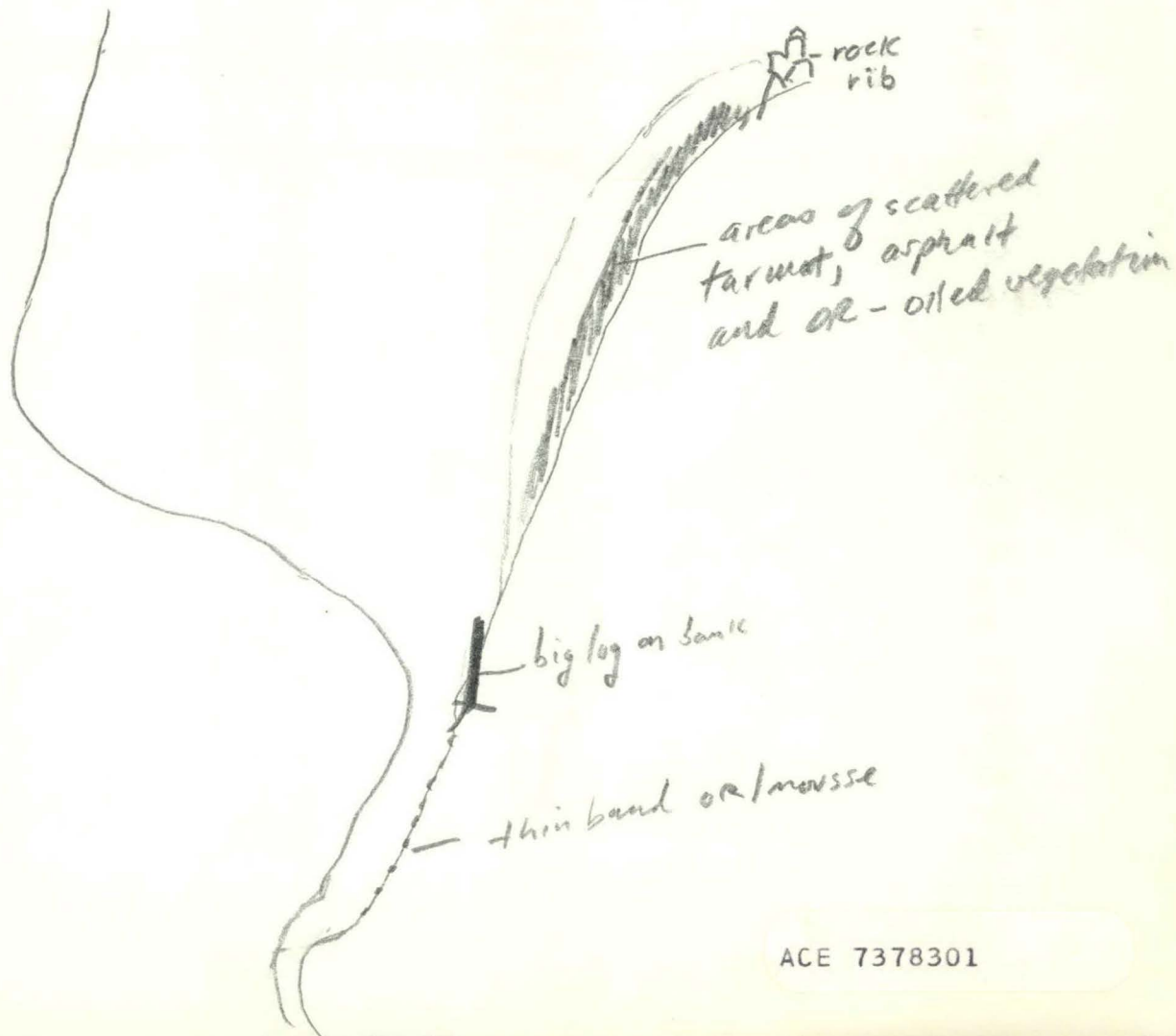
THE SMALL AMOUNT OF REMAINING 'AP/HOR' SEDIMENTS WERE REMOVED DURING THE SURVEY. REMAINING 'LSOR' SEDIMENTS WERE TILLED. NO SUBSURFACE OIL DETECTED. NO TREATMENT RECOMMENDED.

ANADROMOUS FISH STREAMS/OILING CONDITION
PWS

Segment # KN104 ASC# 226-10-16922 Location Knight Is.
Date 8/15/90 Recorder/Observer R. Gustin / T. Crane
Oil in streambed No Oil on streambanks Yes
Oil within 50m of mouth Yes Anadromous Fish present Yes

Description of oil and comments Primary area of concern is on
the left bank facing upstream and the beach out towards
the rocky point. Oiling consists of small patches of asphalt
tar mat and areas of heavy oil sediment.
Oil lies primarily in upper intertidal right up to the grasses.
Much of this oil was missed by manual crews
in their haste to sign off all streams by July 10.
Because of presence of fish recommend reassessment
in spring 1991.

Oil Distribution Diagram



ANADSCAT 90

ADF&G MULTI-ASSESSMENT DATA FORM

1 SURVEY TYPE: BS SS DS TS AVS SCHA MMHS PTA2 REGION: PWS KP, CI K, APMETHOD: Aerial Ground Boat3 DATE: 4-21-9015 HIGH TIDE TIMES: 121 TEAM RECORDER: Aimee Weseman4 START TIME: 130016 HIGH TIDE HTS: 122 OBSERVERS: Rick Gustin5 STOP TIME: 140517 LOW TIDE TIMES: 173023 AGENCY: ADFG6 SEGMENT #: KN-10318 LOW TIDE HTS: 124 PHOTOS TAKEN: Y N

7 STATION #: _____

19 TIDE HT AT SURVEY: _____

Roll #: _____ Frame: _____

8 K-UNIT: _____

Ebb Slack Flood Slack25 VIDEO TAKEN: Y N TAPE#: 90RL601555

9 STAT AREA: _____

20 USCG QUAD: S B 2Start: 1356 End: 1490

10 LAT: _____

11 LONG: _____

26 SAMPLES TAKEN? Y N Number12 SOURCE: Map Loran

Oil _____

13 LOCATION: Knight Island

Sediment _____

14 DESCRIPTION: NE tip south of passage pnt

Biological _____

EXTENT OF OIL

Water _____

	SHORELINE				STREAM			
	L	W	M ²	%	L	W	M ²	%
27 SURFACE COVERAGE								
28 SURFACE THICKNESS								
29 PENETRATION	5-8	2	1					

36 CATALOGED ANAD. FISH STREAM? Y N37 CATALOG #: 226-10-1692238 STREAM NAME: Opal Creek39 OIL IN STREAM BED? Y N40 OIL ON STREAM BANKS? Y N30 OVERALL OIL IMPACT: N VL L M H41 OIL ON BEACH ADJACENT TO MOUTH? Y N
(within 50 meters)31 OIL TYPE: Pooled Mousse Tar Asphalt Sticky Stain42 OIL WITHIN 1 MILE OF STREAM? Y N32 OILED DEBRIS? Y N treeWhere: East & west banks33 SHORELINE TYPE: Headland Low-lying Rocks Beach Cove
Lagoon Marsh43 ANADROMOUS FISH PRESENT? Y N Fry Presumed34 WAVE EXPOSURE: High Moderate Low44 ANADROMOUS FISH OBSERVATION
Species Aerial Ground35 SUBSTRATE TYPE: Bedrock _____ Boulder 5 Cobble 55Gravel 30 Sand 15 Mud/silt _____

COMMENTS: shallow surface 50cm-1m wide oiled band on east side of stream
in UITZ. When crust is broken oil appears dark black/brown & very mobile
sporadic 30cm wide band running in UITZ on west side - no penetration

ACE 7378328 +/S

KN-103

3

45 PHOTOLOG

226-10-16922

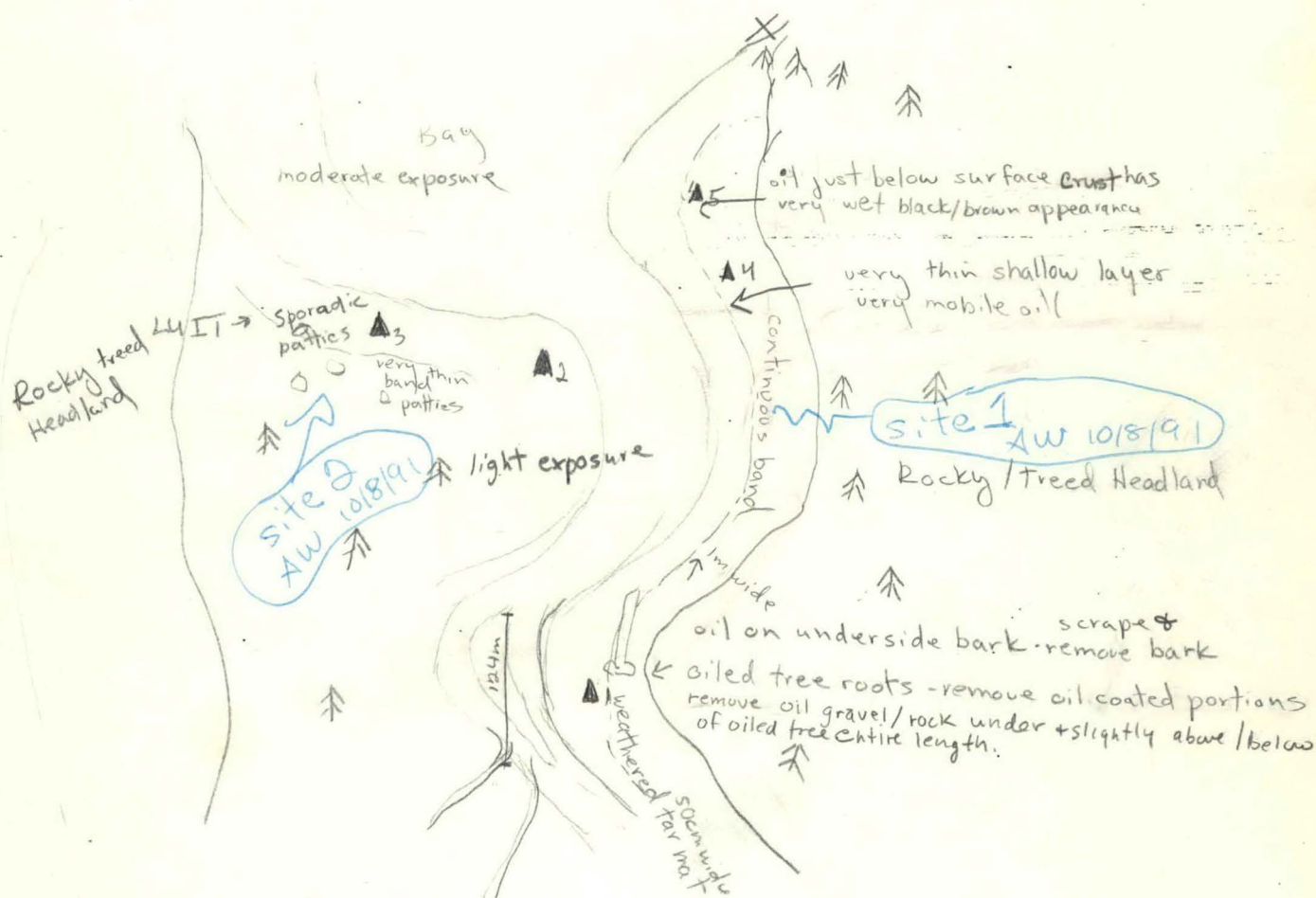
FRAME(S)

DESCRIPTION

Pit 1 - 38cm - no vis oil Pit 2 - 20cm - no vis oil
 Pit 3 - 20cm - no vis oil Pit 4 - 2cm - no subsurface 2cm surface oil
 Pit 5 - 28cm - 5-8cm penetration - sheen on pooled water
 Pit 6 - 12cm 1cm oil penetration

130 meters from X to dead fall

46 OIL DISTRIBUTION DIAGRAM



Treatment Recommendations

remove & wipe larger rocks in oiled band on east side of stream then
 scrape up thin oil layer with rake or shovel & remove

Remove oiled parts of downed tree on east bank

Remove sporadic tar patches & discontinuous oiled tar band on west side

The majority of work needs to be done on the east side

Treat during window period.

ACE 7378329

Sample taken
 Photo frame # and
 shot direction.

Agree with ADFG recommendations

Ken Cutchlow

SHORELINE OILING SUMMARY (ANAD)

REVISION NO. 04/13/90

OG CAL LARSON USCG DREHER, CWE SEGMENT ST/ KN103 34
 BIO KEN CRITCHLOW LAND REP STREAM 226-10-16922 (OF)
 EXXON DARLHL YOE ADFG ELK GUSTIN-AIMEE WESEMAN TIME 12:55 to 14:00
 TEAM NO. 14 TIDE LEVEL +6 FT DATE 4/21/90
 EST. SUBDIVISION LENGTH: 230 m ☒ Sun ☐ Clouds ☐ Fog ☐ Rain ☐ Snow
 UPLANDS DESCRIPTION: ☐ Grass ☐ Forest ☐ Rock
 SURVEYED FROM: ☐ Foot ☐ Boat ☐ Helo
 SURFACE SEDIMENTS: R % B 5 % C 55 % P 10 % G 20 % S 10 % M % V %
 SLOPE: Lang 30 % Hang 70 % Vert % WAVE EXPOSURE: ☐ Low ☒ Med ☐ High
 OIL CATEGORY LENGTH: W m M 120 m N m VL m NO 110 m

SURFACE OIL

CHARACTER	DISTRIBUTION				OIL / FILM COLOR								IMPACTED ZONES			
	IC	IB	IP	IS	BR	RW	SL	TL	LT	BR	FW	GY	SL	TL	LT	BR
ASPHALT PAVEMENT	✓					✓			✓				✓			
POOLED																
COVER																
COAT																
STAIN																
MOUSSE																
PATTIES																
TARBALLS																
FILM																
NO OIL																

PAVEMENT H F (S) 480 sq. m by .3 cmPATTIES / TARBALLS BAGS

NEAR SHORE SHEEN? (NO) BR RW SL TL

OILED DEBRIS	AMOUNT		
	SM	MD	LG
Logs			
Vegetation			
Trash			
Debris			

Did You COLLECT DEBRIS
☐ YES ☒ NO

TYPE #BAGS

Photographs:

Roll No. Frames

SUBSURFACE OIL

PIT NO.	PIT DEPTH (cm)	SUBSURFACE OIL CHARACTER					OILED INTERVAL (CM-GM)	BELOW		OIL / FILM COLOR								PIT ZONE				A N A	SHEEN (Y/N)	▽	SURFACE - SUBSURFACE SEDIMENTS
		OP	OR	OL	OF	NO		UO	UC	BR	RW	SL	TL	LT	BR	FW	GY	SL	TL	LT	BR				
1	30					✓	.																N	✓	ASH/ASH
2	30					✓	.																N	✓	GR, SO/GR, SO
3	20					✓	.																N	✓	PB, GR, SO/ PB, GR, SO
4	28					✓	.																N		CB, PB/GR, SO
5	28	✓	✓				5-8		✓	✓													Y	✓	CB, PB/GR, PB, SO
6	12					✓	.																N		CB, PB GR/

COMMENTS WEST SIDE OF CUBE OILED BAND EXTENDING BEYOND 120 METER
 NO SHEEN OBSERVED. VOLCANIC ASH OBSERVED UPPER U1Z.

REVIEWED DATE

ACE 7378334

35
OG CAL LARSON

SEGMENT ST/KN 103

STREAM 226-10-16 922

DATE 4/21/90 2 →

CHECKLIST

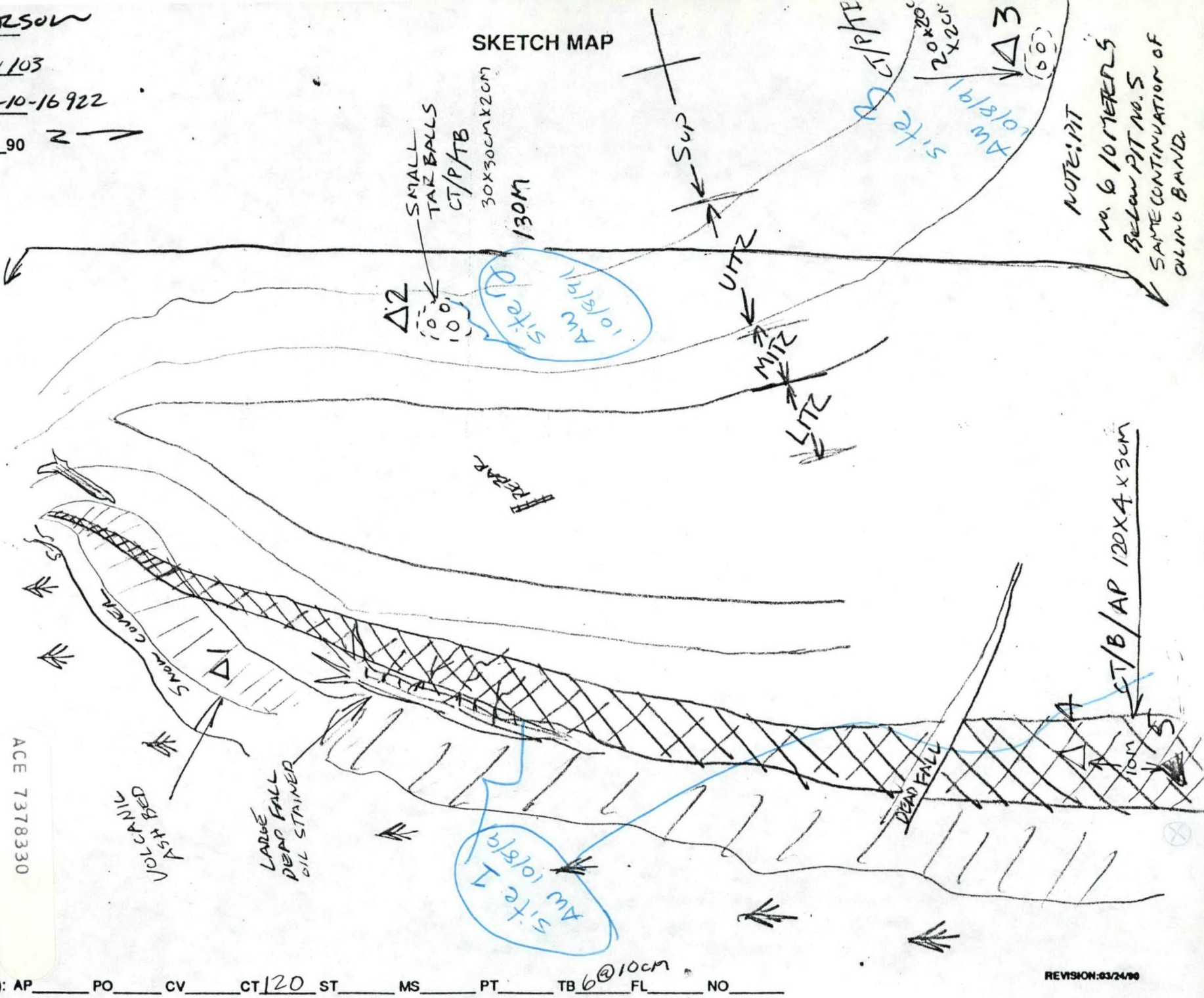
- N Arrow
- Approx. Scale
- Seg/Sub Bndry
- Oil Dist.
- Width
- Length
- % Cover
- Substrate Character
- Est. HWL/LWL
- SSL
- Profile Location(s)
- Profile(s)
- Pit Location(s)
- Photo Location(s)

LEGEND

- 1 ▲
Pit - No Subsurface Oil
- 2 ▲
Pit - Subsurface Oil
- CT/C
Continuous Distribution
- CT/B
Broken Distribution
- CT/P
ly Distribution
- CT/S
Splashed Distribution
- lll
Oiled Vegetation
- 1 →
Photo location, direction, and number

ACE 7378330

SKETCH MAP



Oil Character Length (m): AP _____ PO _____ CV _____ CT/20 ST _____ MS _____ PT _____ TB 6 @ 10cm FL _____ NO _____

STREAM 226-10-16 922

DATE 4 121 90

- ☐ N Arrow
- ☐ Approx. Scale
- ☐ Seg/Sub Bndry
- ☐ Oil Dist.
- ☐ Width
- ☐ Length
- ☐ % Cover
- ☐ Substrate Character
- ☐ Est. HWL/LWL
- ☐ SSL
- ☐ Profile Location(s)
- ☐ Profile(s)
- ☐ PII Location(s)
- ☐ Photo Location(s)

1 Δ

Plt - No Subsurface Oil

2 ▲
Pit - Subsurface Oil

CT/C
Continuous Distribution

CT/B

Broken Distribution

CT/P

Ichy Distribution

[CT/5]

Splashed Distribution

Oil Vegetation

1 

Photo location, direction,
and number

[illegible]

Oil Character Length (m): AP _____ PO _____ CV _____ CT 20 ST _____ MS _____ PT _____ TB 6 @ 10cm FL _____ NO _____

REVISION: 01/24/00

FIELD SHORELINE COMMENT SHEET

SEGMENT ST / KN-103 SUBDIVISION: ^{ASC#} 226-10-16922 DATE 4-21-90

USCG

NAME Kerwin L. Dreher SIGNATURE CWO2 K. L. Dreher

☐ NO TREATMENT RECOMMENDED
COMMENTS

☒ TREATMENT SUGGESTED

Agree

~~ADEC~~ → ADFG

NAME Rick Gustin SIGNATURE Richard J. Gustin

☐ NO TREATMENT RECOMMENDED

☒ TREATMENT SUGGESTED

COMMENTS We recommend removal + wiping of larger rocks in oiled band on the east side of the stream, followed by scraping up the thin oil layer with rake or shovel and remove.

Remove oiled parts of downed tree on east bank.

Remove sporadic tar patties + discontinuous oiled tar band on west side

The majority of work needs to be done on the east side.

Treat during window period.

~~LAND MANAGER~~ → NONE

NAME _____ SIGNATURE _____

☐ NO TREATMENT RECOMMENDED
COMMENTS

☐ TREATMENT SUGGESTED

OPERATIONS FIELD NOTES

(See Back for Instructions)

SEGMENT ID ANPD KN-103
 STREAM ID # 226-10-16922
 ANNOTATED MAP INCLUDED YIN

DATE 4-21-90
 NAME DARRYL JOES
 TEAM # 14

SURFACE OIL	Quantities in Meters			Treatment Recommendation						
	Length	Width	Area	None	Bioremediation		Tilling		Spot Hot Water	
					Y/N	% Treat	Y/N	% Treat	Y/N	% Treat
Wide Band	SEE BELOW									
Medium Band										
Narrow Band										
Very Light										
TOTAL MANDAYS										

SUBSURFACE OIL

Other (Describe)?	<u>None - EXCEPT TARMATS</u>

TARMATS	Quantities in Meters			Treatment Rec			# of Bags	Mandays Required	
	Length	Width	Thick(cm)	None	Breakup	Remove		Breakup	Remove
Area #1	<u>120</u>	<u>4</u>	<u>3</u>			☒	<u>1000</u>	<u>-</u>	<u>20</u>
Area #2									
Area #3									
Area #4									
Sporadic Mats									

MANUAL PICKUP	Type of Debris			In Meters		# of Bags	Pickup	Manday
	Mousse Tarballs	Oiled Veget	Cleanup Debris	Length	Width		Y/N	Estimate
"Pocket" #1	☒			<u>20</u>	<u>20</u>	<u>10</u>	<u>Y</u>	<u>1</u>
"Pocket" #2	☒			<u>20</u>	<u>10</u>	<u>5</u>	<u>Y</u>	<u>1</u>
"Pocket" #3								
Random/Continuous								

OILED LOGS <u>YIN</u>	OILING <u>H/M (L)</u>	QUANTITY <u>L/M (S)</u>	BURN <u>YIN</u>
<u>ONE LOG ON NORTH SIDE OF STREAM - REMOVE BARK FROM TREE</u>			
Is there Other Debris on the Beach? <u>YIN</u> How Many Bags? <u>-</u> Is it mingled with the Oiled Debris <u>YIN</u>			

GENERAL

Snow covering 5 % of the Supratidal Zone?Wave Exposure H/M (L) Access Limitations: SHALLOW COVE AT HEAD OF KN-103Snare Boom/Pom Poms Recommended? NOWould the production Craft have to be relocated to complete work on this subdivision? YIN, # of Times 1

COMMENTS:

ALL WORK SHOULD BE PLANNED FOR PERIOD 5-15 → 7-10
CONTACT AOE #6 PRIOR TO STARTING WORK

ANAD
SSAT DATA ENTRY FORM

PAGE 1 OF 1

32

GENERAL DATA

SEG ID: KN-103 SUBDIV: ²²⁶⁻¹⁰16992 TEAM: 14 SURVEY DATE: 4/21/90
PAVEMENT: CHAR S AREA 25 THICKNESS 8 TARBALLS —
OILED: LGS SM VEG — TRH — DBR SM WAVE EXP: LW — MD — HG X
FAX RCVD: — DT: — AGENCY DISAGREE: —
EST SUBDIV LGTH: 250 OIL CATEGORY: W 105M — N — VL — NO 45U

SURFACE DATA

SURFACE SEDIMENT: BRK — BLD — COB 20 PEB 20 GRN 60 SAN — MUD — VEG —

CHAR #: 1 OIL CHAR: AP OIL DIST: CONT X BRKN — PTCH — SPLH —
OIL CLR: DBL FILM CLR: RW TIDAL ZONE: SU — UI X MI — LI —

CHAR #: 2 OIL CHAR: CV OIL DIST: CONT X BRKN — PTCH — SPLH —
OIL CLR: DBL FILM CLR: RW TIDAL ZONE: SU — UI X MI — LI —

CHAR #: 3 OIL CHAR: CT OIL DIST: CONT X BRKN — PTCH — SPLH —
OIL CLR: DBL FILM CLR: RW TIDAL ZONE: SU — UI X MI — LI —

CHAR #: 4 OIL CHAR: MS OIL DIST: CONT X BRKN — PTCH — SPLH —
OIL CLR: DBL FILM CLR: RW TIDAL ZONE: SU — UI X MI — LI —

CHAR #: — OIL CHAR: — OIL DIST: CONT — BRKN — PTCH — SPLH —
OIL CLR: — FILM CLR: — TIDAL ZONE: SU — UI — MI — LI —

CHAR #: — OIL CHAR: — OIL DIST: CONT — BRKN — PTCH — SPLH —
OIL CLR: — FILM CLR: — TIDAL ZONE: SU — UI — MI — LI —

CHAR #: — OIL CHAR: — OIL DIST: CONT — BRKN — PTCH — SPLH —
OIL CLR: — FILM CLR: — TIDAL ZONE: SU — UI — MI — LI —

CHAR #: — OIL CHAR: — OIL DIST: CONT — BRKN — PTCH — SPLH —
OIL CLR: — FILM CLR: — TIDAL ZONE: SU — UI — MI — LI —

ANAD

SSAT DATA ENTRY FORM

SUBSURFACE DATA

PAGE 1 OF 1SEGMENT ID: KN-103 SUBDIV: 226-10
16922PIT # 1 PIT DEPTH 20 OIL CHARACTER OF OIL INTVAL: FROM 5 TO 8
QUANT: UC OIL CLR: LBR FLM CLR: - ZONE: SU - UI X MI - LI -
SUBSURF SEDIMENT: BRK - BLD - COB - PEB X GRN - SAN X MUD - VEG -PIT # 2 PIT DEPTH 20 OIL CHARACTER NO OIL INTVAL: FROM - TO -
QUANT: - OIL CLR: - FLM CLR: - ZONE: SU - UI X MI - LI -
SUBSURF SEDIMENT: BRK - BLD - COB X PEB X GRN X SAN X MUD - VEG -PIT # 3 PIT DEPTH 18 OIL CHARACTER NO OIL INTVAL: FROM - TO -
QUANT: - OIL CLR: - FLM CLR: - ZONE: SU - UI X MI - LI -
SUBSURF SEDIMENT: BRK - BLD - COB - PEB X GRN X SAN X MUD - VEG -PIT # 4 PIT DEPTH 12 OIL CHARACTER NO OIL INTVAL: FROM - TO -
QUANT: - OIL CLR: - FLM CLR: - ZONE: SU - UI X MI - LI -
SUBSURF SEDIMENT: BRK - BLD - COB - PEB X GRN X SAN X MUD - VEG -PIT # 5 PIT DEPTH 20 OIL CHARACTER OF OIL INTVAL: FROM 5 TO 8
QUANT: UC OIL CLR: LBR FLM CLR: - ZONE: SU - UI - MI X LI -
SUBSURF SEDIMENT: BRK - BLD - COB - PEB X GRN X SAN X MUD - VEG -PIT # 6 PIT DEPTH 7 OIL CHARACTER NO OIL INTVAL: FROM - TO -
QUANT: - OIL CLR: - FLM CLR: - ZONE: SU - UI - MI X LI -
SUBSURF SEDIMENT: BRK - BLD - COB X PEB X GRN X SAN - MUD - VEG -PIT # PIT DEPTH OIL CHARACTER OIL INTVAL: FROM TO
QUANT: OIL CLR: FLM CLR: ZONE: SU UI MI LI
SUBSURF SEDIMENT: BRK BLD COB PEB GRN SAN MUD VEG PIT # PIT DEPTH OIL CHARACTER OIL INTVAL: FROM TO
QUANT: OIL CLR: FLM CLR: ZONE: SU UI MI LI
SUBSURF SEDIMENT: BRK BLD COB PEB GRN SAN MUD VEG PROBLEMS:

PWS, SEWARD AND HOMER ECOLOGICAL CONSTRAINTS

1A Salmon stream mouth - fry outmigration (3/1 to 5/15)

1B Salmon stream mouth - spawning (7/10 to 8/31)

No disturbance of stream bed or banks unless authorized by ADF&G. No beach flushing into stream drainage. No bioremediation or other chemical application within 100m of stream without authorization from ADF&G. No use of methods which might affect nearshore oil or toxicity levels, such as hot water wash or Inipol application, prior to at least July 1 unless authorized by ADF&G. Treatment which is not intrusive and which will not affect nearshore oil or toxicity levels, such as manual removal, can probably proceed without adherence to time constraints. In any case, contact ADF&G Habitat Division prior to treatment for consultation and/or permit application.

AGENCY CONTACT PERSON: ADF&G John Morison 267-2324

1C Salmon fry nursery area (4/31 to 7/31)

No use of methods which might affect nearshore oil or toxicity levels, such as hot water wash or Inipol application, prior to July 31 unless authorized by ADF&G. Treatment which will not affect nearshore oil or toxicity levels, such as manual or mechanical removal, can probably proceed without adherence to time constraints. Contact ADF&G prior to treatment for confirmation and advice.

AGENCY CONTACT PERSON: ADF&G Larry Peltz 424-3214

1D Esther Hatchery release (4/15 to 6/15)

1E Main Bay Hatchery release (4/20 to 6/15)

1F Sawmill Bay Hatchery release (4/15 to 6/1)

1G Cannery Creek Hatchery release (4/21 to 6/1)

1H Remote release site

No use of methods which might affect nearshore oil or toxicity levels, such as hot water wash or Inipol application, prior to at least July 1 unless authorized by ADF&G and/or PWS Aquaculture Association. Treatment which will not affect nearshore oil or toxicity levels, such as manual or mechanical removal, can probably proceed without adherence to time constraints. Contact ADF&G or PWS Aquaculture Association for confirmation and authorization.

AGENCY CONTACT PERSON: 1E ADF&G Larry Peltz 424-3214

1D 1F 1G PWS Aquaculture Association John McMillan or Bruce Suzumoto 424-7511

1I Gill net area (6/7 to 8/31)

1J Purse seine area (7/20 to 9/30)

1K Purse seine hook-off (7/20 to 9/30)

1L Set net sites (6/11 to 7/25)

Contact ADF&G for specific dates, locations and constraints. Restrict boat and air traffic to essential minimum. When set net sites are present (1L) restrict beach operations to essential minimum as authorized by ADF&G. If plans for treatment include methods such as hot water wash or Inipol application which might affect nearshore oil or toxicity levels, contact ADF&G for consultation and authorization.

AGENCY CONTACT PERSON: ADF&G James Brady 424-3212

2M Herring spawning (4/1 to 6/15)

Contact ADF&G for confirmation - dates and locations may vary. Restrict boat traffic to essential minimum. Avoid damage to unopened intertidal and subtidal algae and seagrass. If plans for treatment include methods such as hot water wash or Inipol application which might affect nearshore oil or toxicity levels, contact ADF&G for consultation and authorization.

AGENCY CONTACT PERSON: ADF&G Evelyn Biggs 424-3235

3N, 3P Harbor seal and sea lion pupping (5/15 to 7/1)

3O, 3Q Harbor seal and sea lion molting (8/15 to 9/15)

Restrict boat and air traffic to essential minimum. No personnel within 400m. Aircraft to maintain 800m horizontal and 300m vertical distance from haulouts. No application of Inipol within two weeks of arrival dates (work window at these sites is limited to 7/2 to 7/31). Contact ADF&G and USFWS prior to treatment for confirmation.

AGENCY CONTACT PERSON: US National Marine Fisheries Service Steve Zimmerman 586-7235

ADF&G Don Calkins 267-2403

5R Seabird colony (5/1 to 9/1)

Restrict air and boat traffic to essential minimum. No personnel within 800m. Aircraft to maintain 800m horizontal, 300m vertical distance from colony. Contact USFWS prior to treatment.

AGENCY CONTACT PERSON: USFWS Jill Parker 786-3377

5S Shorebird/waterfowl concentration (4/1 to 5/15)

Restrict all activity to essential minimum, especially air traffic. Contact USFWS and ADF&G for confirmation.

AGENCY CONTACT PERSON: USFWS Jill Parker 786-3377

ADF&G Tom Roth 267-2208

5T All Bald Eagle nests (3/1 to 6/1)

Active Bald Eagle nests (3/1 to 9/1)

Restrict air traffic and all disturbance to essential minimum. No personnel within 400m 3/1 to 6/1. Air approach and takeoff from and to seaward only; maintain 800m horizontal, 300m vertical distance from nests. Contact USFWS prior to treatment for confirmation of dates.

AGENCY CONTACT PERSON: USFWS Jill Parker 786-3377

6U Recreation: Tent sites (6/1 to 9/15)

6V Anchorages (6/1 to 9/15)

6W Forest Service cabins (6/1 to 9/15)

6X Lodge (6/1 to 9/15)

6Y Special use destination

7Z Subistence area: Salmon harvesting (5/1 to 9/30)

7HH Finfish harvesting

7H Deer harvesting (8/15 to 2/28)

7JJ Invertebrate harvesting

Contact ADF&G and appropriate Native Corporation for specific dates, locations, and constraints. Restrict boat and air traffic and beach disturbance to essential minimum. If plans for treatment include methods such as hot water wash or application of Inipol which might affect intertidal or nearshore oil or toxicity levels, contact ADF&G and appropriate Native Corporation for authorization - see Native Corporation Contact List for each Native Corporation's contact person.

AGENCY CONTACT PERSON: ADF&G Jim Fall 267-2359

ACE 7378316

ANADROMOUS FISH STREAM EVALUATION ADDENDUM

CONSTRAINTS FOR STREAM NO. 226-10-16922

SEGMENT KN-103 SUBDIVISION A

WORK WINDOW

Manual Pickup Tarmat Removal	CLOSED (Eagle Nest Buffer Prevents Access)
Bioremediation More Than 100m From Stream	CLOSED (Eagle Nest Buffer Prevents Access)
Bioremediation Less Than 100m From Stream	CLOSED (Eagle Nest Buffer Prevents Access)

ARCHAEOLOGICAL STANDARD CONSTRAINT

If cultural resources are uncovered, PHONE 564-3274.

APPLICABLE ECOLOGICAL TIME CONSTRAINTS

1A,1B Salmon Stream	ADF&G catalogued anadromous stream (226-10-16922) is in Subdivision A. This subdivision is closed to bioremediation less than 100m from stream 7/10 to 8/31. Before 7/10, bioremediation is permitted less than 100m from stream with on-site ADF&G monitor or ADEC alternate present. No constraint to bioremediation more than 100m from stream.
5T Bald Eagle Nest	USFWS 6/1/90 map indicates an active nest in Subdivision A. Closed to manual pickup, tarmat removal, and bioremediation. Eagle nest buffer zone prevents access to treatment area.

OTHER ECOLOGICAL CONSIDERATIONS

If eagle nest constraint is removed, other ecological considerations will apply.

SEE SUBDIVISION CONSTRAINT ADDENDUM KN-103A
FOR ADDITIONAL CONSTRAINT INFORMATION.

FOSC WKL Date 6-10-90

Prepared by W. Kelley Date 6/9/90

SSAT 90

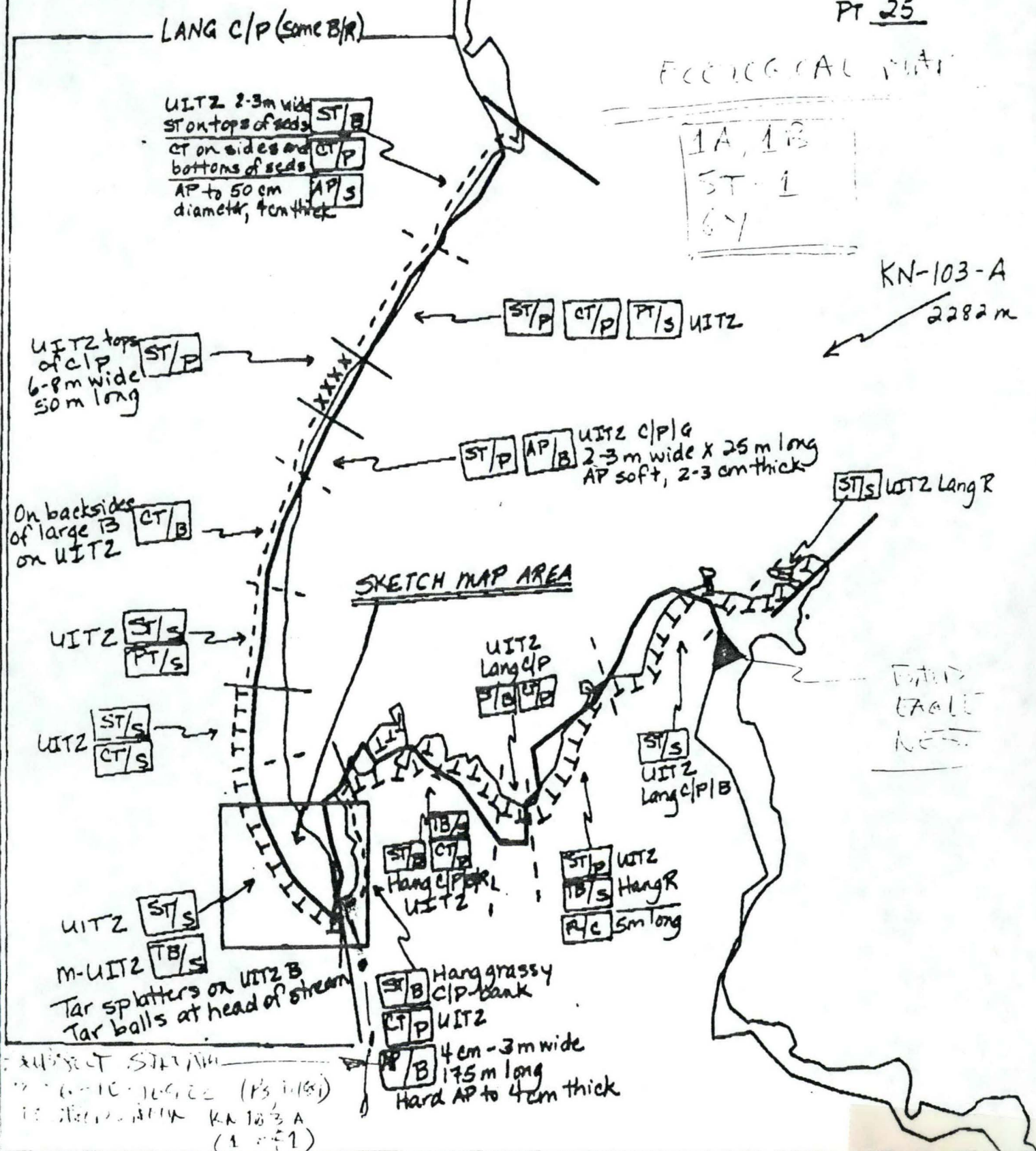
Oil Character. lengths (m):
 AP 215 CT 485 ST 215 TB 45 FL 5
 PT 25

ECOLOGICAL MAP

1A, 1B
 ST-1
 67

KN-103-A

2282m



XXXX Wide

/// Medium

--- Narrow

TTTT Varv line

KN-103

EXXON Segment Length: 2282m
 ADEC Segment Length: 1862m

ACE 7378309 -15

Map Key: PWS-283

Name: C. DILLON

Date: 04/09/90

Oil Character Lengths (m):

AP 215 CT 485 ST 215 TB 45 FL 5PT 25

LANG C/P (some B/R)

FCC ICC CAL UNIT

UITZ 2-3m wide
ST on top of seeds
CT on sides and
bottoms of seeds
AP to 50 cm
diameter, 4cm thick

ST/B
CT/P
AP/S

1A, 1B
ST-1
67

KN-103-A

2282 m

UITZ top
of C/P
6-8m wide
50m long

ST/P

ST/P CT/P PT/S UITZ

ST/P

UITZ C/P/B
2-3m wide X 25m long
AP soft, 2-3 cm thick

AP/B

ST/S UITZ Lang R

On backsides
of large TB
on UITZ

CT/B

UITZ ST/S
PT/S

UITZ ST/S
CT/S

SKETCH MAP AREA

UITZ Lang C/P
P/B/L

ST/S
UITZ
Lang C/P/B

ENTER
EVAL
NET

UITZ ST/S
TB/S

M-UITZ
Tar splatters on UITZ B
Tar balls at head of stream

TB/B
ST/B
CT/P
UITZ

Hang C/P/B
UITZ

ST/P
TB/S
UITZ
R/C 5m long

ST/B
CT/P
UITZ

4cm-3m wide
175m long
Hard AP to 4cm thick

ST/B
CT/P
UITZ

ST/B
CT/P
UITZ

ST/B
CT/P
UITZ

ST/B
CT/P
UITZ

ST/B
CT/P
UITZ

ST/B
CT/P
UITZ

XXXX Wide

//// Medium

--- Narrow

TTTT Very light

KN-103

EXON SEGMENT LENGTH: 2282m

ADEC Segment Length: 1862m

ACE 7378313 -/S

Map Key: PWS-283

Name: C. DILLON

Date: 04/09/90

Final Anadromous Stream Treatment Information

Segment ID - Stream ID	NTR	Bio	Bio Start	Bio End	Man	Man Start	Man End
K0911-CD020 262-10-10080					X	6/28/90	6/28/90
K0911-CD020 262-10-10092					X	6/28/90	6/28/90
K0917-CC100 262-15-10040	X						
K0919-HB001 262-20-10040					X	6/12/90	6/14/90
K0919-HB004 262-20-10030	X						
K1002-AB002 262-65-655					X	7/7/90	7/8/90
K1007-PB001 262-70-10025					X	6/23/90	6/24/90
K1007-PB016 262-70-10010					X	7/10/90	7/10/90
K1009-DB008 262-75-10020	X						
KN0103 226-10-16922		X	7/7/90	9/1/90	X	7/7/90	7/7/90
KN0106 226-10-16890					X	6/30/90	6/30/90
KN0110 226-10-16928	X						
KN0120 226-10-16940	X						
KN0129 226-10-16975					X	5/30/90	5/30/90
KN0129 KN0129-UNCAT		X	6/19/90	6/19/90	X	5/30/90	5/30/90
KN0132 226-10-16982		X	6/19/90	9/11/90	X	5/26/90	5/29/90
KN0134 226-30-16865		X	6/23/90	6/23/90	X	6/23/90	6/23/90
KN0201 226-30-16872					X	6/1/90	6/1/90
KN0205 226-30-16860					X	6/1/90	6/3/90
KN0211 226-10-16875		X	7/1/90	7/9/90	X	7/1/90	7/9/90
KN0211 226-10-16880					X	7/1/90	7/1/90
KN0213 226-30-16853		X	7/1/90	7/6/90	X	7/1/90	7/6/90
KN0401 226-30-16820					X	6/30/90	6/30/90
KN0500 226-10-16992		X	7/5/90	9/11/90	X	7/5/90	7/7/90
KN0500 226-10-16996		X	7/7/90	9/11/90	X	7/5/90	7/7/90
KN0601 226-40-16855	X						
KN0602 226-40-16851	X						
KN0602 226-40-16853	X						
KN0701 226-30-16840		X	6/30/90	9/13/90	X	6/30/90	7/27/90
KN0704 226-30-16844	X						
LA015 226-40-16782		X	7/3/90	7/8/90	X	7/3/90	7/8/90
LA018 226-40-16780		X	7/3/90	8/26/90	X	6/15/90	7/4/90
LA021 226-40-16774		X	6/17/90	6/17/90	X	6/13/90	6/14/90
LA021 226-40-16776	X						
LA023 226-40-16772	X						
LA029 226-40-16788	X						
LA031 226-40-16785	X						
MA009 226-20-15044	X						
MN001 227-20-17570	X						
NA026 226-40-12950	X						
NK001 232-21-10230		X	7/3/90	7/4/90	X	7/3/90	7/4/90
PD002 242-42-10450					X	6/21/90	6/23/90
PD003 242-42-10460					X	6/21/90	6/23/90
TB002 232-10-10340					X	7/1/90	7/1/90
TB003 232-10-10342					X	6/20/90	7/1/90
WB001 242-32-10155					X	6/19/90	6/19/90
WB003 242-32-10160					X	6/19/90	6/19/90
WH003 226-40-16322		X	7/8/90	7/8/90	X	7/8/90	7/8/90

ADEC BIOREMEDIATION DAILY REPORT

DATE: 9/1/90ADEC Monitor: Rowann Hudnall

TIDES:	TIME:	HEIGHT:	WEATHER: <u>cloudy</u>	Rain	Fog	Sun
Low	_____	_____	TEMP: <u>60</u>	SEA COND: <u>calm</u>		
High	_____	_____	WIND DIR: <u>N-NE-E-SE-S-SW-W-NW</u>			
Low	_____	_____	WIND SPEED <u>0-15</u>	16-30	30+	
High	_____	_____				

USCG Dan Percy / Scott Rainsford Exxon A/ SnookOOPS Jame Byars Other _____OGS Dan Mann, Jim Conners

Segment	Sub	No. Sites	Inipol (gal)	Custom (lbs.)	Comments
---------	-----	--------------	-----------------	------------------	----------

KN103	A	1	0	41	2nd treat
KN103	A-S	1	0	3	2nd treat
DI67	A	4	10	448	1st treat
DI69	A	2	22	11	3rd treat
KN101	A	6	75	37	3rd treat
KN107	B	6	12	6	3rd treat
KN109	A	1	16	6	3rd treat

\shorelin\rowann\biorept 8/7/90

ADEC DEMOBILIZATION REPORT
FOR INIPOL AND CUSTOMBLEN TREATMENT

To: Alaska Department of Environmental Conservation
Oil Spill Response Center
Anchorage, Alaska

Attn: John Bauer
FAX 265-4666

From: _____ (please print)

RE: SEGMENT NUMBER KN103 SUBSEGMENT NUMBER A r 4S

ADEC REP Rowann Hudnall USCG REP Don Percy

EXXON REP Al Snook BOAT NAME/SQUAD NUMBER Don Bollinger
Squad 3

Site #	Length (along shore m)	Area m ²	Inipol (gallons)	Customblen (lbs.)
--------	---------------------------	------------------------	---------------------	----------------------

See daily report + OG report for details

Has work been completed as stated on the work order? If your answer is no please explain in detail how the work performed was different from the work order language.

yes. bio reapplication. 15 geosacks OP, OR seeds removed. Light OR sediment broken up + exposed. Tarmat removed from site 2 prior to bio.

Describe the amount of oil remaining (type, size of area and location).

Med. to Light SOR in U I T Z
next to stream.

Additional Comments (keep objective)

ADF + G Doug Hill on site - approved treatment.

signature Rowann T. Hudnall

Date and time of demobilization from segment

Shoromon, Demol. Llu 50/30/90

9/1/90

ADDEC DEMOBILIZATION REPORT
FOR PHYSICAL/MECHANICAL TREATMENT AND CUSTOMBIEN

To: Alaska Department of Environmental Conservation
Oil Spill Response Center
Anchorage, Alaska
Attn: John Bauer
FAX 265-4666, 265-4656

HERRING Bay, KNIGHT ISLAND

RE: SEGMENT NUMBER YN 103 SUBSEGMENT NUMBER A & B

DEC REP JAN KRIEGER

USCG REP BASILIO FLORES

EXXON REP PICK HANDELSON

BOAT NAME/SQUAD NUMBER M/V CHRISTIAN SQUAD #1

Has work been completed as stated on the work order? If your answer is no please explain in detail how the work performed was different from the work order language.

YES

Is there additional oil remaining which can be removed with further physical/mechanical treatment? If yes what is the recommended treatment method.

NO

Describe the amount of oil remaining (type, size of area and location).

SOME VERY LT STAIN SPLATTERS IN
WITZ ON BOULDERS & BEDROCK

NO MAP NECESSARY

Additional Comments (keep objective)

THESE TWO SEGMENTS HAVE BEEN TREATED WITH CUSTOMBIEN -

WE FOUND NO MANUALLY OR MECHANICALLY TREATABLE OILING

signature Jan Krieger

Date and time of demobilization from segment 08/06/90 10:45

Shoremen/SS... 5-12-90

ADEC DEMOBILIZATION REPORT
FOR PHYSICAL/MECHANICAL TREATMENT AND CUSTOMBLEN

To: Alaska Department of Environmental Conservation
Oil Spill Response Center
Anchorage, Alaska

Attn: John Bauer
FAX 265-4666, 265-4656 *Non and stream portion*

RE: SEGMENT NUMBER KN103 SUBSEGMENT NUMBER A(1 of 1)

DEC REP Jay Vincent USCG REP Jake Lincoln

EXXON REP Ops Steve Manuel BOAT NAME/SQUAD NUMBER M/V Corinthian Squad 2

Has work been completed as stated on the work order? If your answer is no please explain in detail how the work performed was different from the work order language.

Yes

Is there additional oil remaining which can be removed with further physical/mechanical treatment? If yes what is the recommended treatment method.

No

Describe the amount of oil remaining (type, size of area and location).

Small amounts of OR oil present in areas worked throughout subsegment. Tar splatters on rocks. CT, ST on R, B, C which is DBL & Broken to Patchy

Additional Comments (keep objective)

Post assessment of entire subsegment indicates treatment performed per work order specifications, Grade B.

signature

Jay Vincent

Date and time of demobilization from segment

7/12/90

Shoremon\55

5-12-90

ACE 7378291

DEMOD RN WST

7/12/90

40

Key:

- indicates general area
of asphalt removal.
Size of areas approximately
1m x 3m sections

Scattered for bolls & small isolated pockets of asphalt
to m. - 1/2 m. removed
through this portion of
subsegment

KN 103A

 H_2O

Tar patties &
Isolated small packets
of asphalt removed
from this portion
of subsequent

KN703A

Arred
stream
- butter
300'

Anad stream.
(previously denuded)

- CT, ST with broken to patchy distribution, characterized by dull black coloration found throughout subsegment

ADEC DEMOBILIZATION REPORT
FOR PHYSICAL/MECHANICAL TREATMENT AND CUSTOMBLEN

To: Alaska Department of Environmental Conservation
Oil Spill Response Center
Anchorage, Alaska

Attn: John Bauer
FAX 265-4666, 265-4656 *<AND STREAM # 226-10-16922>*

RE: SEGMENT NUMBER KN105 SUBSEGMENT NUMBER A

DEC REP JAN KRIEGER & JEFF GUANAS USCG REP SCOTT RAINSFORD & JAKE LINCOLN

EXXON REP RICK HARRISON BOAT NAME/SQUAD NUMBER M/V CREWMAN SQUAD

Has work been completed as stated on the work order? If your answer is no please explain in detail how the work performed was different from the work order language.

YES

Is there additional oil remaining which can be removed with further physical/mechanical treatment? If yes what is the recommended treatment method.

NO

Describe the amount of oil remaining (type, size of area and location).

*STAIN BOAT ON EAST SIDE OF STREAM / BEACH, AND SOME
IT STICK IN MUD & WIRE.*

-SEE MAP-

Additional Comments (keep objective)

*THIS IS NOT A DEMOB FOR KN105A, IT IS ONLY FOR THE ANAD SCI.
WORK ORDER.*

*CREWS WORK PERFORMANCE TODAY WAS THE WORST I HAVE SEEN
THIS SUMMER.*

signature *[Signature]*

Date and time of demobilization from segment 07/07/90 12:00

Shoremon\55 5-12-90

CREW GRADE (D)

ACE 7378293

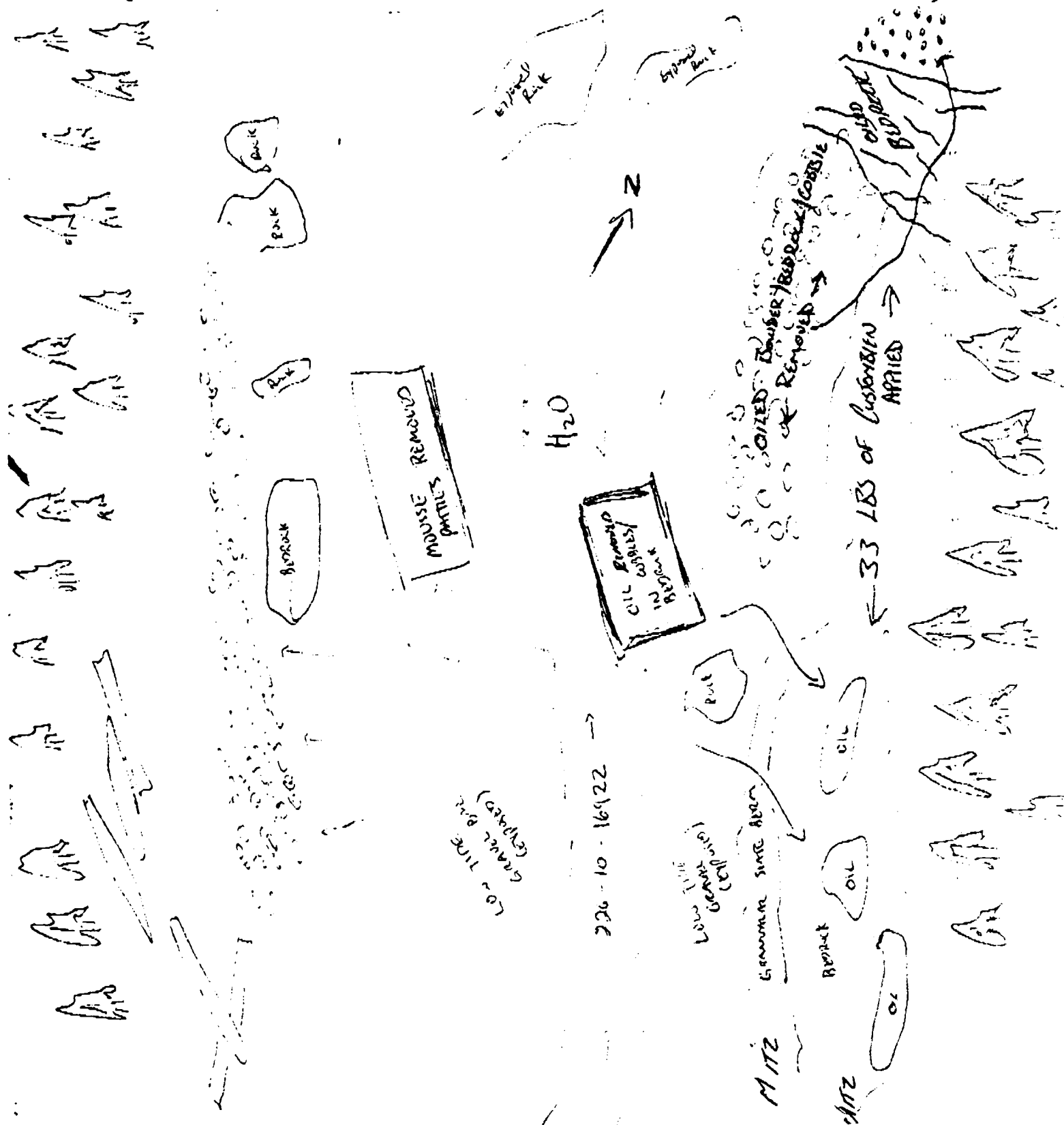
KN-103 A

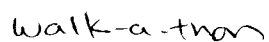
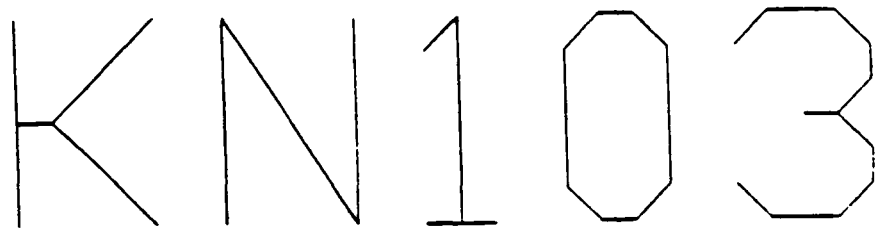
ANN STR 226-10-1692

Manual Post Treatment

7-7-90

S. Gilmus ADZ





OILING	
H	= Heavy
M	= Moderate
L	= Light
VL	= Very Light
N	= None
NS	= Not Surveyed
Distance In Meters	

ADEC Sep/Oct 1989 Survey

ADEC EXXON VALDEZ POST-TREATMENT SURVEY REPORT

SEGMENT#: KN103

DATE: 09/19/89

LOCATION: LOWER PASSAGE, KNIGHT I.

TIME: 8:50

Survey Type: Boat, Ground

Team: J. Krieger, K. Dutcher, G. Winter, C. Pavia

WEATHER AND SEA CONDITIONS

Weather: Cloudy, Rain

Wind Direction: SE

Sea State: Moderate

Knots: 0-15

Low Tide: 10:26

Feet: 1.83

High Tide: 16:31

Feet: 14.1

Low Tide: 23:16

Feet: -1.1

High Tide: 4:43

Feet: 11.6

SHORELINE DESCRIPTION

Shoretypes: H,LR,B

(H=headland, LR=low-lying rock, B=beach, C=cove, L=lagoon, M=marsh)

Wave Exposure: H,M (H=high, M=moderate, L=low)

Shoreline Composition: R,B,C,G,S

(R=bedrock, B=boulder, C=cobble, G=gravel, S=sand, M=silt)

OIL CHARACTERISTICS

Degree of Oiling: VL,L,M,H

(N=none, VL=very light, L=Light, M=moderate, H=heavy)

Area of Impact: H,M

(S=supratidal, H=high intertidal, M=mid tidal, L=low intertidal)

Max. Oil Thickness: 3 mm (1 = 1 mm or less, 0 = no oil)

Max. Oil Penetration: 10 cm (35 = 35 cm or greater)

Percent Segment Categorized as Oiled: 100%

Presence of Oiled Driftwood (y/n): y

Oil Types: M,SY,ST

(P=pooled, M=mousse, SY=sticky, T=tar, A=asphalt, ST=stain)

Samples: KN103-1 / KN103-2 / none / none

DAMAGED OR OILED ORGANISMS

Fucus (y/n): y

Barnacles (y/n): y

Mussels (y/n): y

Dead Mammals: 0

Dead Birds: 0

SOLID WASTE FOUND

Type: One locality, flagging tape

Bags Collected: 0

Draft

Printed: 12/12/89 11:30

Walk-a-thon

ACE 7378286

(version 5/02/89)

SHORELINE CLEANUP PROGRAM

DATE May 6, 1989

SHORELINE SEGMENT KN-103

LOCATION: (see enclosed map) Knight Island

ADEC NO. _____ SHORELINE ASSESSMENT DATE: 4/29/89

Recommended Cleanup Activity(ies):

High pressure, hot water on rocky areas with dead vegetation.

Low pressure, high volume cold water in vicinity of large fresh water stream so as not to contaminate stream sediments.

Priorities Considerations:

Do not venture into clean areas near fresh water streams. Do not force oil into stream sediments.

Ecological Constraints (from site survey):

Do not clean past the first stream on the west side of the bay. The clean area extends to the large stream in the south of the bay. Cleaning should continue on the rocky beaches past this large stream.

Archeological Constraints (from site survey):

If heretofore undiscovered cultural materials are uncovered during cleanup, contact Exxon's Archeological Field Director and take actions prescribed in the Operational Guidelines for Shoreline Cleanup dated 4/21/89 as amended.

Charles E. Holman
State Historic Preservation Officer *

Date: May 6, 1989

EXXON: J. Lemay
FOSC: _____

Date: 5/9/89
Date: _____

* Signature required to satisfy stipulations in Alaska DNR land use permits for tide and submerged lands .

[revised 17 Apr 89]

SHORELINE OIL EVALUATION

Date: 4 / 29 / 89

Observer: C. Dillon

Time: 14 h 55 m

Weather: Sun/Cloud/Rain/Snow/Fog

LOCATION

LOCATION Knight Island

SITE West Bay

LOCATION PREFIX KN

SEGMENT NUMBER KN-103

LATITUDE: 6 d m s

LONGITUDE: 147 d m s

LENGTH OF SHORELINE SEGMENT: 1700 m

ACCESS: Foot/Vehicle/Boat/Barge/Helio/Float Plane

SHORELINE:

SHORELINE CHARACTER:

shallow
Beach/SPit/Cove/

Wave Exposure: High/Med/Low

Rock Y/N : 5 Vertical/High Angle/Low Angle

SEdiment Y/N : 95 Types: B / C / P / G / S / M / R

Strand Line Y/N Algae/Debris/Logs

OIL

LOCATION OF OIL: SU / SP / H / M / L

CONTINUOUS: Y/N WIDTH OF BAND: 3-10 m % of Segment 55 70 ced

PATCHY: 10/20/30/40/50/60/70/80/90% coverage % of Segment 30

EST. OIL THICKNESS: 4.25-1 cm EST. OIL PENETRATION: 0-1 cm

POOLED OIL: Y/N "FREE" OIL: Y/N WEATHERED: Y/N

STRAND LINE CLEAN/OILED

SUMMARY OILING: Amount High/Med/Low
Coverage Extensive/Moderate/Light

COMMENTS: Head of shallow cove is clean. Moderate to heavy oiling is on outer reaches of cove only. See diagram for details.

C:\WP\DATA\SHOREVAL.1

BEACH LEVEL

SUPRATIDAL (+SHWL)	SU
HWL to SHWL	SP
UPPER 1/3 ITZ	H
MIDDLE 1/3 ITZ	M
LOWER 1/3 ITZ	L

SEDIMENT TYPE

BOULDER (> 256 mm)	B
COBBLE (64 - 256)	C
PEBBLE (4 - 64)	P
GRANULE (2 - 4)	G
SAND (0.06- 2)	S
MUD (< 0.06)	M
ROCK	R

Can use multiple entries e.g. C/G/S; in which case the first letter is the predominant sediment type and the following are in decreasing order

KEY

LOCATION PREFIX

NAKED IS	NA
PEAK IS	PE
STOREY IS	ST
ELEANOR IS	EL
INGOT IS	IN
BLOCK IS	BL
ENTRANCE IS	EN
SPHINX IS	SP
DISK IS	DI
KNIGHT IS	KN
SMITH IS	SM
SEAL IS	SE
APPELGATE IS	AP
GREEN IS	GR

LOCATION SUFFIX

A unique number which identifies the distinct segment described in this report.

C:\WP\DATA\SHOREVAL.1

DOCUMENTATION:

MAP/Aerial photo marking segment boundaries None

VTR: Y/N Tape Number(s) _____

PHOTOGRAPHY: Y/N Roll Number(s) KN-1 Exposures 25 to end of roll

SAMPLE NUMBERS COLLECTED: None

C:\WP\DATA\SHOREVAL.1

ECOLOGICAL EVALUATION

LOCATION: Knight SITE: West Bay OBSERVER: SmB

LOCATION PREFIX: KN SEG. NO.: 103 LENGTH: 1700 (M)

DATE: 4/29/89 TIME (HHMM): 1455 ~~1440~~ TIDE HT.: -1 to 0 (M)

OILED ZONE: Splash High Medium Low

SUBSTRATUM: Rocks Boulder Cobble Gravel Sand Mud

LIVE BIOTA

Fucus (algae): Patchy Y/N Contin. Y/N Dense Y/N Sparse Y/N None Y/N

Dense on rocks, healthy in lower ITZ, dead in ~~low~~ oiled zone

Mytilus (Mussels): Patchy Y/N Contin. Y/N Dense Y/N Sparse Y/N None Y/N

Mytilus on rocks upper ITZ is coated 10-15% gapping

Balanus (Barnacles): Patchy Y/N Contin. Y/N Dense Y/N Sparse Y/N None Y/N

coated, several touched - did not respond

Littorina

Patchy Y/N Contin. Y/N Dense Y/N Sparse Y/N None Y/N

Alive in oiled zone

Limpets: Patchy Y/N Contin. Y/N Dense Y/N Sparse Y/N None Y/N

Alive in oiled zone

OTHER OBSERVATIONS: Red algae, Ulva, healthy in lower ITZ

Black, sticky oil in upper ITZ south shore and west shore
South shore also has weathered mouse

CLEANUP PRECAUTIONS: Clean upper ITZ to first stream only area

Past this stream is clean to lightly oiled. Oiling resumes
on south shore past large stream DO NOT disturb this stream.

MAMMALS: Otters Harbor Seals Sea Lions Whales
 other None

BIRDS: Shore birds feeding in clean zone

GENERAL OBSERVATIONS: The streams in the SW area of the

Bay have cleaned this region. Heaviest oil is at the
beginning of the segment (NW) and end of the segment
(SE) clean only these areas.

(version of 4/25/89)

CULTURAL RESOURCE EVALUATION FOR OILED SHORELINE

Date 4/29/89 Location Knight Island Site West Bay

Location Prefix KN Segment # KN103 Length 1700 m

Survey Method:

Air _____ (A - indicate on map) Boat _____ (A - indicate on map)

Ground ✓ (G - indicate on map)

Known cultural resources (AHRS #) SEW 236 Data Source AHRS Files

Oil conditions/beach visibility none moderate but mostly light

Width of beach zone surveyed 1-7 m Tree fringe surveyed 10m

Cultural resources observed in beach zone (AHRS code) None

Cultural resources observed in tree fringe (AHRS code) HPT

General observations justifying survey method and segment's site probability:

Shore Profile broad, mostly flat beach

Fresh Water Sources seven streams

Sea Exposure east - protected

Access/Safety excellent

Probability of undiscovered sites in beach zone (circle one) 1 2 (3) 4 5

Monitoring during cleanup needed yes/(no) Collection yes/(no)

Photos: Color Roll # CW-5 Frames 4, 5, 6, 7, 8, 9

B/W Roll # _____ Frames _____

Observer(s) C. Wilson

Time survey started 1455 Time survey ended 1620

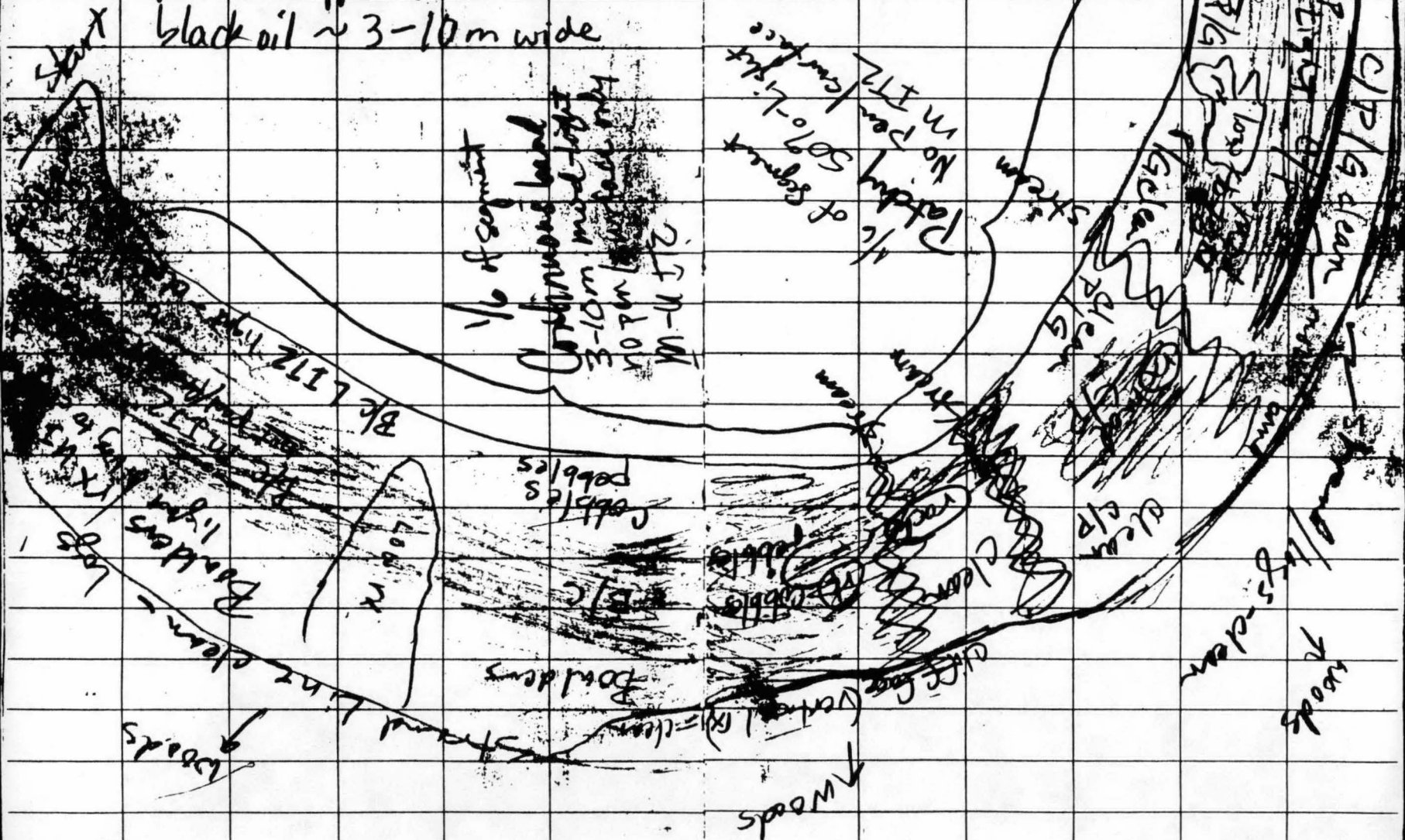
Cultural resource considerations/restraints:

If heretofore undiscovered cultural materials are recovered during cleanup notify Exxon archeologist, C. Votky, immediately.

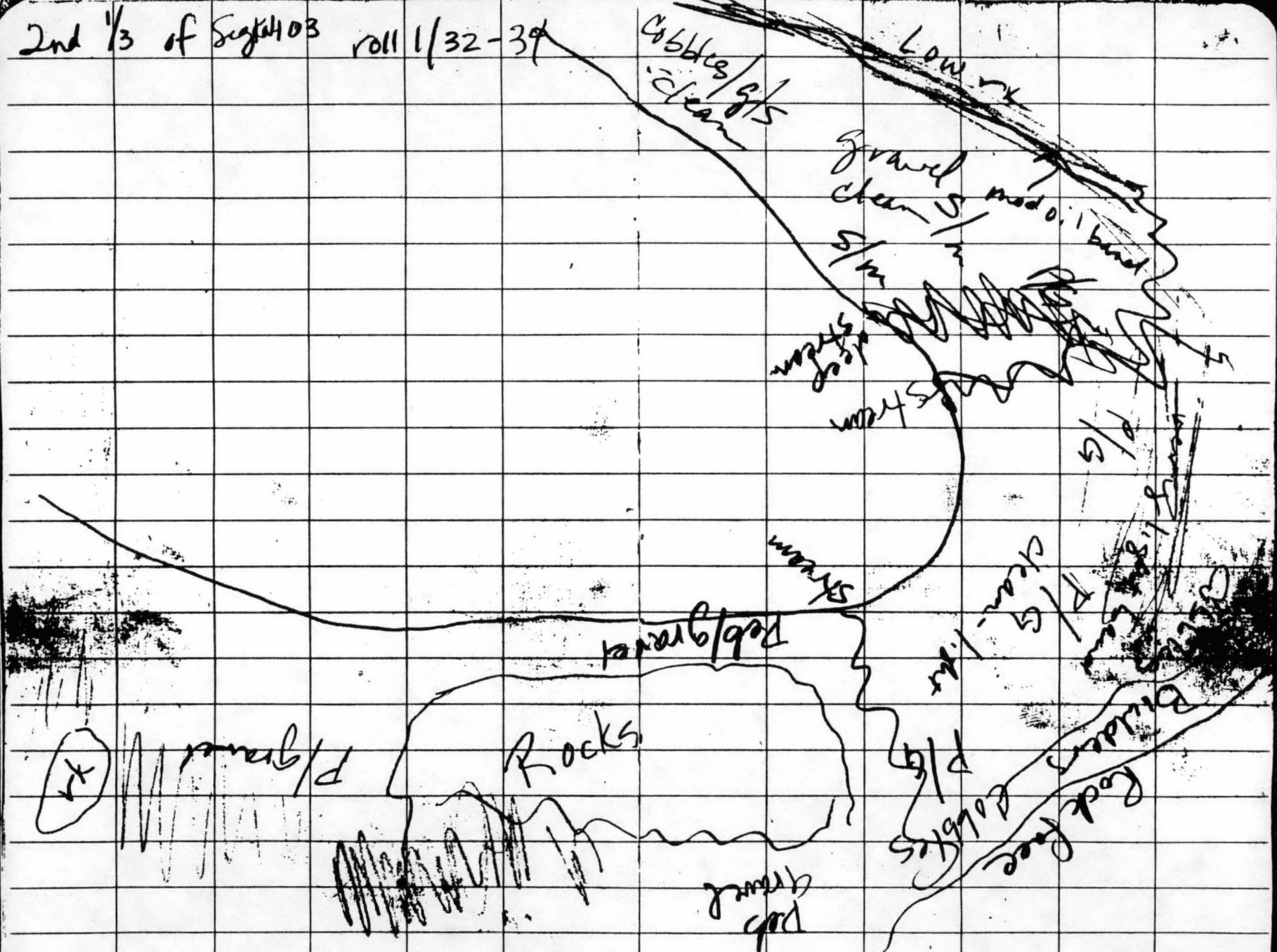
1455 Segment K103 Beach

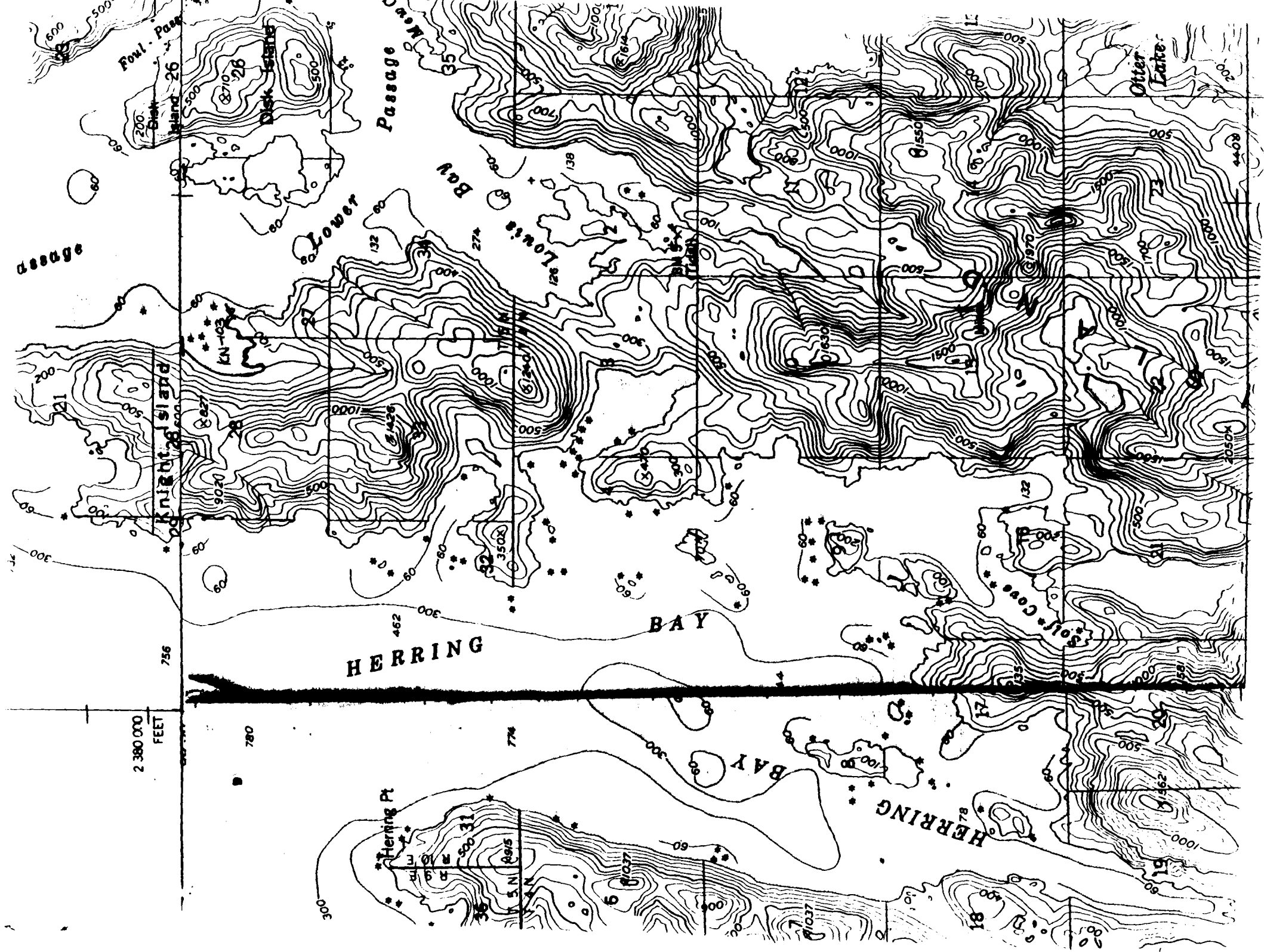
photo: roll K11 / 25-31 exposure #

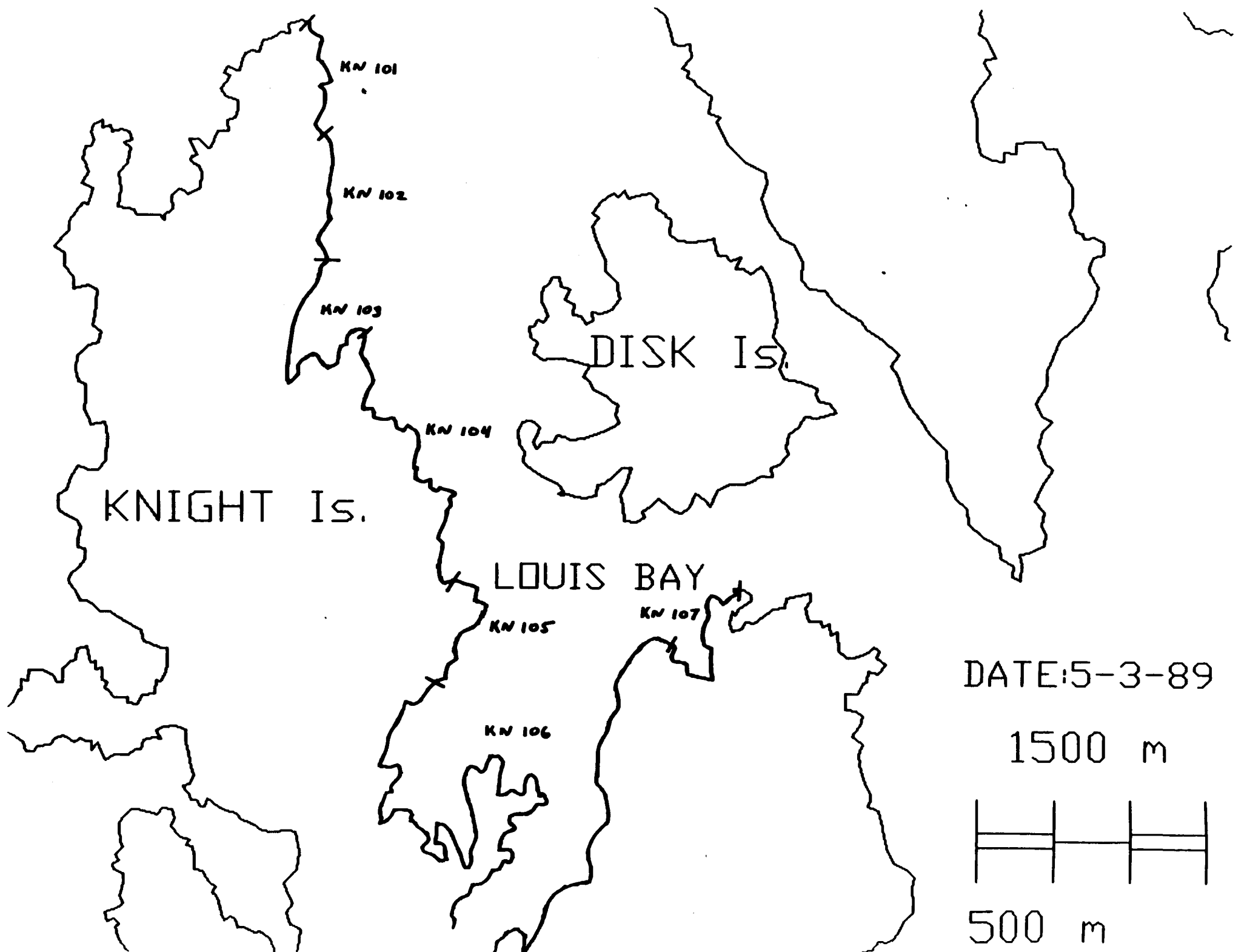
Mid to Upper IT2 band of
black oil ~ 3-10 m wide



2nd 1/3 of Sept 403 roll 1/32-39







SUMMARY SHEET
FOR DIFFICULT-TO-COPY ITEMS

ALASKA/CIVIL EXXON

Folder ACE # 1369617

CDP BOX # 12,306

Begin ACE Number 7378344 End ACE Number — Jim

DOCUMENT TYPE:

 BOOK

 BLUEPRINT

✓ PHOTOS

 VIDEO

 SLIDES

 AUDIO CASSETTE

 MAP OR CHART

 OTHER-Identify document type

 COMPUTER PRINTOUT

MARGINALIA: YES X NO

AUTHOR:

DATE OF PUBLICATION:

VERBATIM TITLE:

INFERRED TITLE: Opal Creek, 11/4

Knight Island. KN103U01MM

ADDITIONAL INFORMATION: 500 ft Aerial/-1046

KN103U01MM-Opal Creek Lower Passage

Knight Island



OPAL CREEK
11/4

To Reston
Photo ACE 7378344
was staple to
the back side
of map ACE 7378342
upper left hand corner



10818120181-3

AERIAL
-1046

ACE 7378344
+187-73

500ft 11/4

TREATMENT MANUAL, 6/15/89

SEG KN-103 INSPECTION # 1

SEGMENT

DATE 7/27/89

INSPECTION RECORD

Shoreline Treatment Process(es) Completed for this Segment



Hot water wash



Mechanical



Warm water wash



Non-mechanical



Water deluge



Other

Exxon

Treatment as indicated above has been completed. Request demobilization from this segment.

Comments Treatment of segment KN-103 is complete and ready for demobilization to next segment.

Signature Steve E. Ramsauer Date: 7/27/89 Time: 1615

Printed Name Steve E. Ramsauer TF-2 Commander

Existing Shoreline Condition As Visually Determined by USCG

Surface Oil

Subsurface Oil

Percent Degree of Oiling

☐ Yes☒ No0

Heavy

5

Medium

20

Light

20

Very Light

55

None

100 %

Comments

Reassessment



Yes - necessary



No - not necessary unless re-oiled

ADEC rep Comments No Inspector provided

Signature

Date: / / Time:

Printed Name

FOSC rep

Demobilization approved/disapprovedComments No Gross Contamination

ACE 7378348

Signature

Date: 7/27/89 Time: 1619

Steve E. Ramsauer LTJG

(version 5/02/89)

SHORELINE CLEANUP PROGRAM

DATE May 6, 1989

SHORELINE SEGMENT KN-103

LOCATION: (see enclosed map) Knight Island

ADEC NO. _____ SHORELINE ASSESSMENT DATE: 4/29/89

Recommended Cleanup Activity(ies):

High pressure, hot water on rocky areas with dead vegetation.

Low pressure, high volume cold water in vicinity of large fresh water stream so as not to contaminate stream sediments.

Priorities Considerations:

Do not venture into clean areas near fresh water streams. Do not force oil into stream sediments.

Ecological Constraints (from site survey):

Do not clean past the first stream on the west side of the bay. The clean area extends to the large stream in the south of the bay. Cleaning should continue on the rocky beaches past this large stream.

Archeological Constraints (from site survey):

If heretofore undiscovered cultural materials are uncovered during cleanup, contact Exxon's Archeological Field Director and take actions prescribed in the Operational Guidelines for Shoreline Cleanup dated 4/21/89 as amended.

Charles E. Holmes
State Historic Preservation Officer *

Date: May 6, 1989

EXXON: J. Lemay
FOSC: _____

Date: 5/9/89
Date: _____

* Signature required to satisfy stipulations in Alaska DNR land use permits for tide and submerged lands .

ACE 7378353 +15

SHORELINE OIL EVALUATIONDate: 4 / 29 / 89Observer: C. DillonTime: 14 h 55 m

Weather: Sun/Cloud/Rain/Snow/Fog

LOCATIONLOCATION Knight IslandSITE West BayLOCATION PREFIX KNSEGMENT NUMBER KN-103

LATITUDE: 6 ___ d ___ m ___ s

LONGITUDE: 147 d ___ m ___ s

LENGTH OF SHORELINE SEGMENT: 1700 mACCESS: Foot/Vehicle/Boat/Barge/Helio/Float Plane**SHORELINE:**

SHORELINE CHARACTER:

shallow
Beach/SPit/Cove ___/___Wave Exposure: High/Med/LowRock Y/N % 5 Vertical/High Angle/Low AngleSediment Y/N % 95 Types: B / C / P / G / S / M / RStrand Line Y/N Algae/Debris/Logs**OIL**LOCATION OF OIL: SU / SP / H / M / LCONTINUOUS: Y/N WIDTH OF BAND: 3-10 m % of Segment 55 70 cedPATCHY: 10/20/30/40/50/60/70/80/90% coverage % of Segment 30EST. OIL THICKNESS: 4.25-1 cm EST. OIL PENETRATION: 0-1 cmPOOLED OIL: Y/N "FREE" OIL: Y/N WEATHERED: Y/NSTRAND LINE CLEAN/OILEDSUMMARY OILING: Amount High/Med/Low
Coverage Extensive/Moderate/LightCOMMENTS: Head of shallow cove is clean. Moderate to heavy oiling is on outer reaches of cove only. See diagram for details.

C:\WP\DATA\SHOREVAL.1

BEACH LEVEL

SUPRATIDAL (+SHWL)	SU
HWL to SHWL	SP
UPPER 1/3 ITZ	H
MIDDLE 1/3 ITZ	M
LOWER 1/3 ITZ	L

SEDIMENT TYPE

BOULDER (> 256 mm)	B
COBBLE (64 - 256)	C
PEBBLE (4 - 64)	P
GRANULE (2 - 4)	G
SAND (0.06- 2)	S
MUD (< 0.06)	M
ROCK	R

Can use multiple entries e.g. C/G/S; in which case the first letter is the predominant sediment type and the following are in decreasing order

KEY

LOCATION PREFIX

NAKED IS	NA
PEAK IS	PE
STOREY IS	ST
ELEANOR IS	EL
INGOT IS	IN
BLOCK IS	BL
ENTRANCE IS	EN
SPHINX IS	SP
DISK IS	DI
KNIGHT IS	KN
SMITH IS	SM
SEAL IS	SE
APPELGATE IS	AP
GREEN IS	GR

LOCATION SUFFIX

A unique number which identifies the distinct segment described in this report.

C:\WP\DATA\SHOREVAL.1

DOCUMENTATION:

MAP/Aerial photo marking segment boundaries None

VTR: Y/N Tape Number(s) _____

PHOTOGRAPHY: Y/N Roll Number(s) KN-1 Exposures 25 to end of roll.

SAMPLE NUMBERS COLLECTED: None

C:\WP\DATA\SHOREVAL.1

ECOLOGICAL EVALUATION

LOCATION: Knight SITE: West Bay OBSERVER: SM Ben
 LOCATION PREFIX: KN SEG. NO.: 103 LENGTH: 1700 (M)
 DATE: 4/29/89 TIME (HHMM): 1455 ~~1440~~ TIDE HT.: -1 to 0 (M)

OILED ZONE: Splash High Medium Low

SUBSTRATUM: Rocks Boulder Cobble Gravel Sand Mud

LIVE BIOTA

Fucus (algae): Patchy (Y/N) Contin. Y/N Dense (Y/N) Sparse Y/N None Y/N

Dense on rocks, healthy in lower ITZ, dead in ~~low~~ oiled zone

Mytilus (Mussels): Patchy (Y/N) Contin. Y/N Dense (Y/N) Sparse Y/N None Y/N

Mytilus on rocks upper ITZ is coated 10-15% gapping

Balanus (Barnacles): Patchy (Y/N) Contin. Y/N Dense (Y/N) Sparse Y/N None Y/N

coated, several touched - did not respond

Littorina

Patchy Y/N Contin. Y/N Dense Y/N Sparse (Y/N) None Y/N

Alive in oiled zone

Limpets: Patchy Y/N Contin. Y/N Dense Y/N Sparse (Y/N) None Y/N

Alive in oiled zone

OTHER OBSERVATIONS: Red Algae, Ulva, healthy in lower ITZ

Black, sticky oil in upper ITZ south shore and west shore
South shore also has weathered mouse

CLEANUP PRECAUTIONS: Clean upper ITZ to first stream only area

Past this stream is clean to lightly oiled. Oiling resumes
on south shore past large stream DO NOT DISTURB this stream.

MAMMALS: Otters Harbor Seals Sea Lions Whales
 Other None

BIRDS: Shore birds feeding in clean zone

GENERAL OBSERVATIONS: The streams in the SW area of the

Bay have cleaned this region. Newest oil is at the
beginning of the segment (NW) and end of the segment
(SE) clean only these areas.

(version of 4/25/89)

CULTURAL RESOURCE EVALUATION FOR OILED SHORELINE

Date 4/29/89 Location Knight Island Site West bay

Location Prefix KN Segment # KN103 Length 1700 m

Survey Method:

Air _____ (A - indicate on map) Boat _____ (A - indicate on map)

Ground ✓ (G - indicate on map)

Known cultural resources (AHRS #) SEW 236 Data Source AHRS files

Oil conditions/beach visibility none moderate but mostly light

Width of beach zone surveyed 2-7 m Tree fringe surveyed 10m

Cultural resources observed in beach zone (AHRS code) None

Cultural resources observed in tree fringe (AHRS code) HPT

General observations justifying survey method and segment's site probability:

Shore Profile broad, mostly flat beach

Fresh Water Sources seven streams

Sea Exposure east - protected

Access/Safety excellent

Probability of undiscovered sites in beach zone (circle one) 1 2 (3) 4 5

Monitoring during cleanup needed yes/(no) Collection yes/(no)

Photos: Color Roll # CW-5 Frames 4, 5, 6, 7, 8, 9

B/W Roll # _____ Frames _____

Observer(s) C. Wilson

Time survey started 1455 Time survey ended 1620

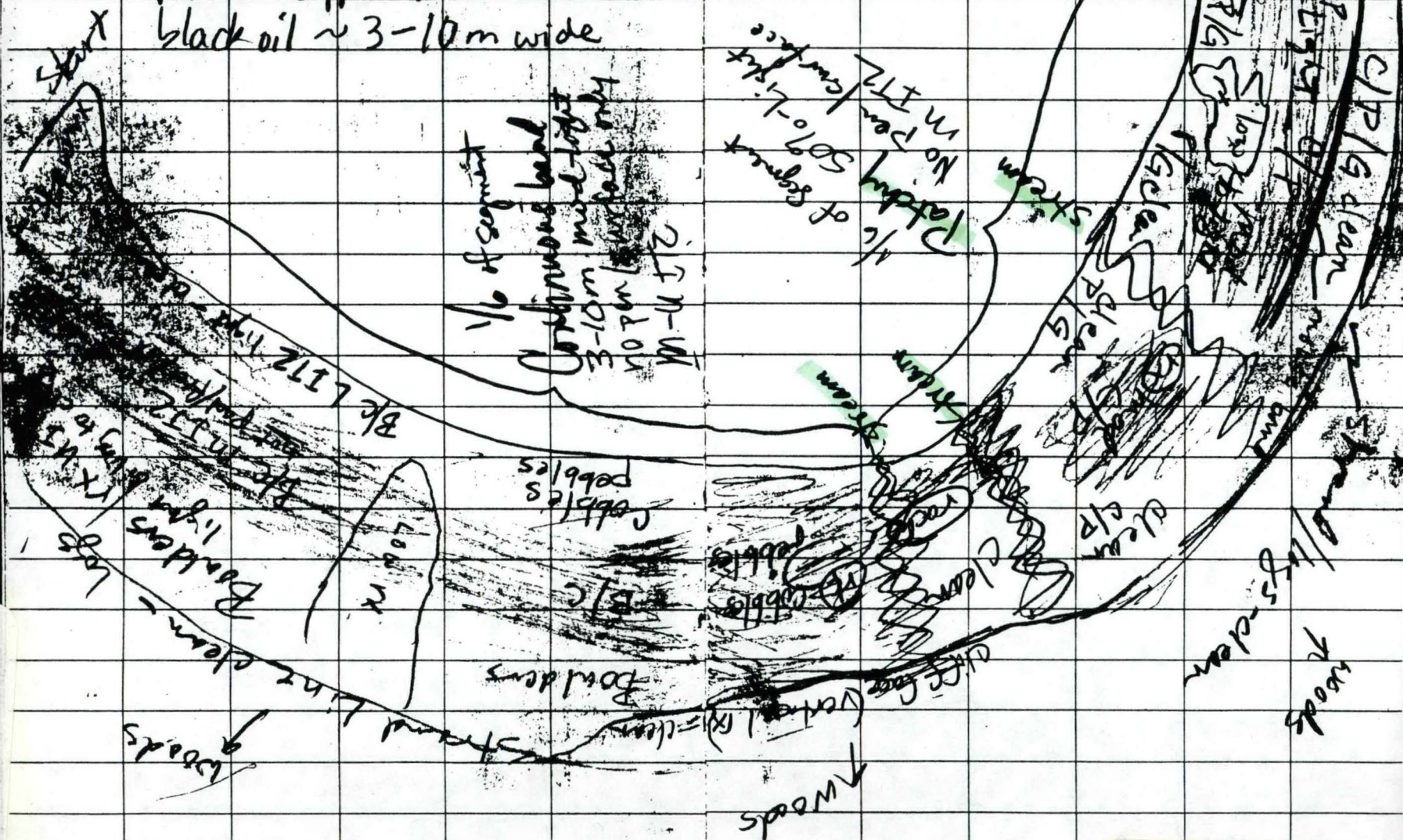
Cultural resource considerations/restraints:

If heretofore undiscovered cultural materials are recovered during cleanup notify Exxon archaeologist, C. Mobley, immediately.

1455 Segment K103 Beach

photo: roll K11 / 25-31 exposure #

Mid to Upper IT2 band of
black oil ~ 3-10m wide



ACE 7378359/A

ACE 7378359/B

2nd 1/3 of Sept 403 roll 1/32-39

Cobbles/g/s
clean

Low

Gravel
clean s/m

stream
stream

stream

Rob/gravel

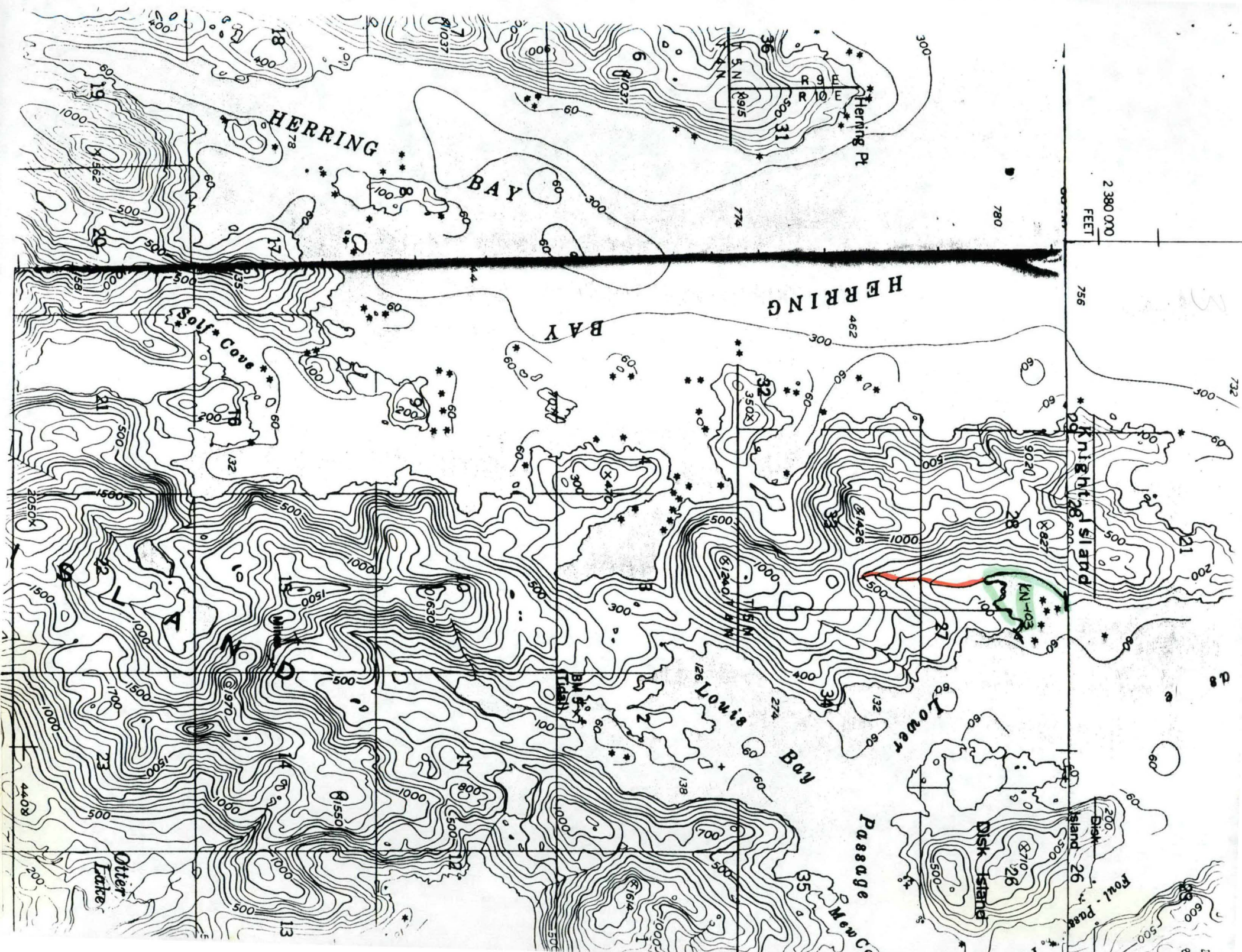
Rocks

Rob
gravel

Rock free
cobbles
P/g

ACE 7378360/B

ACE 7378360/A



2380
FEET

756

Knight Island

Lower Island

Disk Island

Herring Pt.

HERRING BAY

BAY

Louis Bay

Passage

Lower

Disk Island

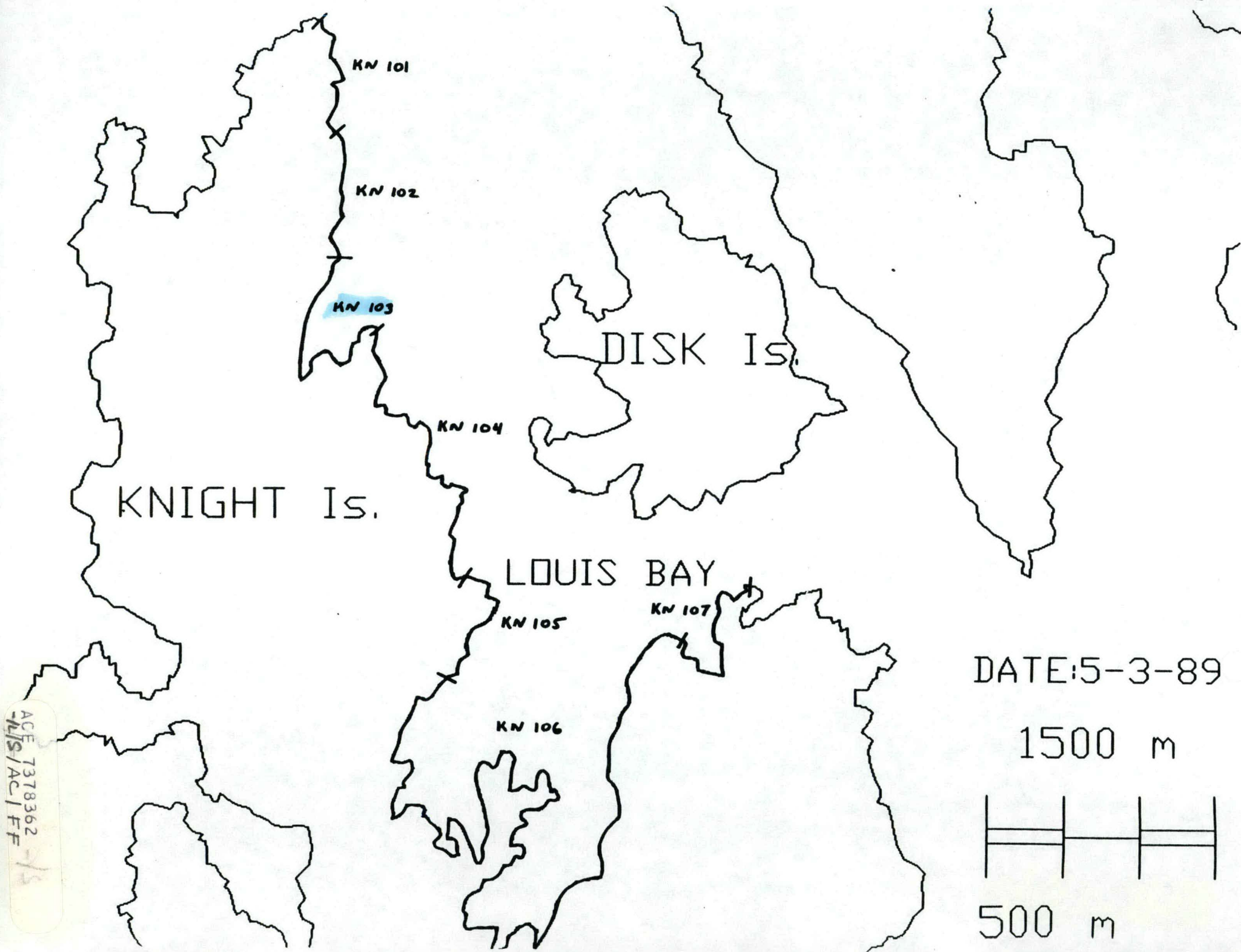
Rowl. Pass.

HERRING

BAY

Sol Cove

Otter Lake



OK'd 5/15/89

(version 5/04/89)

SHORELINE PRE-CLEANUP ASSESSMENT BLOCK REPORT

Location (see enclosed map): Louis Bay Block

Includes Shoreline Segments: KN-101, KN-102, KN-103, KN-104,
KN-105, KN-106, KN-107,

Submitted :

[Signature]
(for Exxon)

Date:

5/9/89

FOSC Approval:

[Signature]

Date:

5/16/89

Endorsed by ISCC 5-15-89 Jan E/K COR, NOAA
The cleanup procedures identified in the Shoreline Cleanup Program are recommended. Modifications to these systems can be made in the field. Exxon and other field personnel are encouraged to suggest innovations and productivity enhancements to the OSC's on-scene representative. The OSC's representative has the authority to approve on-site modifications. The Field Resource Team should be consulted if these actions do not fit within the Ecological Constraints of the Shoreline Cleanup Program. Requirements for safety and the protection of cultural material must be observed.

Distribution:

Exxon Shoreline Coordinator
Exxon Shoreline Supervisor
Exxon SCAT file

FOSC
CDFU
NOAA
EPA
USDA (FS)
USFW
A.DEC
A.FG
A.DNR
CAC
PWSCA
USFS

Note: Need to include Andromous Stream

Advisory "guide"

LEK

Done E.P.A.

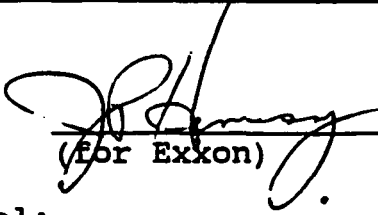
ACE 7378349 +15

(version 5/04/89)

SHORELINE PRE-CLEANUP ASSESSMENT BLOCK REPORT

Location (see enclosed map): Louis Bay Block

Includes Shoreline Segments: KN-101, KN-102, KN-103, KN-104,
KN-105, KN-106, KN-107,

Submitted :  Date: 5/9/89
(for Exxon)

FOSC Approval: _____ Date: _____

The cleanup procedures identified in the Shoreline Cleanup Program are recommended. Modifications to these systems can be made in the field. Exxon and other field personnel are encouraged to suggest innovations and productivity enhancements to the OSC's on-scene representative. The OSC's representative has the authority to approve on-site modifications. The Field Resource Team should be consulted if these actions do not fit within the Ecological Constraints of the Shoreline Cleanup Program. Requirements for safety and the protection of cultural material must be observed.

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FOSC
CDFU
NOAA
EPA
USDA (FS)
USFW
A.DEC
A.FG
A.DNR
CAC
PWSCA
USFS

******* SCOT NOTE *******

**THERE ARE ITEMS OF GREAT CONCERN IN THIS APPROVAL BLOCK
THAT AFFECT THE DEPLOYMENT OF CREWS AND EQUIPMENT.**

READ THIS FIRST

**NOTE THAT THE UPLANDS IN SHORELINE SEGMENTS KN-406, KN-410,
KN-411, KN-412, AND KN-413 IN THE KNIGHT ISLAND - HORN
MOUNTAIN BLOCK ARE OWNED BY THE CHENEGA VILLAGE
CORPORATION. PERMIT NO ACCESS TO UPLANDS AT ANY TIME.**

(version 5/02/89)

SHORELINE CLEANUP PROGRAM

DATE May 6, 1989

SHORELINE SEGMENT KN-103

LOCATION: (see enclosed map) Knight Island

ADEC NO. _____ SHORELINE ASSESSMENT DATE: 4/29/89

Recommended Cleanup Activity(ies):

High pressure, hot water on rocky areas with dead vegetation.

Low pressure, high volume cold water in vicinity of large fresh water stream so as not to contaminate stream sediments.

Priorities Considerations:

Do not venture into clean areas near fresh water streams. Do not force oil into stream sediments.

Ecological Constraints (from site survey):

Do not clean past the first stream on the west side of the bay. The clean area extends to the large stream in the south of the bay. Cleaning should continue on the rocky beaches past this large stream.

WARDMAN'S STREAM
NOT ISLAND
R.A.T. BIOLOGIST AUTHORIZES CLEANUP ACTIVITIES ON A SITE-BY-SITE BASIS.

Archeological Constraints (from site survey):

If heretofore undiscovered cultural materials are uncovered during cleanup, contact Exxon's Archeological Field Director and take actions prescribed in the Operational Guidelines for Shoreline Cleanup dated 4/21/89 as amended.

Charles E. Holmes
State Historic Preservation Officer *

Date: May 6, 1989

EXXON: J. L. Lemay

Date: 5/9/89

FOSC: W. E. Hoblin

Date: 5/16/89

* Signature required to satisfy stipulations in Alaska DNR land use permits for tide and submerged lands .

KN103U01MM

OPAL CREEK LOWER PASSAGE KNIGHT ISLAND

MODERATE EXPOSURE, MODERATE OIL, UNCATALOGUED

NEEDS
MAP

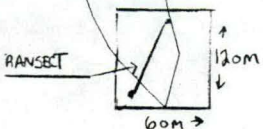
500.0

KN103

STUDY SITE # KN103U01MM



ACE 7945723 +15



KI

ADF&G HABITAT STUDY SITE DESCRIPTION FORM

STUDY SITE # KN103 UO1MM INITIAL LAYOUT DATE 10-16-89
 Team Members D. BEN M. EAST R. GUSTIN (Like the wind) TIME (start/stop) 0947 - 1120
 LOW TIDE (time/ht.) 0836 +1.1' HIGH TIDE (time/ht.) 1442, +15.9'

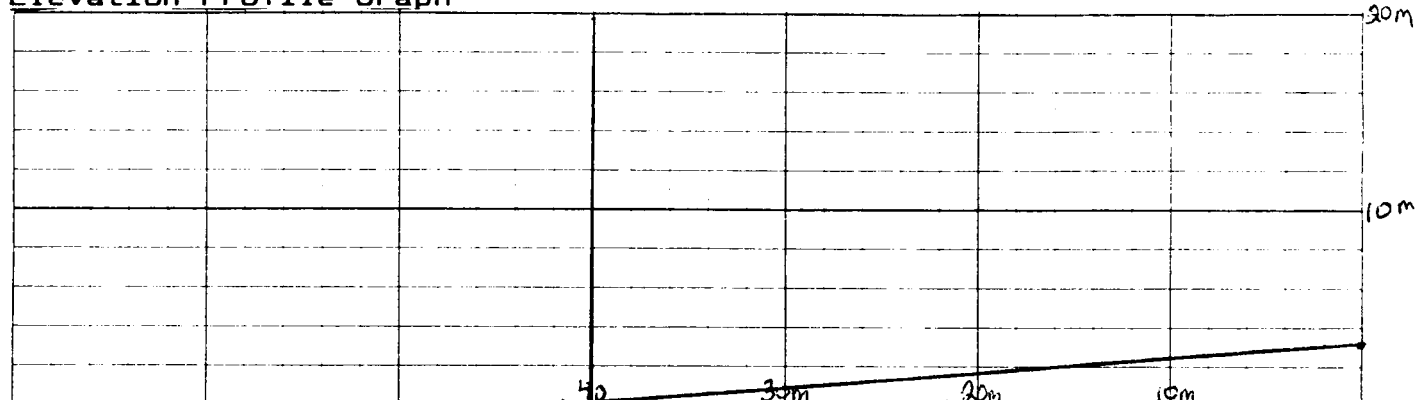
Weather: (sunny/ cloudy / rain / fog / snow) Seas: (rough/ moderate / calm)
 Wave Ht: 1-2' Wind Dir.: (N- NE -E-SE-S-SW-W-NW) Knots: (0-10 10-20 20-30 30+)

LAYOUT AND BEACH PROFILE

LOCATION OF TRANSIT REFERENCE POINT (distance to local features, etc.):
A 8" SPRUCE TREE 170.15 13.1m | A LARGE SPRUCE STUMP 16" - 244.15° 17.0m
flagged measure from flagging height | Flagged measure from spray paint spot on stump

BEACH ELEVATION PROFILE: Bearing: 335.4° (check) Time: 1030
 Vertical Elevation (4.8m) - Instrument Ht. (1.6m) = Reference Point Ht. (3.2m).
 Distance to present tide line: 41.7m Slope: 7.7%

Elevation Profile Graph



TRANSECT LAYOUT: Bearing 0° (6.5° N Mag North) Time: 1004
 Length (distance to present tide line) 54.6m
 TO TRANSECT END PT. AT VITZ ON R. BANK

STUDY AREA LOCATION AND DIMENSIONS (see segment map): Lat. 60°29'36" Long. 147°41'12"
54.6m TRANSECT LINE SEE MAP

GENERAL CHARACTERISTICS

BEACH EXPOSURE: Aspect NE Wave Exposure: Hi Mod X Lo

SHORELINE DESCRIPTION DEEP NARROW COVE. 2 SMALLER STREAMS TO NORTH OF MAIN STREAM DUE TO HEAVY RAINS. PRIMARILY COBBLE/PEBBLE BEACH.

SUBSTRATE TYPES (%EA): Rock 10 Boulder (>10") 10 Cobble (2.5"-10") 20
 Pebble (.06"-2.5") 40 Sand/Mud (<.06") 20

GENERAL OILING CONDITIONS: MODERATE BAND OF OIL IS FAIRLY HEAVY ALONG VITZ ON R. SIDE OF STREAM. LT TO MOD AT MITZ L. SIDE-MOUSSE PATCHES & STREAK

POTENTIAL FOR RE-OILING: FROM OTHER SOURCES LOW TO MODERATE

BIOLOGICAL OBSERVATIONS: BIOTA IN LITZ sparse but APPEARS HEALTHY
GRASSES AT HIGH TIDE AND ABOVE.

ADF&G STREAM HABITAT EVALUATION

STUDY SITE # KN103U01MM DATE 10-16-89
 Location LOWER PASSAGE OF LOUIS Bay KNIGHT Lat. 60° 29' 36" Long. 147° 41' 13"
 Team Members D. BEN M. EAST R. GUSTIN Time (start/stp) 0947-1120
 Low Tide (time/ht.) 0836 +1.1' High Tide (time/ht.) 1442, +15.9'
 Weather: (sunny/ cloudy rain fog snow)
 Seas: (rough/ moderate calm) Wave Height: 1-2'
 Wind direction: (N-NE-E-SE-S-SW-W-NW) Knots: (0-10 10-20 20-30 30+)

STREAM MORPHOLOGY

Instream Pt. Locations	Bearing from Transit Pt.	Distance from Transit Pt.	Distance to L. Streambank	Distance to R. Streambank
On Transect	<u>0° (6.5 mag Nth)</u>	<u>24.9 M</u>	<u>18.0 M</u>	<u>31.8 m</u>
Upper ITZ	<u>74° (77.45?)</u>	<u>46.6 m</u>	<u>-</u>	<u>-</u>
Low-Mid ITZ	<u>334° ? check this</u>	<u>41.7 m</u>	<u>-</u>	<u>-</u>

Observations: (berms, tide pools, etc.) No berms or tide pools. Right bank
parallels the stream - narrow high angle ^{boulder} cobble/sand beach. Left bank is wider
cobble/sand beach that continues north from Opel Creek around the cave. Two more
small streams come out ~ 300 M north of Opel Creek.

PHOTO AND VIDEO DOCUMENTATION (taken from transit point)

<° 74° UMSP photo: roll#/frame P-89UWPC01-V #1 and 2
 <° 26.5° ↑ wbtwn photo: roll#/frame P-89WP001-V #3
 <° 0° TRANSECT photo: roll#/frame P-89WP001-V #4
 <° 331° photo: roll#/frame P-89WP001-V #5

* Video scan (cassette #, footage) V-89WP001-V 1240-1456 1174-1340

Aerial photo (roll #, frame) P-89WP001-V FRAMES 14-15-16-17

Aerial video (cassette #, footage) V-89WP001-V 1340-1456

* 10122100 V-89-WP002-V 752-831

OIL MEASUREMENT. OBSERVATIONS

% of Transect Line Intercepting Oil: 70% Heavy 40 Moderate 30 Light 30

Location	AVG Width of band	Length of band	Continuous? (Y/N)	% Coverage	Surface/ Subsurface
* <u>LEFT BANK</u>	<u>1.5 m</u>	<u>17.1 m</u>	<u>NO</u>	<u>80%</u>	<u>Surface to 2" subsurface</u>
<u>RIGHT BANK</u>	<u>6.8 m</u>	<u>180. m</u>	<u>YES</u>	<u>100%</u>	<u>Surface to 8" +</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

* Left & right bank refer to side as facing downstream



P. 2 - Stream Habitat Evaluation

1/2M ² Sample Plot				
	Location(°, dist.)	%Coverage	Depth	Oil Type, Consistency
RB	UITZ #3 359.45° (51.6m)	100 %	6" +	pooled__mousseXcoatedXmobile__ tarryXasphalt__stain__
RB	MITZ #2 4° (46.4m)	100 %	3.5"	pooled__mousse__coatedXmobile__ tarryXasphalt__stain__
RB	LITZ #1 2° (42.9m)	80 %	2"	pooled__mousseXcoated__mobile__ tarryXasphalt__stain__
LB	MITZ #4 291.45° (17.25m)	80 %	2"	mousse, coated, tarry

Instream Oil				
	Location(°, dist.)	Dimensions	Depth	Oil Type, Consistency
				pooled__mousse__coated__mobile__ tarry__asphalt__stain__
				pooled__mousse__coated__mobile__ tarry__asphalt__stain__
				pooled__mousse__coated__mobile__ tarry__asphalt__stain__

SAMPLES TAKEN: Sediment (S), Gross Oil (GO), or Indicator Organism (ORG)

Type	Sample#	Location (°, dist.), Description	Documentation
S	89WFO01 U+VD	Permanent sample plot #4 291.45°	P89 WFO01-V, 6+7
S	89WFO02 U+VD	" " #1 2°	" 8+9
S	89WFO03 U+VD	" " #2 4°	" 10+11
S	89WFO04 U+VD	" " #3 359.45°	" 12+13

Biological Damage, Other Observations:

STUDY SITE # LA0186784H

INITIAL LAYOUT DATE 10/22/89

Team Members East, Gustin, Ben

Time (start/stop) 1330 - 1600

Low Tide (time/ht.) 1425 (6.0')

High Tide (time/ht.) 2059 (10.5')

Weather: (sunny) / cloudy / rain / fog / snow Seas: (rough / moderate / calm)

Wave Ht: Wind Dir.: (N NE E SE S SW W NW) Knots: (0-10) 10-20 20-30 30+

LAYOUT AND BEACH PROFILE

TRANSECT LAYOUT: Compass bearing: 341° mag. ^{North} Length of transect: 67.4 M

STUDY AREA LOCATION AND DIMENSIONS (see maps): Lat. 60° 4' Long. 147° 50' 30'

51.5 M wide, 89.5 M long

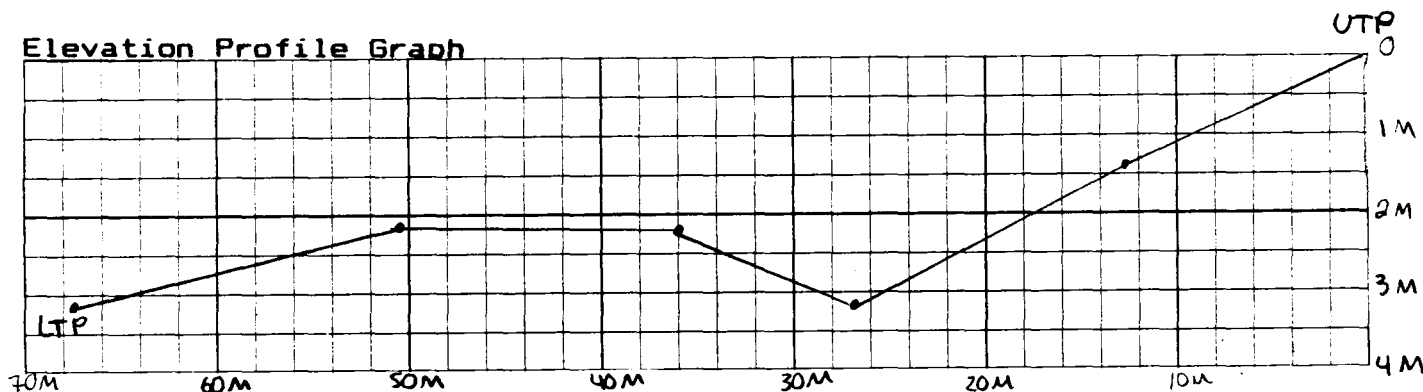
LOCATION OF TRANSIT POINT; distance and bearing to local features, etc.:

Upstream UTLZ on R. Bank. ① Orange flagging at top of small spruce tree ^{upstream from transit pt.} 6' high - measure sight to ribbon 201°, 7.2 M. ② Downstream fr. transit point 65.15°, 11.8 M - to flagging in top of 5' spruce tree

BEACH ELEVATION PROFILE: Bearing from transit point: 341°, 0' Inst. height: 1.35 M

Point # Location	Total elevation	Actual Elev. (tot-inst ht)	Distance from transit point	Slope (el/dist)
#1	2.39 M	1.04 M	12.3 M	
#2	4.42 M	3.07 M	26.4 M	
#3	3.53 M	2.18 M	35.9 M	
#4	3.48 M	2.13 M	50.5 M	
LTP#5 (Lower transect point)	4.6 M	3.25 M	67.4 M	4.8%

Elevation Profile Graph



GENERAL CHARACTERISTICS

BEACH EXPOSURE: Aspect North facing Wave Exposure: Hi X Mod Lo

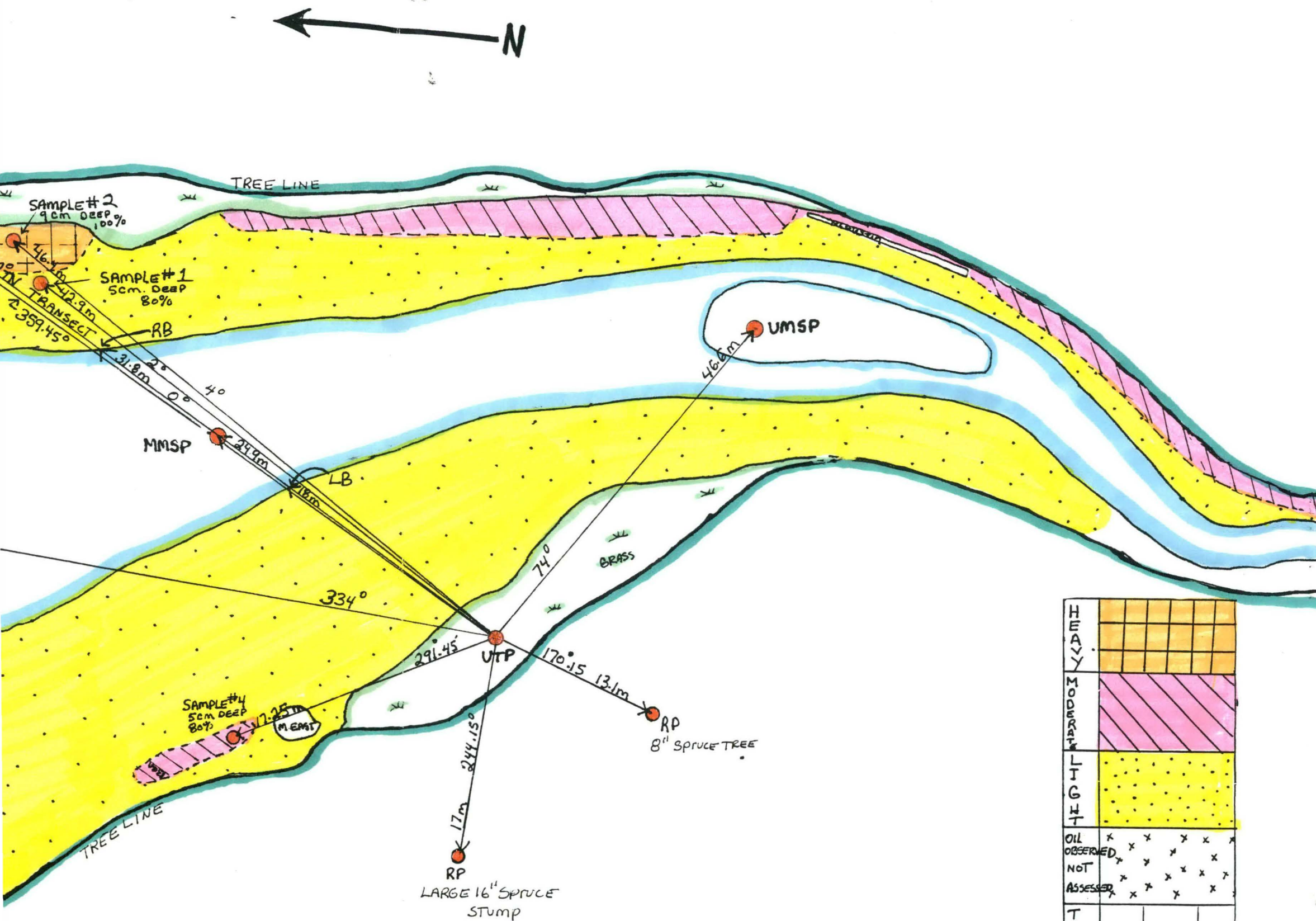
SHORELINE DESCRIPTION Wide, shallow cove; primarily low-mod. angle cobble beach with stream in SE corner.

SUBSTRATE TYPES(%EA): Rock Boulder (>10") <5% Cobble (2.5"-10") 30 Pebble (.06"-2.5") 55% Sand/Mud (<.06") 10%

GENERAL OILING CONDITIONS: One of heaviest hit beaches in Sound. Rick Gustin saw ADEC dig a 4' pit on the left bank UTLZ - sediments still oiled and oil pooled in bottom of pit. Very heavy band of mousse becoming asphalt-8-20 cm thick - along the right streambank. Oil in stream sediments in all reaches of stream.

BIOLOGICAL/OTHER OBSERVATIONS: No fucus or other intertidal vegetation

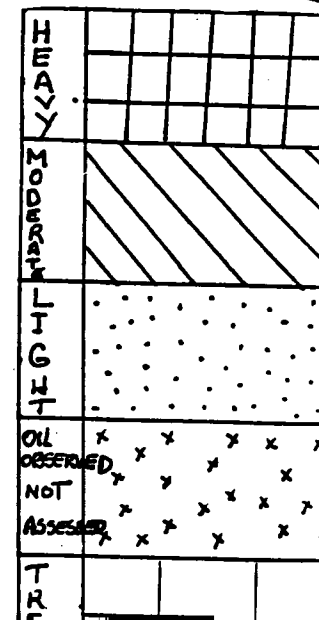
KN103U01MM
 OPAL CREEK LOWER PASSAGE
 KNIGHT ISLAND



HEAVY	
MODERATE	
LIGHT	
OIL OBSERVED	
NOT ASSESSED	
TR	

KN-103
LOWER
PASSAGE

KNIGHT ISLAND



KN103U01MM

OPAL CREEK LOWER PASSAGE KNIGHT ISLAND

MODERATE EXPOSURE, MODERATE OIL, UNCATALOGUED

FILE COPY

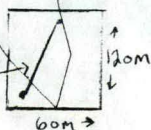
500.0

KN103

N

STUDY SITE # KN103U01MM

TRANSCT



ADF&G HABITAT STUDY SITE DESCRIPTION FORM

STUDY SITE # KN103 UO1 MM INITIAL LAYOUT DATE 10-16-89
 Team Members D. BEN M. EAST R. GUSTIN (Like the wind) TIME (start/stop) 0947-1120
 LOW TIDE (time/ht.) 0836 +1.1' HIGH TIDE (time/ht.) 1442, +15.9'

Weather: (sunny/ cloudy / rain / fog / snow) Seas: (rough/ moderate / calm)
 Wave Ht: 1-2' Wind Dir.: (N-NE-E-SE-S-SW-W-NW) Knots: (0-10 10-20 20-30 30+)

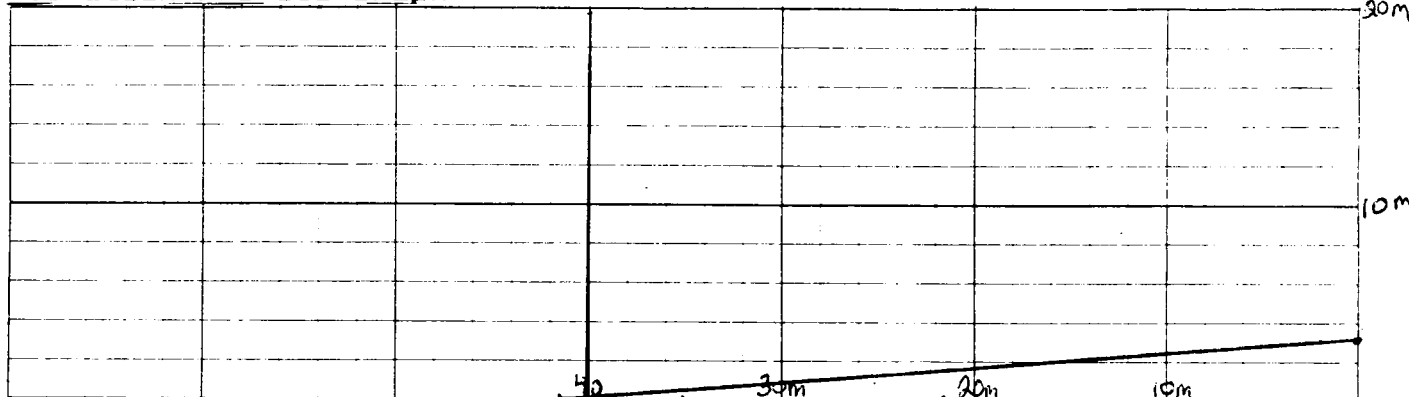
LAYOUT AND BEACH PROFILE

LOCATION OF TRANSIT REFERENCE POINT (distance to local features, etc.):

A 8" SPRUCE TREE 170.15 13.1m | A LARGE SPRUCE STUMP 16" - 244.15° 17.0m
Flagged measure from flagging height | Flagged measure from spray paint spot on stump

BEACH ELEVATION PROFILE: Bearing: 335.4° (check) Time: 1030
 Vertical Elevation (4.8m) - Instrument Ht. (1.6m) = Reference Point Ht. (3.2m).
 Distance to present tide line: 41.7m Slope: 7.7%

Elevation Profile Graph



TRANSECT LAYOUT: Bearing 0° (6.5° N Mag North) Time: 1004
 Length (distance to present tide line) 54.6m
 TO TRANSECT END PT. AT VITZ ON R. BANK

STUDY AREA LOCATION AND DIMENSIONS (see segment map): Lat. 60°29'36" Long. 147°41'12"
54.6 m TRANSECT LINE SEE MAP

GENERAL CHARACTERISTICS

BEACH EXPOSURE: Aspect NE Wave Exposure: Hi Mod X Lo

SHORELINE DESCRIPTION DEEP NARROW COVE. 2 SMALLER STREAMS TO NORTH OF MAIN STREAM DUE TO HEAVY RAINS. PRIMARILY COBBLE/PEBBLE BEACH.

SUBSTRATE TYPES(%EA): Rock 10 Boulder(>10") 10 Cobble(2.5"-10") 20
 Pebble(.06"-2.5") 40 Sand/Mud(<.06") 20

GENERAL OILING CONDITIONS: MODERATE BAND OF OIL IS FAIRLY HEAVY ALONG VITZ ON R. SIDE OF STREAM. LT TO MOD AT MITZ L. SIDE-MOUSSE PATTIES & STREAK

POTENTIAL FOR RE-OILING: FROM OTHER SOURCES LOW TO MODERATE

BIOLOGICAL OBSERVATIONS: BIOTA IN LITZ SPARSE BUT APPEARS HEALTHY GRASSES AT HIGH TIDE AND ABOVE.

RE-DO.
NEEDS
MORE
POINTS.

ADF&G STREAM HABITAT EVALUATION

STUDY SITE # KN103U01MM DATE 10-16-89
 Location LOWER PASSAGE OF LOUIS Bay KNIGHT Lat. 60° 29' 36" Long. 147° 41' 12"
 Team Members D. BEN M. EAST R. GUSTIN Time (start/stp) 0947-1120
 Low Tide (time/ht.) 0836 +1.1' High Tide (time/ht.) 1442, +15.9'
 Weather: (sunny/ cloudy rain fog snow)
 Seas: (rough/ moderate calm) Wave Height: 1-2'
 Wind direction: (N-NE-E-SE-S-SW-W-NW) Knots: (0-10 10-20 20-30 30+)

STREAM MORPHOLOGY

Instream Pt. Locations	Bearing from Transit Pt.	Distance from Transit Pt.	Distance to L. Streambank	Distance to R. Streambank
On Transect	<u>0° (6.5 mag North)</u>	<u>24.9m</u>	<u>18.0m</u>	<u>31.8m</u>
Upper ITZ	<u>74° (77.45?)</u>	<u>46.6m</u>	<u>-</u>	<u>-</u>
Low-Mid ITZ	<u>334° ? check this</u>	<u>41.7m</u>	<u>-</u>	<u>-</u>

Observations: (berms, tide pools, etc.) No berms or tide pools - Right bank
parallels the stream - narrow high angle ^{barrier} cobble/sand beach. left bank is wider
cobble/sand beach that continues north from Opel Creek around the cave. Two more
small streams come out ~ 300 m north of Opel Creek.

PHOTO AND VIDEO DOCUMENTATION (taken from transit point)

< 74° UMSP photo: roll#/frame P-89WP001-V #1 and 2
 < 26.5° ↑ waterway photo: roll#/frame P-89WP001-V #3
 < 0° TRANSECT photo: roll#/frame P-89WP001-V #4
 < 331° photo: roll#/frame P-89WP001-V #5

* Video scan (cassette #, footage) V-89WP001-V 1240-1456 1174-1340

Aerial photo (roll #, frame) P-89WP001-V FRAMES 14-15-16-17

Aerial video (cassette #, footage) V-89WP001-V 1340-1456

* 10122 JCR V-89-WP002-V 752-831

OIL MEASUREMENT. OBSERVATIONS

% of Transect Line Intercepting Oil: 70% Heavy 40 Moderate 30 Light 30

Location	AVG Width of band	Length of band	Continuous? (Y/N)	% Coverage	Surface/ Subsurface
* <u>LEFT BANK</u>	<u>1.5m</u>	<u>17.1m</u>	<u>NO</u>	<u>80%</u>	<u>Surface to 2" subsurface</u>
<u>RIGHT BANK</u>	<u>6.8m</u>	<u>180.0m</u>	<u>YES</u>	<u>100%</u>	<u>Surface to 8" +</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

* Left & right bank refer to side as facing downstream

P. 2 - Stream Habitat Evaluation

1/2M ² Sample Plot				
	Location(°, dist.)	%Coverage	Depth	Oil Type, Consistency
RB	UITZ #3 359.45° (51.6m)	100 %	8" +	pooled_mousseXcoatedXmobile tarryXasphalt_stain__
RB	MITZ #2 4° (46.4m)	100 %	3.5"	pooled_mousse_coatedXmobile tarryXasphalt_stain__
RB	LITZ #1 2° (42.9m)	80 %	2"	pooled_mousseXcoated__mobile tarryXasphalt_stain__
LB MITZ #4	291.45° (17.25m)	80 %	2"	mousse, coated, tarry

Instream Oil				
	Location(°, dist.)	Dimensions	Depth	Oil Type, Consistency
				pooled_mousse_coated__mobile tarry__asphalt_stain__
				pooled_mousse_coated__mobile tarry__asphalt_stain__
				pooled_mousse_coated__mobile tarry__asphalt_stain__

SAMPLES TAKEN: Sediment (S), Gross Oil (GO), or Indicator Organism (ORG)

Type	Sample#	Location (°, dist.), Description	Documentation
S	89WFO01 U+VD	Formal sample plot #4 291.45°	89WFO01-V, 6+7
S	89WFO02 U+VD	" " #1 2°	" 8+9
S	89WFO03 U+VD	" #2 4°	" 10+11
S	89WFO04 U+VD	" #3 359.45°	" 12+13

Biological Damage, Other Observations:

ADF&G HABITAT STUDY SITE DESCRIPTION FORM

STUDY SITE # KN103401MM

INITIAL LAYOUT DATE 10-16-87

Team Members Ben, East, Gustin

Time (start/stop) 0947/1120

Low Tide (time/ht.) 0830 +1.1ft.

High Tide (time/ht.) 1442, +1.9 ft.

Weather: (sunny/cloudy/rain/fog/snow) Seas: (rough/moderate/calm)

Wave Ht.: 1-2' Wind Dir.: (N-NE-E-SE-S-SW-W-NW) Knots: (0-10 10-20 20-30 30+)

LAYOUT AND BEACH PROFILE

TRANSECT LAYOUT: Compass bearing: 32° ^{TRUE}_{NORTH} Length of transect: 54.3 M

STUDY AREA LOCATION AND DIMENSIONS (see maps): Lat. 60°29'36" Long. 147°41'12"

102m long by 64 m wide Head of small, deep bay in lower Passage
North of Louis Bay.

LOCATION OF TRANSIT POINT; distance and bearing to local features, etc.:

① 8" spruce tree 170.15°, 13.1 M - flagged + measured from flagging height.

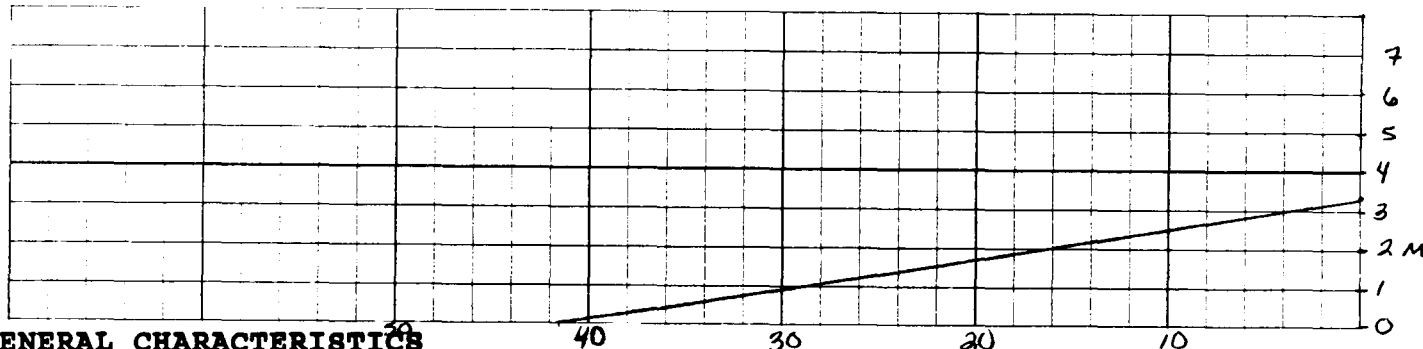
② large spruce stump (16" dia.) 244.15°, 17 M - flagged - measured from spray paint spot on stump.

* BEACH ELEVATION PROFILE: Bearing from transit point: 3354° Inst. height: 1.6 M

Point # Location	Total elevation	Actual Elev. (tot-inst ht)	Distance from transit point	Slope (el/dist)
LTP (Lower transect point) midstream	<u>4.8 M</u>	<u>1.6 M</u>	<u>41.7 M</u>	<u>7.7%</u>

* full profile not done

Elevation Profile Graph



GENERAL CHARACTERISTICS

BEACH EXPOSURE: Aspect NE Wave Exposure: Hi Mod X Lo

SHORELINE DESCRIPTION Deep, narrow cove. 2 smaller streams to north of main stream due to heavy rains.

SUBSTRATE TYPES(%EA): Rock 10 Boulder(>10") 10 Cobble(2.5"-10") 30
Pebble(.06"-2.5") 30 Sand/Mud(<.06") 20

GENERAL OILING CONDITIONS: Moderate band of oil becomes heavy along U1TZ on right side of stream (facing downstream). Tar patties + streaks in mid-low U1TZ.
Left side: light-moderate at mid-U1TZ. Light mousse, tar patties and streaks. Lighter oiling than right side.

BIOLOGICAL/OTHER OBSERVATIONS: Biota, fucus in L1TZ sparse, but appears healthy
Grasses at high tide and above.

ADF&G STREAM HABITAT EVALUATION

STUDY SITE # KN103U01MM DATE 10-16-89, Completed 11-4-89
 Location Lower Passage, Louis Bay, Knight Island Lat. 60° 29' 36" Long. 147° 41' 12"
 Team Members Ben, East, Gustin^(10/16) / Ben, East, Talvi^(11/4) Time (start/stp) 0947 - 1120
 Low Tide (time/ht.) 0836 +1.1 ft. High Tide (time/ht.) 1442 15.9 ft.
 Weather: (sunny/ cloudy/ rain/ fog/ snow)
 Seas: (rough/ moderate/ calm) Wave Height: 1-2 feet
 Wind direction: (N-NE-E-SE-S-SW-W-NW) Knots: (0-10 10-20 20-30 30+)

STREAM MORPHOLOGY

Instream Pt. Locations	Bearing from Transit Pt.	Distance from Transit Pt.	Distance to L.Streambank	Distance to R.Streambank
On Transect	<u>0°</u>	<u>24.9 M</u>	<u>18.0 M</u>	<u>31.8 M</u>
Upper ITZ	<u>74°</u> ^{needs to check}	<u>46.6 M</u>		
Low-Mid ITZ	<u>334°</u>	<u>61.7 M</u> ^(needs to check)		

Observations: (berms, tide pools, etc.) No berms or tidepools - Right bank parallels the stream - narrow high angle boulder/cobble/sand beach. Left bank is wide cobble/pebble/sand beach that continues North from Opal Creek around the cave. Two more small streams come out 2-300m north of Opal Creek.

PHOTO AND VIDEO DOCUMENTATION (taken from transit point; transect line 0°)

<° <u>umsp</u>	photo: roll#/frame <u>P-89WP001-V</u> # <u>1 and 2</u>
<° <u>205°</u>	photo: roll#/frame <u>P-89WP001-V</u> <u>3</u>
<° <u>0° (transect line)</u>	photo: roll#/frame <u>"</u> <u>4</u>
<° <u>331°</u>	photo: roll#/frame <u>"</u> <u>5</u>
<°	photo: roll#/frame

Video scan (cassette #, footage) V-89WP001-V 1174-1340

Additional video footage (11/4) V-89WP003V 1047-1421 (Rightbank oil assessment)

Aerial video (cassette #, footage) 11/4 V-89WP003V 957-1064 height 500+ ft. ^(11/4) _{used for map.}

Aerial photo (roll #, frame) P-89WP001-V Frames 14, 15, 16, 17

OIL MEASUREMENT, OBSERVATIONS (see map for details)

Location (tidal zone, bank)	date	Avg. Width and Length of oil band	%Coverage	Subsurface/surface/depth
Left bank MID-UPPER ITZ	<u>10/16</u>	<u>(W) 1.5 x (L) 17.1</u>	<u>80 %</u>	<u>both, to 5 cm</u>
	<u>11/4</u>	<u>(W) 1.0 x (L) 11.0 M</u>	<u>60 %</u>	<u>both, to 3 cm</u>
Right bank M-U ITZ	<u>10/20</u>	<u>6.8 x 120 M</u>	<u>yes 100 %</u>	<u>both, to 20 cm</u>
	<u>11/4</u>	<u>4.0 x 100 u broken</u>	<u>85 %</u>	<u>both, to 20 cm</u>

(10/20 only)

P. 2 - Stream Habitat Evaluation

.5M² Sample Plot
Location, °, dist.
from transit pt.

%Coverage

Avg.
Depth

Oil Type, Consistency

1. Rightbank, LITZ, 2°, 42.9M	80	5 CM	pooled_mousseXcoated_mobile_tarryXasphalt_stain
2. R.B. MITZ, 4°, 46.4M	100	9 CM	pooled_mousse_coatedXmobile_tarryXasphalt_stain
3. R.B. MITZ, 359°45', 51.6M	100	20 CM+	pooled_mousseXcoatedXmobile_tarryXasphalt_stain
4. L.B. MITZ, 291°45', 17.25M	80	5 CM	pooled_mousseXcoatedXmobile_tarryXasphalt_stain
			pooled_mousse_coated_mobile_tarry_asphalt_stain
			pooled_mousse_coated_mobile_tarry_asphalt_stain

% of Transect Line Intercepting Oil: 70%; Heavy 40 Moderate 10 Light 20

SAMPLES TAKEN: Sediment (S), Gross Oil (GO), or Indicator Organism (ORG)

Type	Sample#	Location (°, dist.), Description	Documentation
S	89WP001V+VD	.5m ² plot #4 291°45', 17.25M MITZ, L.B.	P-89WP001-V, 6+7
S	89WP002V+VD	#1	" 8+9
S	89WP003V+VD	#2	" 10+11
S	89WP004V+VD	#3	" 12+13

Biological Damage, Other Observations:

There was a decrease in surface oil between Oct. 20 and Nov. 4 visits to this site, especially on the left bank. Sample plots and "penetration" test holes on right bank revealed oil pooling on top of water table 30 cm deep. This was not just sheen. Most of the test holes showed a heavy surface coating 2-4 cm thick, on the right bank in addition to the subsurface oil. The surface coating of mousse/tar had become patchier in the two week period between our visits.

STREAM STUDY TRANSECT SET UP PROCEDURE

There is a 6'ft maximum tide restraint for setting transect lines. Minimum set up time is 2 hr, with 3 hr being the average time per site. A Twin Star or A star helicopter is necessary for transportation of a three person crew and the approximate 100-150lbs of gear needed. Air time to sites runs 45-60mins.

Set up procedure:

1. Set upper transect point, preferably slightly above high tide line in a flat area for ease of transit set up.
2. Set lower transect point so that the transect line crosses major oilbands showing a good representation of impact in the upper, middle, and lower intertidal zones.
3. Set three midstream points, A) the upper point around the high tide line and and, if possible at the upper limit of oiling. B) the mid point on the transect line in mid stream, C) lower point at the present tide line. Record the time the lower point is set to pinpoint the tide height at this point.
4. Set permanent sample plots, preferably in impacted areas in the three intertidal zones. Try to set these on the transect line if possible. Depending on the site more then 3 plots may be required. A plot in the lower intertidal zone is sometimes not necessary or possible.
5. Set transit on upper transect point making the transect line 0 degrees. Take a magnetic bearing on the transect line using a hand-held compass. Take transit bearings, measure distances to all points, and record.
6. Record distance to left stream bank and right stream bank from the upper transect point along lines to upper, middle, and lower mid-stream points.
7. Shoot elevations to the lower midstream point, recording elevation at the LMSPoint, Right stream bank (if possible), left stream bank, mid-tide zone and high tide line. Try to show high or low spots of the beach slope. Don't forget to measure the height of the transit at the upper transect point. Subtract this height from the slope elevations. Stadia rod is in feet broken into 10 ths and must be converted to meters.
8. Using local physical features such as trees, boulders, etc. set reference points to help refind the upper transect point. Mark these with rebar and/or surveyors tape and record the distances and bearings from the UTPoint.
9. Mark all permanent points with white garbage bags or something similar that will stand out in the aerial video scan. Outline major oilbands with surveyors tape to help facilitate mapping

from aerial scan. Pink tape does not show up very well. Try yellow or orange.

10. Take sediment samples from fixed sample plots using proper chain of custody protocol. Two people can do this while the third person is taking the aerial video scan (described in aerial mapping procedure). Aerial includes a polaroid shot of site for file reference.
11. Do oil depth surveys in major oil bands, measure lengths and width of bands, and preform a general oil impact assessment of the entire study site.
12. Take a video and 35mm photo scan from the UTPoint, and record the bearings of each 35mm photo. Do a detailed video assessment of both left and right banks of stream site.
13. Mark upper transect point with an additinal 5ft piece of rebar to facilitate refinding in deep snow conditions. Mark UTPoint with metal tag indentifying the site #.
14. Remove plastic bags from points, and surveyors tape from oil bands. Have lunch and go home.

Aerial mapping procedure

1. Shoot approximately 100 counter (ft.) of aerial video footage.

Stay as straight above the upper transect point as possible. 400 - 600 ft elevation depending on the size of the study area.

Zoom in main reference points, sample plots, and oil bands for a few seconds to use as reference when making map.

2. Find best representative frame of study site and record onto VHS tape for a better quality still frame. Don't forget to record this frame number.

3. Tape clear plastic to T.V screen. Then still the frame and trace stream contours, high tide line, tree line, geographic features, and any usable map reference points such as logs and boulders onto the plastic sheet. Use colored markers for this to distinguish between features. Pinpoint all transect fixed points.

Unless you can figure out how to still the frame indefinitely you'll need to work fast. The frame will shut off, then finding the right spot on that frame can be a pain in the butt.

4. Tape the plastic sheet to the smooth side of the slide light box and trace onto a 11''x17'' sheet of paper.

5. Mark all transect, sample plot, midstream point and reference point lines onto map. Arrows indicate distance from upper transect point. Red circles indicate fixed permanent points. Circles with an X in them designate unmarked points.

6. Due to distortion from filming angle and the T.V. screen etc, a vertical and horizontal scale is used.

To determine scale:

- Use total distance from upper transect point to all individual end points on a horizontal plane. These distances are known since they were measured in the field.
- Measure the distance (in cm) on the map to these end points.
- Divide the map measured cm into the field produced distances. This will give you your scale ex: 1 cm.=2.7m
- Average these to get your scale.
- Do the same for the vertical scale.

7. Keep master uncolored for better quality duplicates.

FILE COPY

WINTER STUDY SITES - MISCELLANEOUS INFORMATION

1. Help for site set-up: Vince Matthews at ADNR in Valdez worked with the ADF&G crew on one site. He and Steve Phillips are both interested in getting out in the field. Their phone number is 835-8121 or 8122. Volunteers can also often be found at ADEC.
2. Remaining work at study sites already set up:

Sleepy Bay, LaTouche Island (LA018678HH). Do more complete oil assessment and mapping. Take oil penetration measurements at random locations within each band. Put approximate locations of these points on the map. Heavy band on left bank is visible on video. Accurately depict this on the map.

Opal Creek - Lower Passage, Knight Island (KN103U01MM). A more complete beach profile is needed from the lower midstream point. This will have to be done at a low tide of 4 ft or less to be able to get to the lower MSP.
3. Location of all information on Winter Study sites:

Everything is in the black file cabinet in the drawer marked "winter study":

 - Field notebooks
 - video and photo logs
 - videotapes
 - Study site files
 - Diskette with forms and information files
 - Completed RLS (request for laboratory services) forms
 - Forms (Rite-in-the-Rain paper is kept in the blank forms drawer).
4. Documentation to be completed for each study site:

Video and photo logs (both in yellow Rite-in-the-Rain book and on regular video log sheets).

RLS sheets for each sample taken. See previous ones for example of how to complete.

Complete study site forms and video map (see mapping procedures).

WINTER STREAM HABITAT STUDY - ACRONYMS and MAP SYMBOLS

ITZ	Intertidal Zone (L-lower, M-middle, U-upper
RB	Right bank (facing downstream)
LB	Left bank (facing downstream)
RP	Reference point
UMSP	Upper midstream point
MMSP	Middle midstream point
LMSP	Lower midstream point
UTP	Upper transect point (or transit point)
LTP	Lower transect point
TN	True north

MAP SYMBOLS

Fixed point (staked): black circle with red interior

Non-permanent, unfixed points: black circle with X

**WINTER STREAM HABITAT STUDY
EQUIPMENT AND SUPPLY CHECKLIST**

FILE COPY

Video Camcorder (with all spare battery packs and extra film cassettes)

Databack camera (Nikon in equipment cabinet should be programmed for date; make sure back is flashing "Print") and 200 ASA print film

Polaroid camera

Transit, tripod, and stadia rod

Compass

Sample jars (6-8 per site) with labels

Rubber gloves for taking sediment samples and testing oil penetration (in extra desk in John's office)

Space pens (if you can find any; otherwise permanent black pens)

Dissolvit wipes (in extra desk in John's office)

100 m tape

5 m tapes (one for each crewmember)

Metric ruler

Rebar: 5 ft (approx. 2 per site)
 4 ft (approx. 8 per site)
 2 ft (have 3 or 4 on hand for areas where longer stakes cannot be used)

2 Sledge hammers, 1 large, 1 small

Round point shovel (for checking oil penetration)

Clam shovel (for digging clams)

Surveyors tape (for marking oil bands)

Orange spraypaint

Tide book

Rite-in-the-rain log books and forms

Orange surveyors vests (to carry your stuff in)

Mustang suits and/or raingear

FILE COPY

Hip boots

Warm gloves, hats, boots, etc.

Rock grippers

Food

Survival gear

Gray dry bag (under table in Nasty Nancy's office):

tent

stove

fuel

cook kit

freeze dried lasagna

miscellaneous survival gear

At least 1 sleeping bag (depending on what is in helicopter and how much room is left)

Small items to stash in fitzwright suit vest pockets:

matches in waterproof container

flashlight

space blanket

flares

"meal-on-the-go"

disposable hand warmers

knife

Daypack to carry your gear

ADF&G MULTI-ASSESSMENT DATA FORM

- 1) SURVEY TYPE: BS SS 2) REGION: PWS KP, CI K, AP
- 3) METHOD: Aerial Ground Boat
- 4) DATE: 5/1/91 16) HIGH TIDE TIME: _____ 22) TEAM RECORDER: Aimee Weseman
- 5) START TIME: 1200 17) HIGH TIDE HTS: _____ 23) OBSERVERS: Tom Crowe
- 6) STOP TIME: 1315 18) LOW TIDE TIMES: 0930 24) AGENCY: ADF&G
- 7) SEGMENT #: KN103A 19) LOW TIDE HTS: -1 25) PHOTOS TAKEN: Y N
- 8) K-UNIT: _____ 20) TIDE HT AT SURVEY: +2 to 3 ROLL #: _____ FRAMES: _____
- 9) LAT: _____ Ebb Slack Flood Slack 26) VIDEO TAKEN: Y N
- 10) LONG: _____ 21) USCG QUAD: _____ TAPE # _____
- 11) ASC #: 226-10-16922 START: _____ STOP: _____
- 12) STREAM NAME: _____ 27) SAMPLES TAKEN? Y N
- 13) LOCATION: near Louis Bay, Knight I SAMPLE I.D. _____
- 14) WAVE EXPOSURE: High Moderate Low
- 15) SHORELINE TYPE: Headland Low-lying Rocks Beach
- Cove Lagoon Marsh

28) EXTENT OF OIL

	LENGTH m	WIDTH m	M2	%	THICK cm	PEN cm	OIL TYPE
SITE 1	<u>20</u>	<u>1</u>		<u><1</u>	<u>3</u>		<u>AP/HSOR</u>
SITE 2	<u>10m</u>	<u>.5</u>		<u><10</u>	<u>3</u>		<u>HSOR/AP</u>
SITE 3							
SITE 4							
SITE 5							

- 29) OVERALL OIL IMPACT:
- H = >6m band with $\geq 50\%$ oil coverage
- M = >6m band with $\leq 50\%$ oil coverage or $\geq 3\text{m}$ to $\leq 6\text{m}$ with $\geq 10\%$ oil coverage
- L = <3m band with $> 10\%$ oil coverage
- VL = $\leq 10\%$ oil coverage regardless of band width
- N = No oil observed
- 30) OIL IN STREAMBED: Y N
- 31) OIL ON BEACH ADJACENT TO MOUTH: Y N
- 32) SUBSTRATE TYPE (PERCENT):
- Bedrock _____ Boulder _____ Gravel _____ Sand _____ Cobble _____ Mud/Silt _____
- 33) ANADROMOUS FISH PRESENT: Y N
- 34) WILDLIFE OBSERVATION
- | Species | Number |
|------------------|----------|
| <u>Heron</u> | <u>1</u> |
| <u>Sea Otter</u> | <u>1</u> |
| <u>Eagle</u> | <u>1</u> |

35) COMMENTS:

The small amount of remaining AP/HSOR sediments were removed during the survey. Remaining LSOR sediments were tilled. No subsurface oil detected. No treatment recommended.

36) PHOTOLOG

FRAME(S)

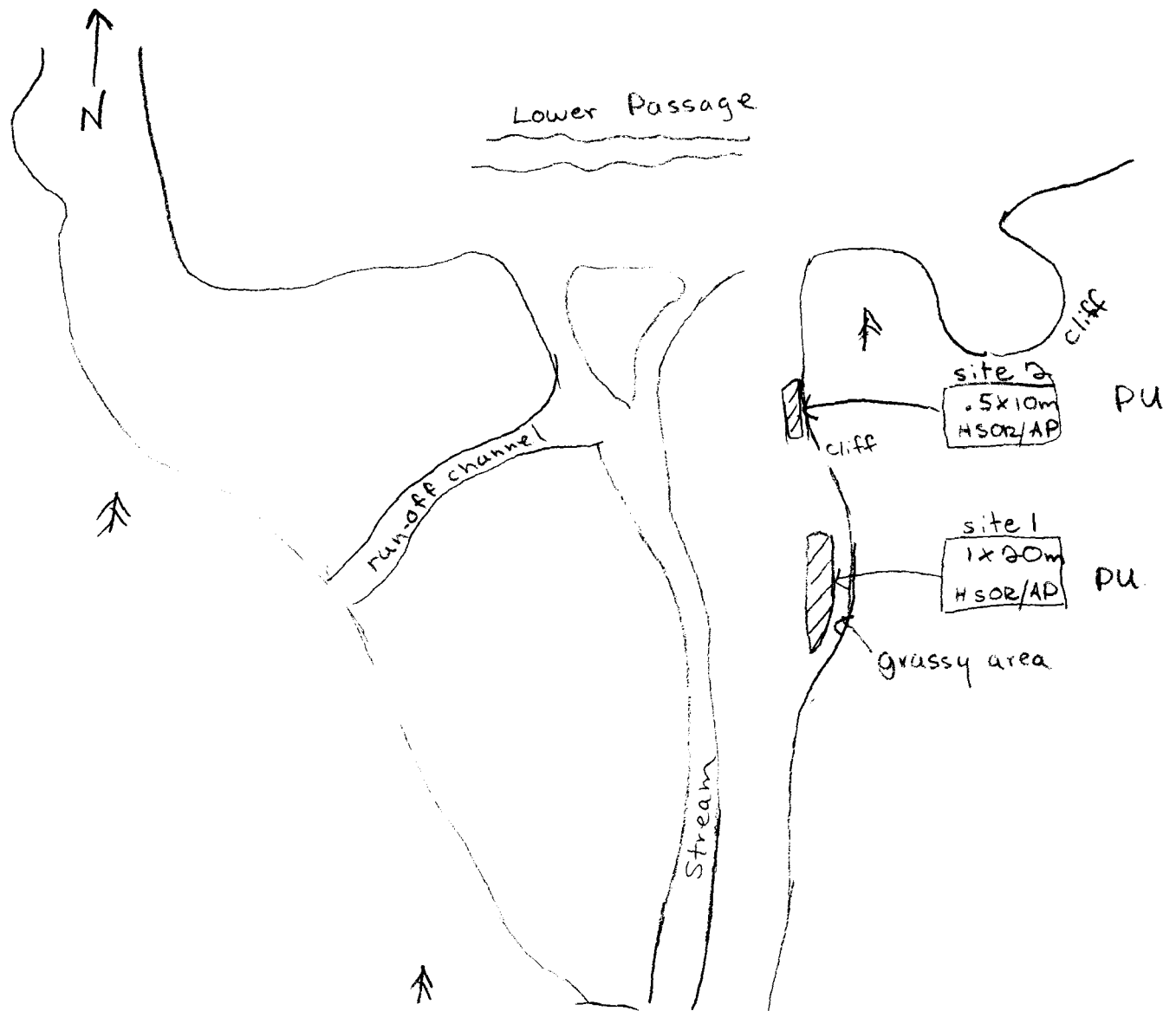
DESCRIPTION

▲ = Sample Taken
2/ = Photo Frame # and
Shot Direction

A:EDDATFO
April 3, 1991

MAYSAP
5/1/91
A. Weseman

KN 103 A ASC# 226-10-16922



PAGE 1 OF 2

subsurface oil was not detected in 10 pits.

PAGE 2 OF 2

DATE 05 / 01 / 91

SHEEN COLOR: B = BROWN: R = RAINBOW: S = SILVER: N = NONE

OG COMMENTS:

E 0.1 x 0.5
5% SOR (H)

KN-103-A

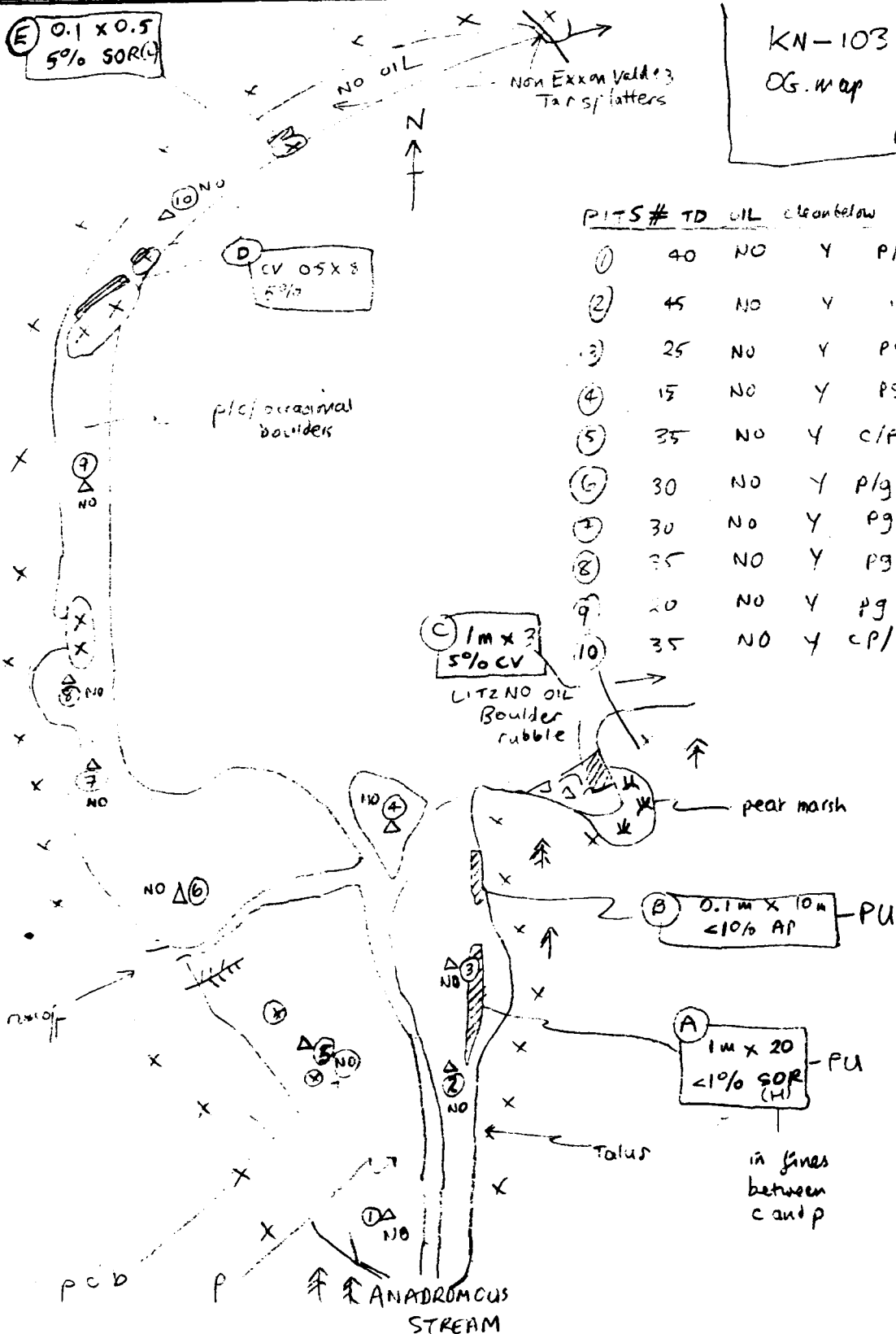
05/01/91

OG map

D. I. Little

1200 - 1300

PITS #	TD	OIL	clean below	sds	shrn	W/T
①	40	NO	Y	P/sg	NO	20
②	45	NO	Y	"	"	40
③	25	NO	Y	PC-sgl-rar	FL shovel	20
④	15	NO	Y	pg-gs	-	10
⑤	35	NO	Y	C/P/sgp	-	-
⑥	30	NO	Y	P/g/sg	-	-
⑦	30	NO	Y	pg/sg	-	28
⑧	35	NO	Y	pg/sg	-	30
⑨	20	NO	Y	pg/sg	-	-
⑩	35	NO	Y	C/P/speak wood	-	30



0 25 50
meters

Photo locations

(E) 0.1 x 0.5
50% SOR(4)

KN-103-A

05/01/91

OG map

D.I. Little

1200 - 1300

Non Exxon Valdez
Tar splatters

N
↑

(D) CV 05X8
50%

plc/orational
boulders

PITS	TD	Depth	low	code	check	wt
(1)	40	10	Y	P/sy	NO	20
(2)	45	10	Y	"	"	40
(3)	25	NO	Y	PC-sg/par	FL	20
(4)	15	NO	Y	PG-gs	-	10
(5)	25	NO	Y	PG/sg	-	-
(6)	30	NO	Y	PG/sg	-	-
(7)	20	NO	Y	PG/sg	-	28
(8)	-	NO	Y	PG/sg	-	30
(9)	-	NO	Y	PG/sg	-	-
(10)	25	NO	Y	PG/speak	-	20

(C) 1m x 3
CV/CV

LITZ NO OIL
Boulder
rubble

1991 map

1991 map

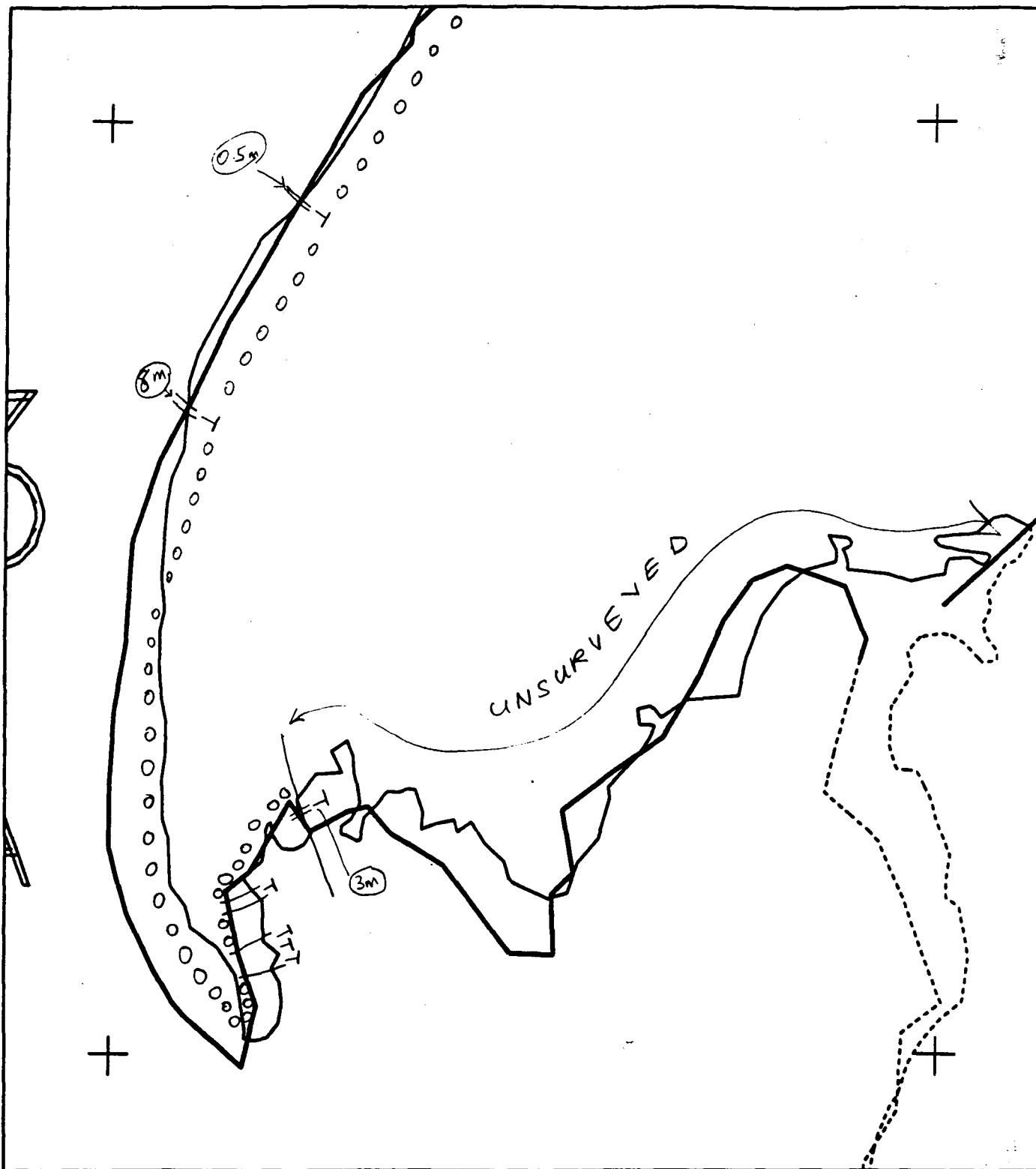
1991 map

A joint
between
C and P

pcb

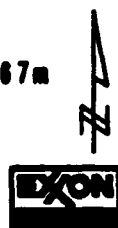
P

ANADROMOUS
STREAM

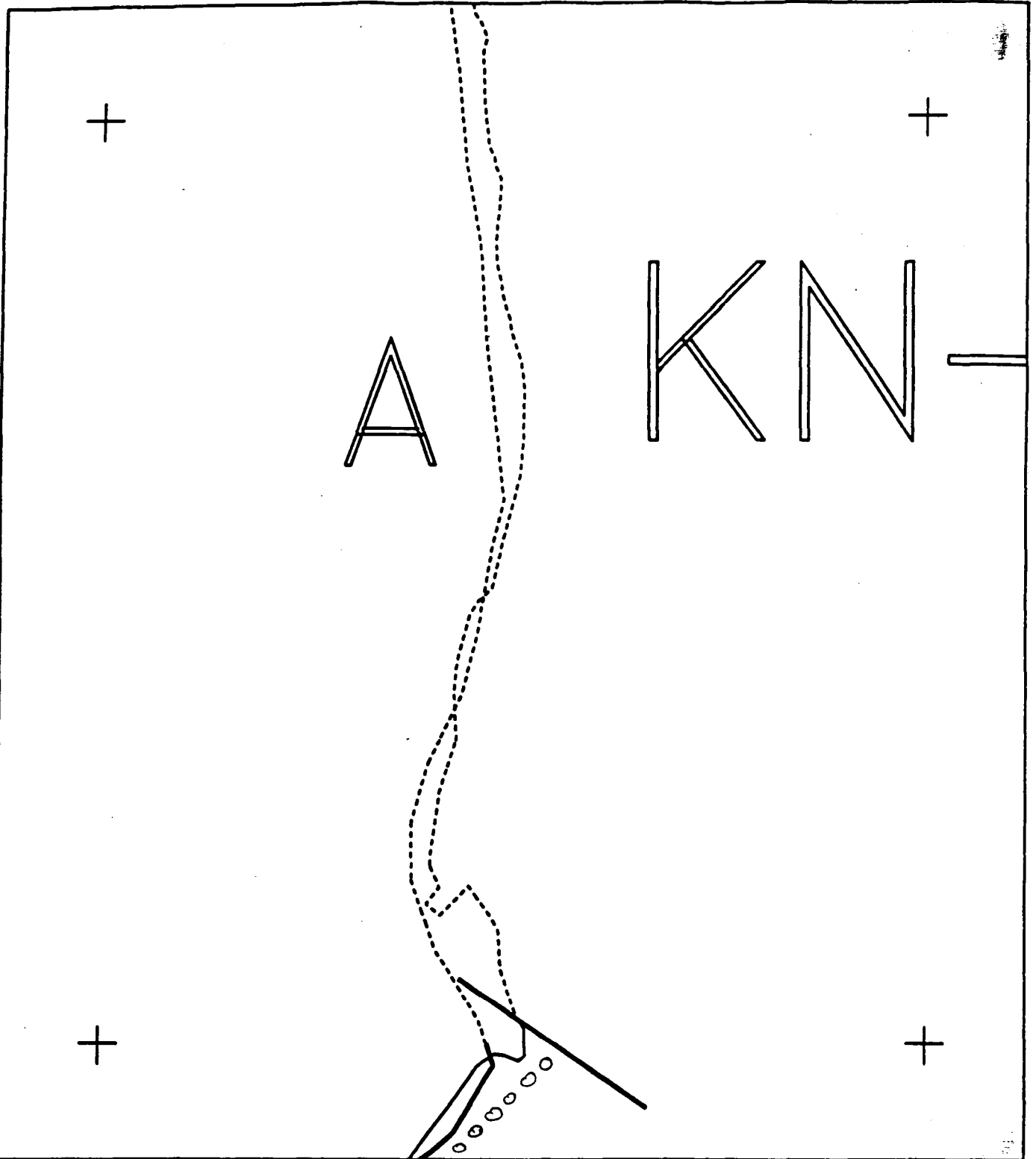


XXXX Wide
 //// Medium
 ---- Narrow
 TTTT Very Light
 0000 No Oil

KN0103 A
 ADEC Subsegment Length: 1867m
 METERS
 0 100 200
 AK State Plane Zone 4
 kn0103aa



Subdivision Field Map
 Map Key: KNKN0103Aa
 Name: DAVID I. LITTLE
 Date: 05/01/91
 Date Entered:



XXXX Wide
 //// Medium
 ---- Narrow
 TTTT Very Light
 0000 No Oil

KN0103 A
 ADEC Subsegment Length: 1887m
 METERS
 0 100 200
 AK State Plane Zone 4
 kn0103ab



Subdivision Field Map
 Map Key: KNKN0103Ab
 Name: DAVID I. LITTLE
 Date: 05/01/91
 Date Entered:

MAYSAP BIOLOGICAL SUMMARY FORM

TEAM # 6 **DATE** 5/1/91
SEGMENT # KN-103 **TIDAL HEIGHT (Range)** +2 1/4 to +5 1/2 feet
SUBDIVISION A **BIOLOGIST** T.A. Schroeder
SEA STATE light chop **WIND SPEED/DIRECTION** N.E. 10-15 mph
PHOTOGRAPHS: ROLL # **FRAME #**

COMMENTS/OBSERVATIONS (to be completed in oiled subdivisions only):

Intertidal spawning area of this stream is very
 productive for salmon. Fucus kelp and filamentous
 algae growth provides excellent cover and food
 source for young salmon. Entire western shore
 of section is extremely lush and is supporting
 dense communities of fucus, mussels, snails, etc.

Remaining oil does not appear to be affecting the
 health or productivity of the intertidal organisms
 and any removal or treatment should use
 the least intrusive method possible.

WILDLIFE OBSERVATIONS

TO BE COMPLETED IN ALL SUBDIVISIONS

BIRDS	# OF SPECIES	TOTAL BIRDS	FISH OBSERVED SPECIES PRESENT
Eagles	1	1	
Seabirds			
Waterfowl	1	4	
Gulls/Kittiwakes			
Shorebirds	1 (Heron)	1	
Corvids			
Other Birds			

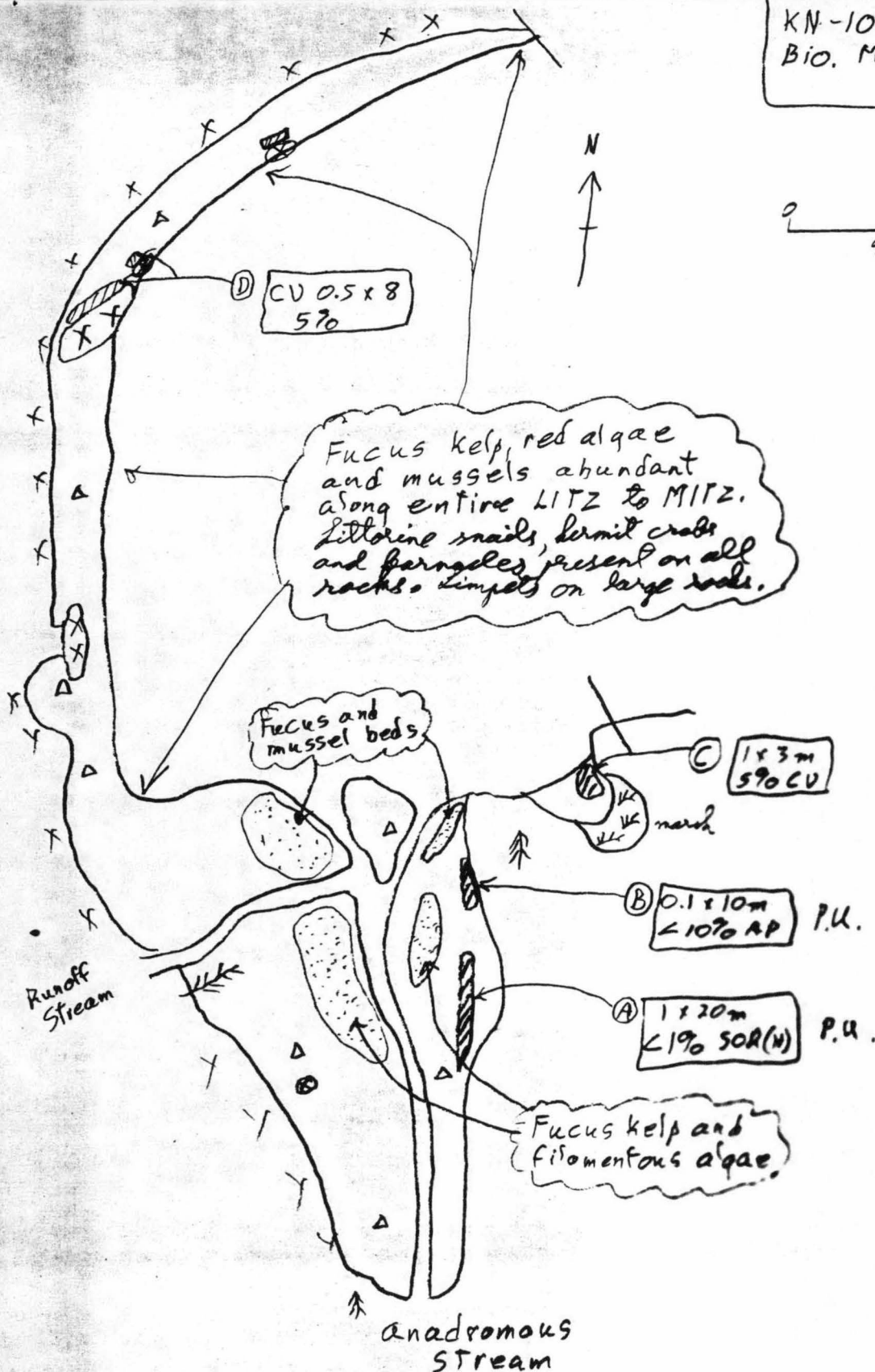
LAND MAMMALS

MARINE MAMMALS	# OBSERVED	SPECIES	# OBSERVED
Sea Otters	1		
Pinnipeds (specify)			
Whales (specify)			

Shoreline subdivision map showing important biological features attached.

KN-103-A 5/1/91
 Bio. Map T.R. Schroeder
 1200-1300

0 25 50
 meters



MAYSAP FIELD SHORELINE COMMENT SHEET

TEAM NO. 6 SEGMENT KN-103-A SUBDIVISION A DATE 5/1/91

ADEC/USFS

NAME TOM CROWE

SIGNATURE

[Signature]

☒ NTR

THE EXISTING SURFACE OILING AT THIS SEGMENT WAS PICKED UP OR MANUALLY TILLED DURING THE MAYSAP SURVEY.

EXXON

NAME Scott A. Nauman

SIGNATURE

[Signature]

☒ NTR

The survey results speak for themselves - no further treatment needed. Lots of wildlife (eagle, otter, heron, waterfowl) observed.

LANDMANAGER

NAME Aimee Weseman OF ADEFG

SIGNATURE

[Signature]

☒ NTR The majority of the SOR remaining on the ANAD portion of subdivision were removed during the survey. Remaining SOR was manually tilled. No subsurface oil was detected.

USCG/NOAA

NAME CWO Spurr / Rebecca Hoff

SIGNATURE

[Signature] / *[Signature]*

☒ NTR AP picked up by workers during segment survey (B), SOR manually tilled (4). No further treatment required.



KN 103 A

Date: 5/01/91

No. 847

18

Segment No KN103 Subdivision A
 Date 5/1/91 Log Frame No 16
 Photographer Rebecca Hoff
 Location _____
 Comments View upstream from outlet

 Roll No MAYSAP-6-04 Neg. No 18
 Control No 847 (Office Use Only)

19

Segment No KN103 Subdivision A
 Date 5/1/91 Log Frame No 17
 Photographer Rebecca Hoff
 Location _____
 Comments View of pit in upper intertidal
along stream with peat + no oil
pit #3)

 Roll No MAYSAP-6-04 Neg. No 19
 Control No 847 (Office Use Only)

20

Segment No KN103 Subdivision A
 Date 5/1/91 Log Frame No 18
 Photographer Rebecca Hoff
 Location _____
 Comments Overview of segment

 Roll No MAYSAP-6-04 Neg. No 20
 Control No 847 (Office Use Only)



18

Segment No KD103 Subdivision EA
Date 5/1/91 Log Frame No 116
Photographer Rebecca Hoff
Location _____
Comments View upstream from outlet

Roll No MAYSAP-6-04 Neg. No 18
Control No 847 (Office Use Only)



19

Segment No KN103 Subdivision A
Date 5/1/91 Log Frame No 17
Photographer Rebecca Hoff
Location _____
Comments View of pit in upper intertidal
along stream with peat + no oil
pit #3)

Roll No MAYSAP-6-04 Neg. No 19
Control No 847 (Office Use Only)



20

Segment No KN103 Subdivision A
Date 5/1/91 Log Frame No 18
Photographer Rebecca Hoff
Location _____
Comments Overview of segment

Roll No MAYSAP-6-04 Neg. No 20
Control No 847 (Office Use Only)

MAYSAP
Stream

226-10-16922



1991 MAYSAP EVALUATION

SEGMENT: KN 0103 SUB: A REGION: PWS SURVEY DATE: 5/1/91

ENVIRONMENTAL SENSITIVITIES:

Work Window(s) RESTRICTED 3/1 - 9/15

Ecological/Constraints (see page two for details) Eagle nest,
Anadromous stream

ARCHAEOLOGICAL CONSTRAINTS:

If treatment is planned, a cultural resource evaluation is
required prior to shoreline treatment.

SHPO Signature: [Signature] Date: 5/10/91

RECOMMENDATIONS:

INITIAL

TAG

FOSC

TREATMENT REQUIRED (Y or N)

N

N

N

Manual Pickup (Check as Req.)

Spot Washing

Bio-Customblen Only

Bio-Inipol/Customblen

Other

Other

COMMENTS:

EXXON COMMENTS

INITIAL: NTK

05/10/91

TAG: NTK

05/14/91

FOSC: NTK

TAG APPROVAL DATE: MAY 10 1991

FOSC APPROVAL DATE: 5/14/91

ADEC [Signature]

FOSC [Signature]

EXXON [Signature]

USCG [Signature]

NOAA [Signature]

1991 STATE WORK ORDER
EXXON VALDEZ OIL SPILL PROJECT
STATE OF ALASKA



PRINCE WILLIAM SOUND

SEGMENT: KN0103

SUBDIVISION: A

SITE:

RECOMMENDED TREATMENT:

No treatment recommended at this time.

ENVIRONMENTAL SENSITIVITIES:

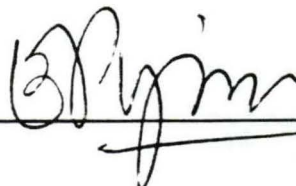
WORK WINDOW:

-

CLEANUP PLAN AND COST ESTIMATE DUE:

DATE SUBMITTED: 05/13/91

STATE ON SCENE COORDINATOR:



1991 MAYSAP EVALUATION

SEGMENT: KN 0103 **SUB:** A **REGION:** PWS **SURVEY DATE:** 5/1/91

ENVIRONMENTAL SENSITIVITIES:

Work Window(s) RESTRICTED 3/1 - 9/15

Ecological/Constraints (see page two for details) Eagle nest, Anadromous stream

ARCHAEOLOGICAL CONSTRAINTS:

If treatment is planned, a cultural resource evaluation is required prior to shoreline treatment.

SHPO Signature: _____ Date: _____

<u>RECOMMENDATIONS:</u>	<u>INITIAL</u>	<u>TAG</u>	<u>FOSC</u>
TREATMENT REQUIRED (Y or N)	<u>N</u>	_____	_____
Manual Pickup (Check as Req.)	_____	_____	_____
Spot Washing	_____	_____	_____
Bio-Customblen Only	_____	_____	_____
Bio-Inipol/Customblen	_____	_____	_____
Other _____	_____	_____	_____
Other _____	_____	_____	_____

COMMENTS:

INITIAL: NTR

TAG: NTR

FOSC: _____

TAG APPROVAL DATE: _____ **FOSC APPROVAL DATE:** _____

ADEC _____ **FOSC** _____

EXXON _____

USCG _____

NOAA _____

**ECOLOGICAL CONSTRAINTS
1991 FIELD ACTIVITIES**

Eagle Nest: Access restricted from 3/1 to 9/1. USF&WS authorization required. Maintain 1000' vertical and 1/4 mile horizontal buffer.

Anadromous Stream: Unlimited treatment up to stream bank between May 15 and July 10. ADF&G approval required for work after July 10. Fish Habitat Permit required for instream work. ADF&G approval required for bioremediation within 100 meters of anadromous stream after July 10.

ADF&G MULTI-ASSESSMENT DATA FORM

- 1) SURVEY TYPE: BS SS 2) REGION: PWS KP, CI K, AP
- 3) METHOD: Aerial Ground Boat
- 4) DATE: 5/1/91 16) HIGH TIDE TIME: _____ 22) TEAM RECORDER: Aimee Weseman
- 5) START TIME: 1200 17) HIGH TIDE HTS: _____ 23) OBSERVERS: Tom Crowe
- 6) STOP TIME: 1315 18) LOW TIDE TIMES: 0930 24) AGENCY: ADF&G
- 7) SEGMENT #: KN103A 19) LOW TIDE HTS: -1 25) PHOTOS TAKEN: Y (N)
- 8) K-UNIT: _____ 20) TIDE HT AT SURVEY: +2 to 3 ROLL #: _____ FRAMES: _____
- 9) LAT: _____ Ebb Slack Flood Slack 26) VIDEO TAKEN: Y (N)
- 10) LONG: _____ 21) USCG QUAD: _____ TAPE # _____
- 11) ASC #: 226-10-16922 START: _____ STOP: _____
- 12) STREAM NAME: _____ 27) SAMPLES TAKEN? Y (N)
- 13) LOCATION: near Louis Bay, Knight I SAMPLE I.D. _____
- 14) WAVE EXPOSURE: High Moderate Low _____
- 15) SHORELINE TYPE: Headland Low-lying Rocks Beach _____
- Cove Lagoon Marsh _____

28) EXTENT OF OIL

	LENGTH m	WIDTH m	M2	%	THICK cm	PEN cm	OIL TYPE
SITE 1	<u>20</u>	<u>1</u>		<u><1</u>	<u>3</u>		<u>AP/HSOR</u>
SITE 2	<u>10m</u>	<u>.5</u>		<u><10</u>	<u>3</u>		<u>HSOR/AP</u>
SITE 3							
SITE 4							
SITE 5							

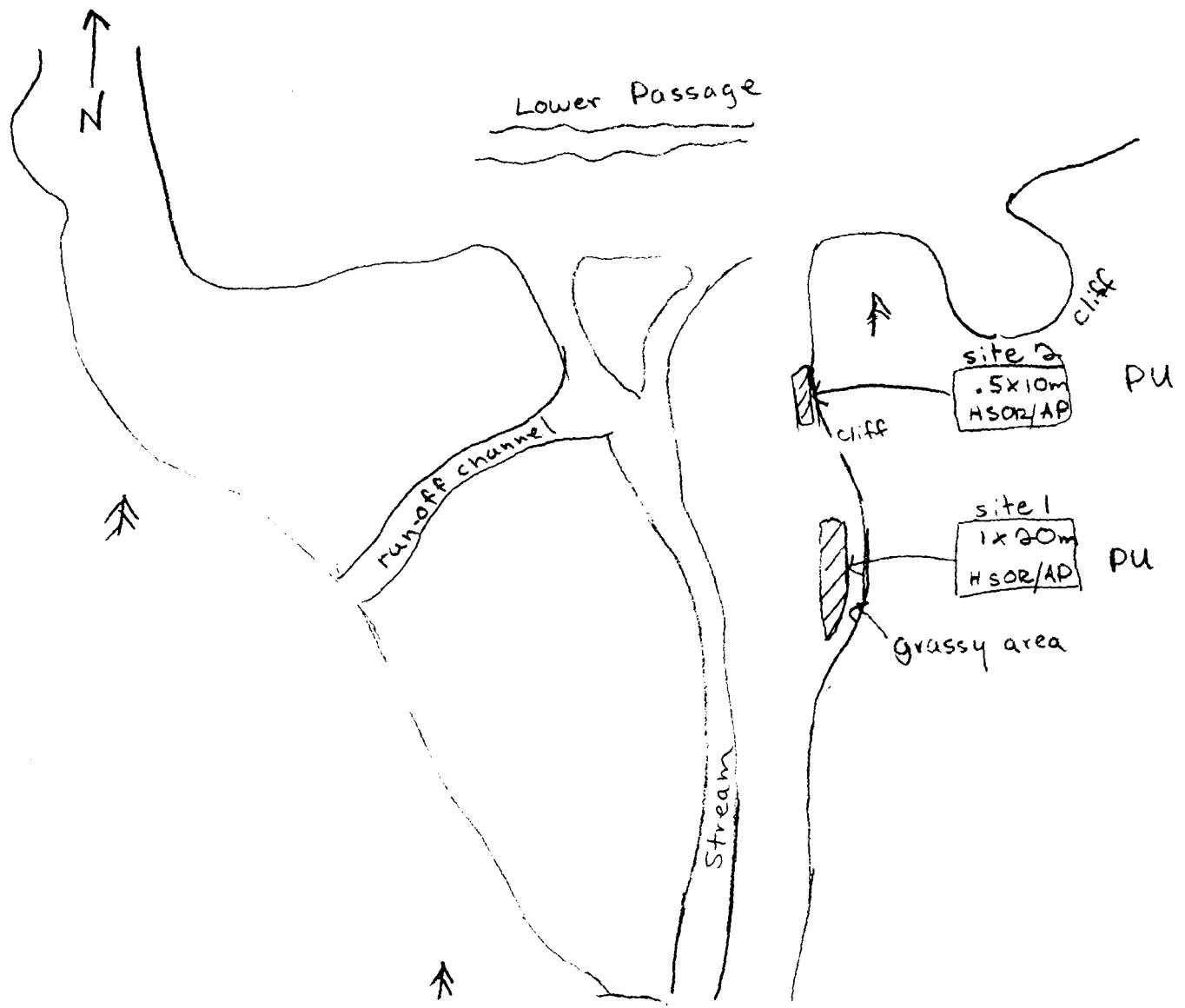
- 29) OVERALL OIL IMPACT: 33) ANADROMOUS FISH PRESENT: Y N
- H = >6m band with ≥50% oil coverage
- M = >6m band with ≤50% oil coverage or ≥3m to ≤6m with ≥10% oil coverage
- L = <3m band with >10% oil coverage
- VL = ≤10% oil coverage regardless of band width
- N = No oil observed
- 30) OIL IN STREAMBED: Y (N)
- 31) OIL ON BEACH ADJACENT TO MOUTH: (Y) N
- 32) SUBSTRATE TYPE (PERCENT):
- Bedrock _____ Boulder _____ Gravel _____ Sand _____ Cobble _____ Mud/Silt _____
- 34) WILDLIFE OBSERVATION
- | Species | Number |
|-------------------|----------|
| <u>Bald Eagle</u> | <u>1</u> |
| <u>Heron</u> | <u>1</u> |
| _____ | _____ |
| _____ | _____ |

35) COMMENTS: _____

The small amount of remaining AP/HSOR sediments were removed during the survey. Remaining LSOR sediments were tilled. No subsurface oil detected. No treatment recommended.

MAYSAP
5/1/91
A. Weseman

KN 103 A ASC# 226-10-16922



REVISED: 5/8/91 M.C.

DATE 05/01/91

could

SHEEN COLOR: B = BROWN; R = RAINBOW; S = SILVER; N = NONE

OG COMMENTS:

REVIEWED: 5/3/91 MC

MAYSAP BIOLOGICAL SUMMARY FORM

TEAM # 6 DATE 5/1/91
 SEGMENT # KN-103 TIDAL HEIGHT(Range) +2 1/4 to +5 1/2 feet
 SUBDIVISION A BIOLOGIST T.R. Schroeder
 SEA STATE light chop WIND SPEED/DIRECTION N.E. 10-15 mph
 PHOTOGRAPHS: ROLL # FRAME #

COMMENTS/OBSERVATIONS (to be completed in oiled subdivisions only):

Intertidal spawning area of this stream is very productive for salmon. Fucus help and filamentous algae growth provides excellent cover and food source for young salmon. Entire western shore of river is extremely lush and is supporting dense communities of fucus, mussels, snails, etc.

Remaining oil does not appear to be affecting the health or productivity of the intertidal organisms and any removal or treatment should use the least intrusive method possible.

WILDLIFE OBSERVATIONS

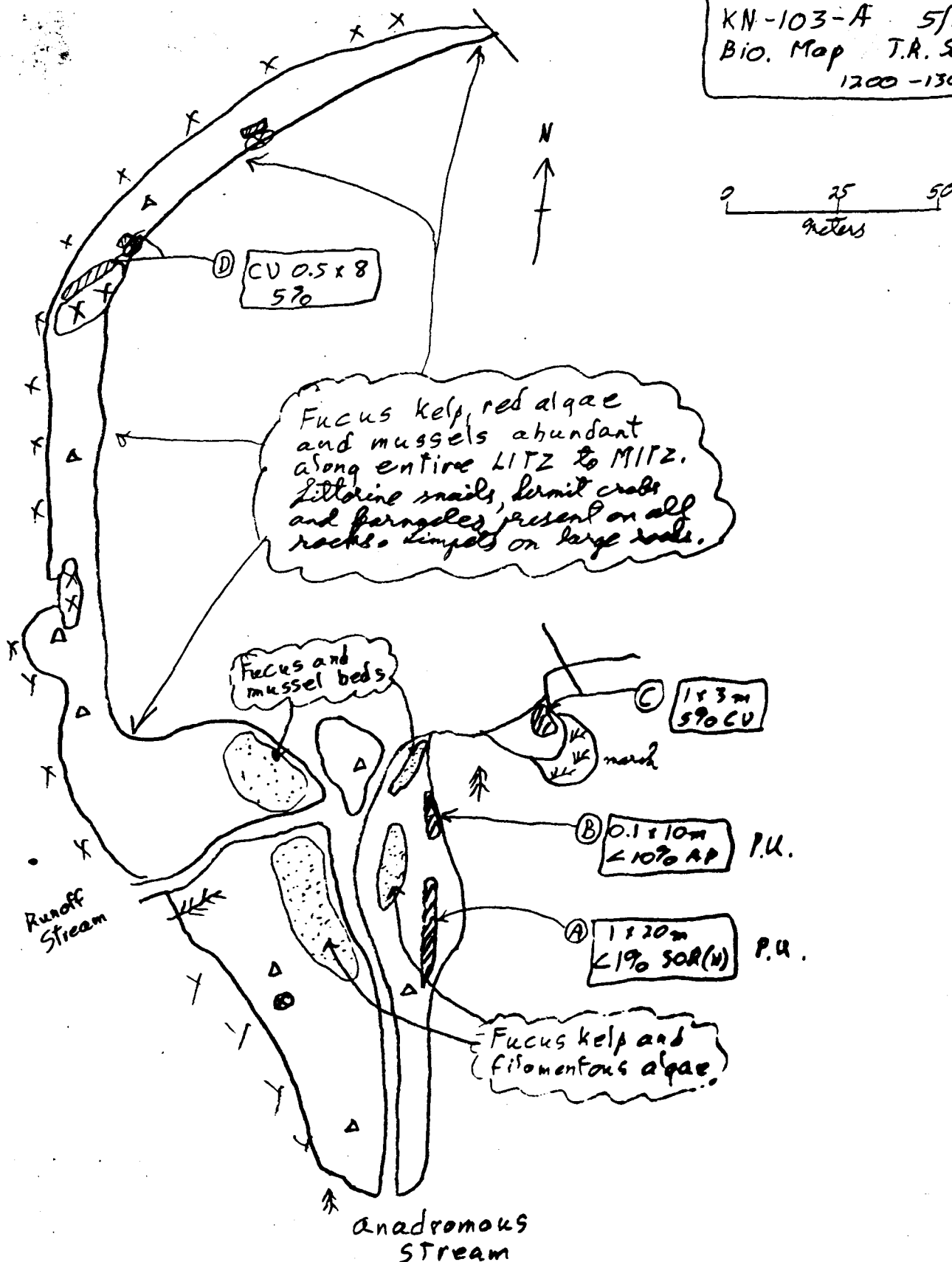
TO BE COMPLETED IN ALL SUBDIVISIONS

BIRDS	# OF SPECIES	TOTAL BIRDS	FISH OBSERVED SPECIES PRESENT
Eagles	1	1	
Seabirds			
Waterfowl	1	4	
Gulls/Kittiwakes			
Shorebirds	1 (Heron)	1	
Corvids			
Other Birds			

MARINE MAMMALS	# OBSERVED	LAND MAMMALS SPECIES	# OBSERVED
Sea Otters	1		
Pinnipeds(specify)			
Whales(specify)			

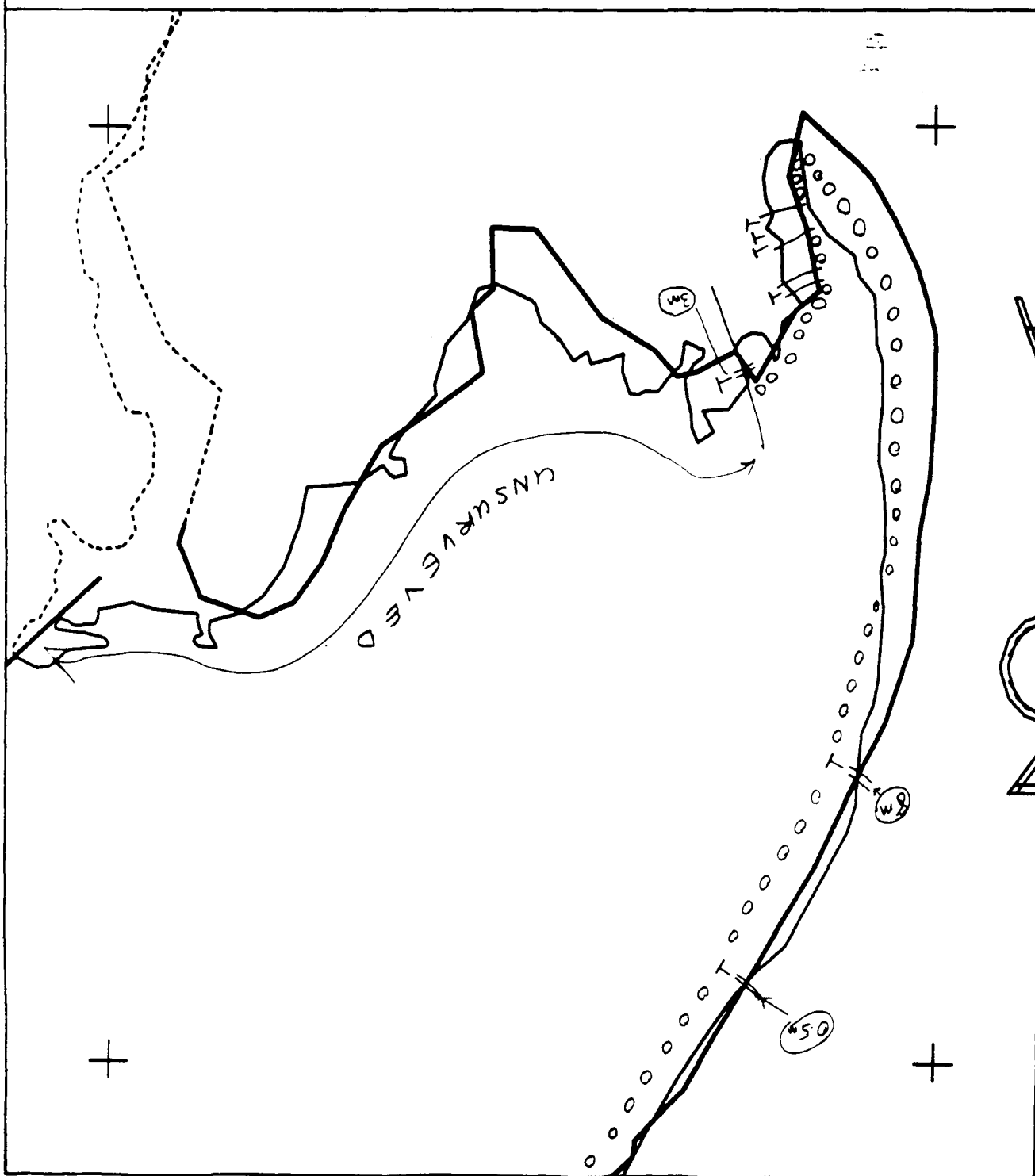
Shoreline subdivision map showing important biological features attached.

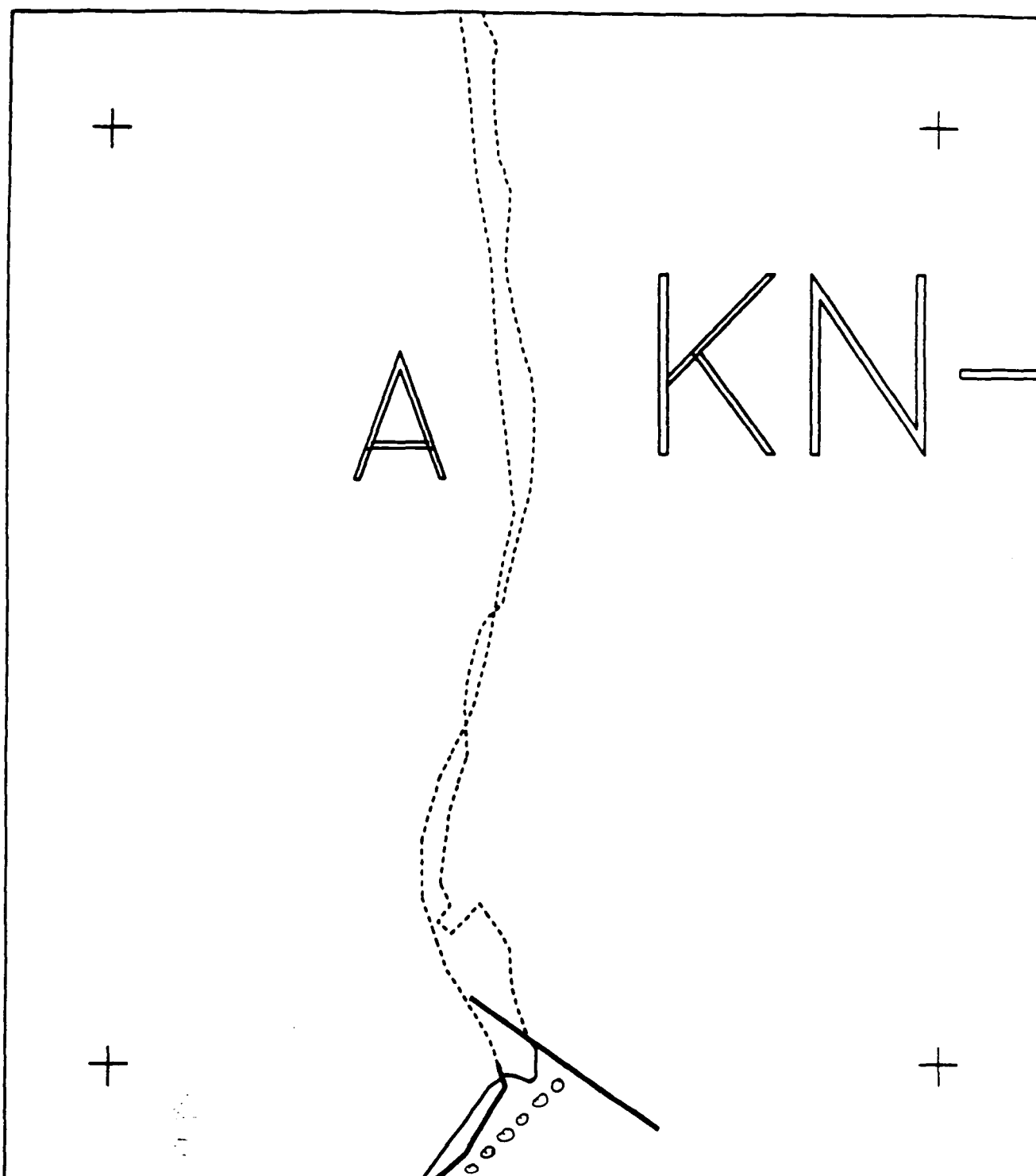
KN-103-A 5/1/91
 Bio. Map T.A. Schroeder
 1200-1300

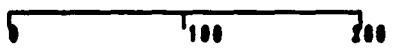


Reviewed 5/3/91
Reviewed: 5/3/91 MC

XXXX	Wide	KN0103 A	Subdivision field map
////	Medium	ABEC subsegment length: 1007m	Map Key: KN1KNO103A
---	Narrow	METERS	Name: DAVID LITTLE
TTTT	Very Light	0 100 200	Date: 05/01/91
0000	No Oil	AK State Plane Zone 4	Date Entered:





XXXX	Wide	KN0103 A ADEC Subsegment Length: 1887m METERS  AK State Plane Zone 4 kn0103ab	 	Subdivision Field Map
////	Medium			Map Key: KNKN0103ab
----	Narrow			Name: <u>DAVID LITTLE</u>
TTTT	Very Light			Date: <u>05/01/91</u>
0000	No Oil			Date Entered:

reviewed 5/31/91
 REVIEWED: 5/3/91 MC

Photo Locations

E 0.1 x 0.5
50% SOR(L)

KN-103-A

05/01/91

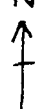
OG Map

D.I. Little

1200 - 1300

Non Exam Valid
Tasplatters

NO OIL



D 0.5 x 8
50%

plac. occasional
boulders

PITS	TO	...	Surf-low	Code	check	W/F
①	20	10	Y	P/Sy	NO	20
②	45	10	"	"	"	40
③	25	NO	Y	PC-SG/PL	FL	20
④	15	"	"	EG-SG	-	10
⑤	25	NO	"	PL/SGP	-	-
⑥	30	10	"	PL/SG	-	-
⑦	20	10	"	EG/SG	-	20
⑧	-	10	Y	PL/SG	-	30
⑨	-	10	"	EG/SG	-	-
⑩	25	10	Y	PL/SGP	-	20

C 1.4 x 3
10/100

LITZ NO OIL
Boulder
rubble

1000 ft

1000 ft

1000 ft

A fines
between
crop

ANADROMOUS
STREAM

pcb

P



ADEC comments cont...
MAVSAY

A

KN

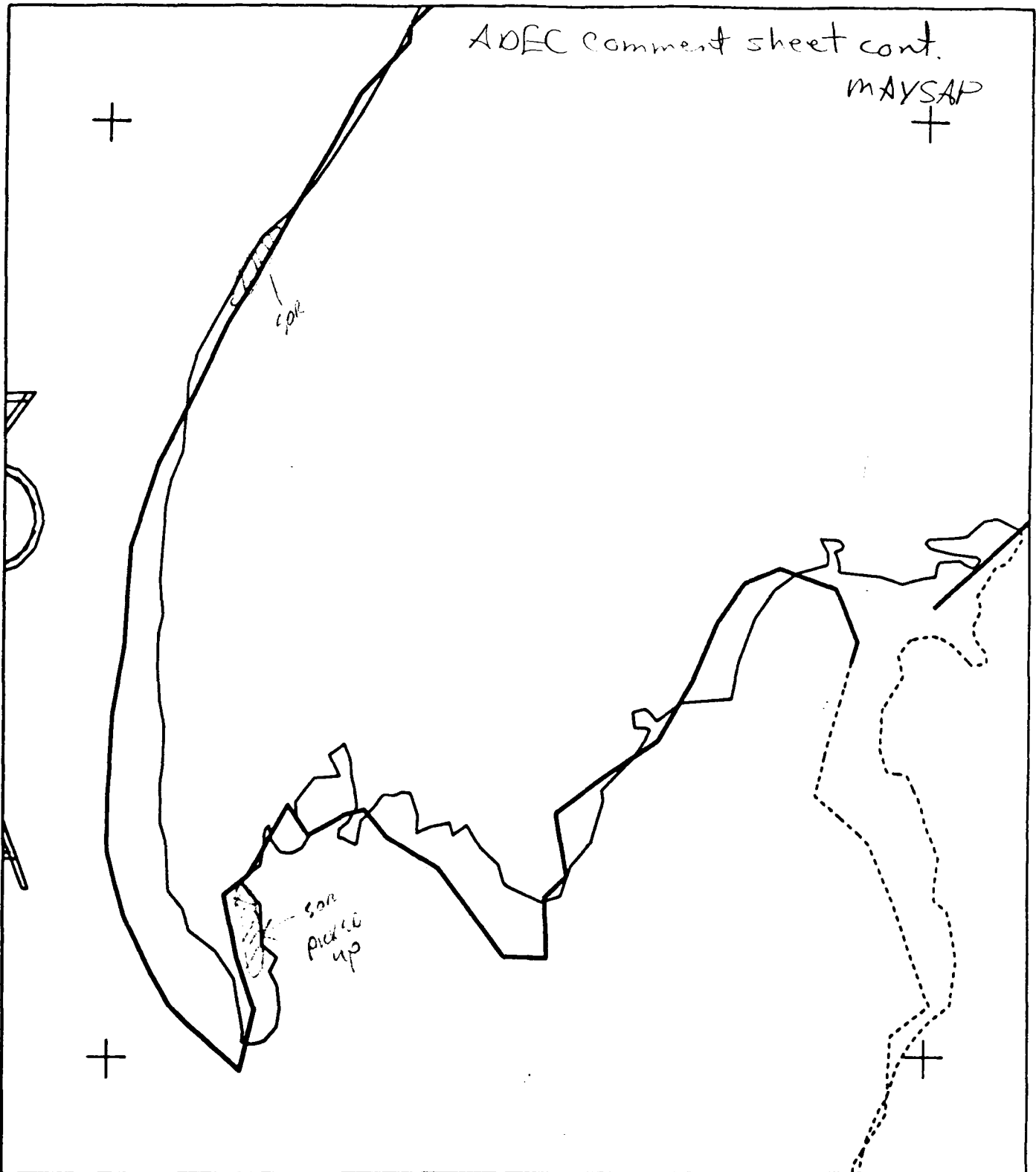
XXXX Wide
//// Medium
---- Narrow
TTTT Very Light
0000 No Oil

KN0103 A
ADEC Subsegment Length: 1867m
METERS
AK State Plane Zone 4
kn0103ab



Subdivision Field Map
Map Key: KNKN0103Ab
Name: Tom Crowe
Date: 5/1/91
Date Entered:

ADEC Comment sheet cont.
MAYSAP



XXXX Wide
 //// Medium
 ---- Narrow
 TTTT Very Light
 0000 No Oil

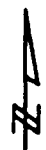
KN0103 A

ADEC Subsegment Length: 1867m

METERS

0 100 200

AK State Plane Zone 4
 kn0103aa



Subdivision Field Map

Map Key: KNKN0103Aa

Name: TOM CROWL

Date: 5/1/91

Date Entered:

TEAM NO. 6 SEGMENT KN-103-A SUBDIVISION A DATE 5/1/91

ADEC/USFS

NAME TOM CROWE

SIGNATURE

[Signature]

☒ NTR

THE EXISTING SURFACE OILING AT THIS SEGMENT WAS PICKED UP OR MANUALLY TILLED DURING THE MAVSAP SURVEY.

EXXON

NAME SCOTT A. NAUMAN

SIGNATURE

[Signature]

☒ NTR

The survey results speak for themselves - no further treatment needed.
Lots of wildlife (eagle, otter, heron, waterfowl) observed.

LANDMANAGER

NAME Aimee Weseman OF ADEFG

SIGNATURE

[Signature]

☒ NTR The majority of the SOR remaining on the ANAD portion of subdivision were removed during the survey. Remaining SOR was manually tilled. No subsurface oil was detected.

USCG/NOAA

NAME CWO Spurr / Rebecca Hoff

SIGNATURE

[Signature] / [Signature]

☒ NTR AP picked up by workers during segment survey (B), SOR manually tilled (A).
No further treatment required.

KN103A

5/13/91 $\frac{1}{2}$ Discrepancy notes

KN103A

- 226 10 16922

HAB - Agree - OG

1991 STREAM FILE LOG HABITAT

STREAM CATALOG # : 226-10-16922
STREAM NAME : Knightland

LOCATION : P.W.S.
SEGMENT : KN-103a

[illegible]