

KN-5001B ASC: 226-10-16996

NW side Knight Island

Where is

10/8/91

1990 Pre ANADSCAT?

mt

- Prince William Sound -
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 _____

July 7 1990

Corinthian

R.Gustin, T.Crowe, S.McLane

ADFG

PWS

KN103 Work crew from Corinthian moved onto this stream site at approximately 0700. By the early afternoon, the stream had been cleaned well and the crews moved on to another segment. This area was primarily a manual removal of surface tarmats and removal of oiled debris. The ADEC monitors Jan Krieger and Jeff Ginalias did an excellent job.

16996
KN500B Work crew from the Buella Candies worked this stream for the second day. A small John Deere cat with rippers and a blade was on site. It was doing an excellent job of tilling the beach and bringing the subsurface oil to the top. Unfortunately Larry Fletcher USCG, arrived on site and refused to allow any manual removal of heavy OR, OP, or mousse. Exxon was willing to pick up those types of heavy oil, had buckets, 4 wheelers, and people ready to do it, but the USCG refused to allow the oil to be removed. Large areas of heavy oil were uncovered where they could have been easily scooped up and recovered. The USCG had no reason that any of us could understand regarding their position. After Larry Fletcher left, the on scene USCG monitor refused to allow the cat to till areas of the beach as lined out by Bill Stillings Exxon. The Buella Candies was scheduled to work the KN500B segment on Sunday, July 8, but now will be moving on to Naked Island. The cat will be returned to town. Custom blend was applied.

16992
KN500A Work crew from the Buella Candies worked this stream also. Tarmats were removed and manual tilling was performed at two pocket coves north of the stream. These areas were customblen'd and boomed off with snare boom. No further bioremediation is recommended. Work was completed and the crew moved on to Naked Is.

BP004A Work crew from the Adelle Candies finished up a weeks work here today. Extensive tarmat and heavy OR sediments were removed. The original schedule called for two days to clean all four streams, but 7 days were required, and several more could easily be done. The crew was suffering from burn out, as the oiling here was severe. I guess you have to draw the line somewhere. This crew will now move on to WH003 tomorrow.

LA015C This morning a meeting was called for by Cmdr. Tom Riley with Craig Levine Exxon, Dale Gardner ADEC, Leigh Carlson DNR, Susan McLane ADFG, Brian Fitzsimmons ADEC, and Bill Farmer USCG at the beach segment. This was in regard to some additional heavy OP and OR which was discovered on the south east side of the creek. Tom Riley was speaking for both USCG and Exxon and said no more oil would be tilled or removed from this spot

without going thru TAG. The meeting basically never happened. Craig Levine Exxon was willing to rake down the area in question from the storm berm to the upper ITZ but the Coast Guard refused to let them do it. This area is called for work until Wednesday July 11, but Craig Levine called me this evening and said it will be demobed tomorrow. There is still 1 or 2 days work to be done here to finish what has been started.

For some reason ever since we tilled LA0180 the Coast Guard has become extremely obstructionist in their position out here. They are continually blocking work crews from cleaning up the oil, using excuses about unknown people in Anchorage being unhappy with tilling methods. It has reached the point where everyone in the field, Exxon, ADEC, DNR, ADFG, CVC etc want to clean up the oil, and are willing to work together to do it, but the USCG is blocking the cleanup. Their excuse is nothing more than political maneuvering and has absolutely no basis in fact. They aren't even following established guidelines for removal of heavy OR, OP, and mousse. Guidelines they helped set up. They are acting in an unprofessional and unrealistic manner, especially with the time restraints placed on us by the Admiral regarding salmon streams. We are under so much pressure to be done with the salmon streams, that any delay for any reason, especially with the equipment and people on site, is almost criminal. It is certainly negligent considering the time and expense and effort wasted by these delays. All we hear regarding this from USCG is that if long term geologic damage is done to the beaches by this removal method that the state will probably sue Exxon down the line. This seems to be one of the main bottom lines other than aesthetics.

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

RE: SEGMENT NUMBER KN-500 SUBSEGMENT NUMBER A

DEC REP Wesley Ghormley USCG REP Scott Thomas

EXXON REP Ray Sotelo BOAT NAME/SQUAD NUMBER Pacific Seahorse "A TEAM"

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.

- THERE was a tremendous amount of subsurface oil present that was not discovered during shoreline surveys. Area is 30x40m & consisted of OR & OP sediments. Area was manually tilled & heavy saturated sediments removed. Custom blend was applied. Reassessment in future is necessary if no improvement more manual removal recommended.

Special use Area: Heavy cover w/ spruce needles on bedrock on North side of stream. Describe the amount of oil remaining (type, size of area and location).

use Landa unit to remove OR scrape off manually.

- North side of stream 30x40m area of OR sediments. Subsurface oil was 25 cm deep but has been brought to the surface by manually tilling.

- North side of stream heavy cover in bedrocks. Oil is mixed w/ spruce needles and is 1" thick in some areas.

Additional Comments (keep objective)

- No manual tilling was recommended by TAG. However a tremendous amount of subsurface oil was discovered on North side of stream scheduled for bioremediation. An agreement was reached on site to manually till area & manually pick up Heavy OR & PO. Exxon Sotelo was very cooperative in reaching an agreement with me & Rich Guston ADF & G. Area was custom blended but needs reassessment in the future.

signature

Wesley Ghormley
Date and time of demobilization from segment 7/7/90 - 1100 Hrs
Shoremon\55 5-12-90

Post-It brand fax transmittal memo 7671		# of pages <u>3</u>
To	John Bauer	
Co.	ADEC	
Dept.	Clean-Up Monitor	
From	Wesley Ghormley	
Co.	MV Beulah Candies	
Phone #	011 837 180 1402	

**ADEC DEMOBILIZATION REPORT
FOR INIPOL AND CUSTOMBLEN TREATMENT**

Date 7/20 '90

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

Attn: John Bauer
FAX 265-4666

From: Chris Strand (please print)

RE: SEGMENT NUMBER KN-500 SUBSEGMENT NUMBER B

ADEC REP Chris Strand

USCG REP Vince Mulligan

EXXON REP Tony Diaz

BOAT NAME/SQUAD NUMBER Arctic Pelican/squad #4

Site #	Length (along shore m)	Area m ²	Inipol (gallons)	Customblen (lbs.)
①	21-63	3926	310	176
②	5	80	—	3
③	46	3850	70	144
④	10	150	—	31
⑤	40	360	29	14

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,

Areas marked on map bioed as per work order.

Describe the amount of oil remaining (type, size of area and location). Sites ①, ②, ③ were small boulder/cobble/pebble/granule/sand stretches with a surface exposed coat/film/light - patchy moderate residual oiling. Sites ④ had similar oiling among slightly larger boulders with firmer surface oil characteristics. Small asphalt chunk removed. Selected flipped rocks exposed heavier residue pockets

Additional Comments (keep objective)

Areas were Customblended prior to widespread billing. Lower 5' buffer from water line infringed; sprayed within 2' of rising tide. Please see attached reports for incident explanation. 15' buffer from stream observed.

signature C. Kim Strand 7/20 '90

Date and time of demobilization from segment 7/20 '90, 2000

Shoremon/Demob.bio 55/30/90

06 HEYMAN

SEGMENT STIKN-500

SUBDIVISION B

DATE 7/20/90

CHECKLIST

- W Area
- Approx. Scale
- Seg/Sub Entry
- Of Date
- Width
- Length
- % Cover
- Substrate Character
- Est. HWA/LWL
- SSL
- Photo Location(s)
- Photo(s)
- Photo Location(s)
- Photo Location(s)

LEGEND

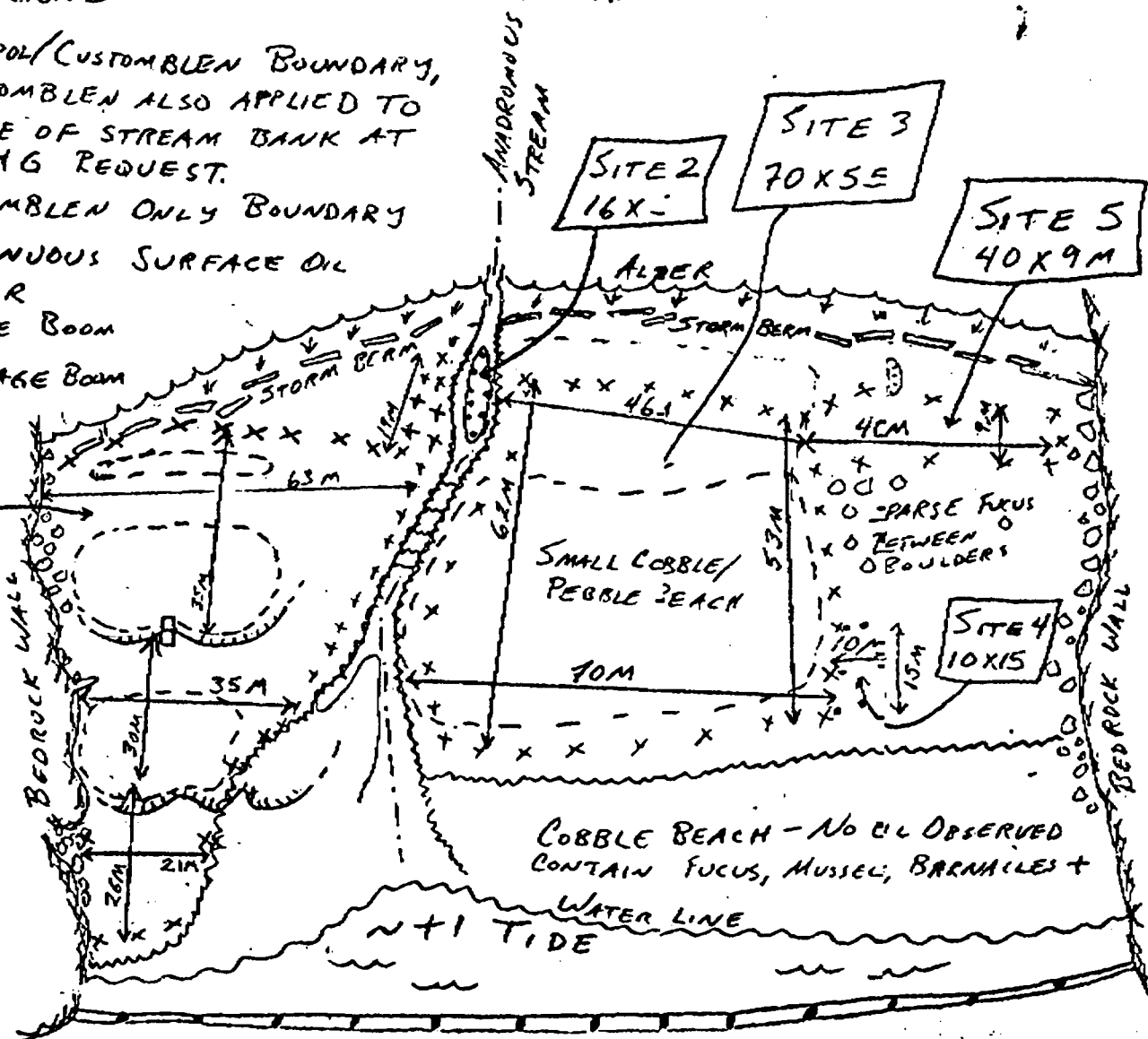
- 1 Δ
- PH - No Subsurface Oil
- 2 Δ
- PH - Subsurface Oil
- CT/C
- Continuous Distribution
- CT/D
- Broken Distribution
- CT/P
- Patchy Distribution
- CT/S
- Spotted Distribution
- CCCC
- Old Vegetation
- Photo location, direction, and number

METERS
(APPROXIMATE)
SCALE

LEGEND

- X INIPOL/CUSTOMBLEN BOUNDARY, CUSTOMBLEN ALSO APPLIED TO EDGE OF STREAM BANK AT ADFIG REQUEST.
- CUSTOMBLEN ONLY BOUNDARY
- CONTINUOUS SURFACE OIL COVER
- ~~~~~ SNARE BOOM
- ===== SAUSAGE BOOM

BIO LOCATION SKETCH MAP



KN500B

DEC
Gundlach Survey

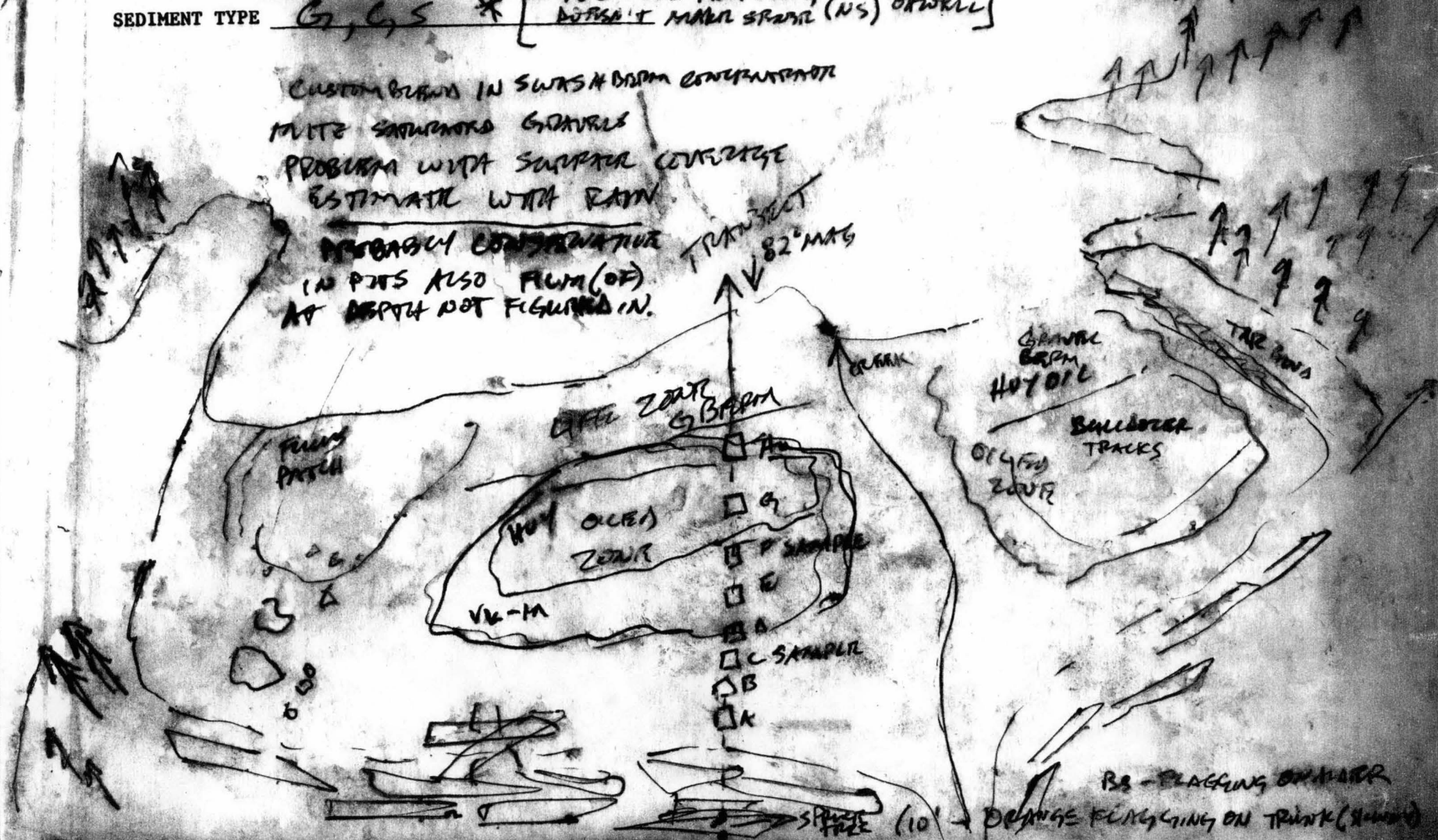
T.R.V.

PROFILE 135 LOCATION KN500, KNIGHT PASSAGE, SW HERRING PT. DATE 7/8/90
 RECORDERS GP, PE, B. M. K. PHOTOGRAPHS 90PSR 23/12-17 TIME 930
 TIDE STAGE LOW WEATHER RAIN, 400' CLOUDS WIND SPEED 2 WIND DIRECTION SW
 PROFILE ANGLE 82° MAG WAVE HT. _____ SAMPLES TAKEN: BIO _____ CHEM _____ SED 90GP090 40.69 MBS
 SEDIMENT TYPE G, C, S * 162 - OLD PROFILE & DOESN'T MATCH SPAN (NS) OR WELL 90GP091 44.62 MBS

CUSTOM BROWN IN SWASH BROWN CONCENTRATION
 WHITE SANDS AND GRAVELS

PROBLEM WITH SURFACE COVERAGE
 ESTIMATE WITH RAIN

PROBABLY CONCENTRATION
 IN PITS ALSO FLOW (OF)
 AT DEPTH NOT FIGURED IN.



DATE

9/8/90

PAGE

PROFILE

135

START

950

FINISH

10'5

TIDAL STAGE

LOW

FRONT STAKE HT

16.9

LOCATION

KN500 KNIGHT & PASSAGE.

LOW TIDE

957/0.6

BACK STAKE HT

HORIZONTAL (M)

VERTICAL (CM)

% OIL COVER

OIL THICKNESS

COMMENTS

5.0	5.0	4.5	1.4	.27	2.1	2.0	4.4	6.8	6.0	4.0	6.0	8.7	5.5	6.6	6.6
-47	-11	-17	-12	+6	-42	-23	-33	-21	-12	-10	-17	-33	-23	-33	-26
0	0	0	2	0	0	0	1	1	1	15	10	10	40	40	5
0	0	0	.5	0	0	0	.25	.1	.1	.25	.25	.25	.25	.25	.25
TOE OF SPUR OF RT/UC	TOE OF SPUR OF RT/UC	TOE OF SPUR OF RT/UC	TOE OF SPUR OF RT/UC	TOE OF SPUR OF RT/UC	TOE OF SPUR OF RT/UC	TOE OF SPUR OF RT/UC	TOE OF SPUR OF RT/UC	TOE OF SPUR OF RT/UC	TOE OF SPUR OF RT/UC	TOE OF SPUR OF RT/UC	TOE OF SPUR OF RT/UC	TOE OF SPUR OF RT/UC	TOE OF SPUR OF RT/UC	TOE OF SPUR OF RT/UC	TOE OF SPUR OF RT/UC

PENETR: X

2.9	6.6	.5	2.0	8.0	10.7										
-12	-29	+5	-1	-37	-52	WV									
1	0	0	0	0	0	10.5									
.1	0	0	.1	0	0										
OF LIFE	OF LIFE	OF LIFE	OF LIFE	OF LIFE	OF LIFE										
OF LIFE	OF LIFE	OF LIFE	OF LIFE	OF LIFE	OF LIFE										
OF LIFE	OF LIFE	OF LIFE	OF LIFE	OF LIFE	OF LIFE										
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OF LIFE	OF LIFE	OF LIFE	OF LIFE	OF LIFE	OF LIFE										
OF LIFE	OF LIFE	OF LIFE	OF LIFE	OF LIFE	OF LIFE										

SAMPLES TAKEN -

depth of oil burial -

layer thickness -

oil penetration =

grain size -

BIOLOGICAL IMPACT

CLEANUP: # men -

equipment type & # - 9/12/90

1991 MAYS

SEGMENT: KN-500 SUB: B

ENVIRONMENTAL SENSITIVITIES:

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

Post-It™ brand fax transmittal memo 7671

of pages >

To	<u>Mark Kuwada</u>	From	<u>John Bauer</u>
Co.	<u>FFG</u>	Co.	<u>ADEC</u>
Dept.		Phone #	<u>563-1126</u>
Fax #	<u>319-1723</u>	Fax #	<u>563-3541</u>

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

Consultation and inspection with an Exxon archaeologist is required prior to treatment. Specific on-site monitoring requirements will be determined at that time. PHONE 564-3276; 564-3657; (Anchorage) or 229-1514 (24 hrs.).

SHPO Signature: _____ Date: _____

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

COMMENTS:

INITIAL: _____

TAG: Manually till at both sites. Work with rising tide, follow by Bio (Customblen only). Relocate oiled sediments located within 3 meters of stream.

Site 1 - north side of beach next to bedrock cliff: Manually till with rising tide followed by Customblen only. Site 2 - adjacent to south side of stream bank: Fosc: Relocate oiled sediments within 3 meters of stream to south and west of oiled stream bank. No fertilizing at site 2. John Bauer 8-28-91

TAG APPROVAL DATE: 28 AUG 91

FOSC APPROVAL DATE: _____

ADEC

John Bauer

FOSC

EXXON

D. Michael Bal

See comments above.

USCG

Lisa Muehl, LTJG, USCGA

NORA

LN

- 1) SURVEY TYPE: BS SS 2) REGION: PWS KP, CI K, AP
- 3) METHOD: Aerial Ground Boat
- 4) DATE: 8/1/91 16) HIGH TIDE TIME: _____ 22) TEAM RECORDER: M. Fink
- 5) START TIME: 10:40 17) HIGH TIDE HTS: _____ 23) OBSERVERS: Kuwata, Middleton, Weseman
- 6) STOP TIME: 11:35 18) LOW TIDE TIMES: _____ 24) AGENCY: F4G
- 7) SEGMENT #: LS500B 19) LOW TIDE HTS: _____ 25) PHOTOS TAKEN: Y (N)
- 8) K-UNIT: _____ 20) TIDE HT AT SURVEY: +1 to +2.5 ft ROLL #: _____ FRAMES: _____
- 9) LAT: _____ Ebb Slack Flood Slack 26) VIDEO TAKEN: Y (N)
- 10) LONG: _____ 21) USCG QUAD: _____ TAPE # _____
- 11) ASC #: 226-10-16996 START: _____ STOP: _____
- 12) STREAM NAME: _____ 27) SAMPLES TAKEN? Y (N)
- 13) LOCATION: _____ 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 1A	10	7	70	-	-	-	LOR
SITE 2B	8	5	40	-	-	-	MOR to HUR
SITE 3C	8	10	80	-	-	-	HOR to MOR
SITE 4D	13	46	598	-	-	-	HOR to MOR
SITE 5							

9) OVERALL OIL IMPACT:

H = >6m band with $\geq 50\%$ oil coverageM = >6m band with $\leq 50\%$ oil coverage or $\geq 3m$ to $\leq 6m$ with $\geq 10\%$ oil coverageL = <3m band with $> 10\%$ oil coverageVL = $\leq 10\%$ oil coverage regardless of band width

N = No oil observed

33) ANADROMOUS FISH PRESENT: Y (N)

34) WILDLIFE OBSERVATION

Species _____ Number _____

30) OIL IN STREAMBED: (Y) N31) OIL ON BEACH ADJACENT TO MOUTH: (Y) N

32) SUBSTRATE TYPE (PERCENT):

Bedrock _____ Boulder _____ Gravel ✓ Sand ✓ Cobble ✓ Mud/Silt _____

35) COMMENTS: mechanically tilled areas (C&D) still with oil (no oil lense in pits due to mixing). Exposed HMOR, sheening, black sealing when disturbed. No surface oil to speak of other than coats or stains on bedrock. New tar mat possibly to be formed from oil exposed from tilling. Needs to be reassessed in spring of 1992.

No pinker observed. *Survey focused on documented oiling treated in 1991.

Aimee Weseman
ADF+G - Habitat
Anch. AK

2.

Aug 28, 1991

To Jeff Ginalias
ADEC / M/R Don Bollinger
P.W.S.

Hi Jeff.

How goes it? I went out with TAG 8/26 to determine treatment to KNSO0B. Thought I'd let you know what we agreed to and what ADF+G would like to see happen. I'm also sending ADF+G's post-treatment assessment survey with sketch.

Recommended treatment includes: Manual tilling with the tide of area (D) along cliff edge, north side of stream, (See sketch for location). Area should be boomed, & oil recovered with pom-poms. When we tilled it by hand in June, we turned everything over once without the tide & then went back and agitated the sediments while they were underwater along the leading edge of the incoming tide. It was quite effective.

Oiled sediments, MOK or heavier in area (C) along the stream bank should be relocated > 3 m from the stream bank. TAG agreed to work the area up to 3 meters back from channel. LOR sediments can be tilled in place, [8 m along stream]. The far spot on the south side of the stream area (B) is not slated for treatment. We tilled part of it.

No boom necessary for area C unless it's really sheening heavily. Your call. Custom Blend can be applied to area (D) only. No INIPOL.

cont.,

To Jeff Ginalius ADEC
m/r Don Bollinger

3

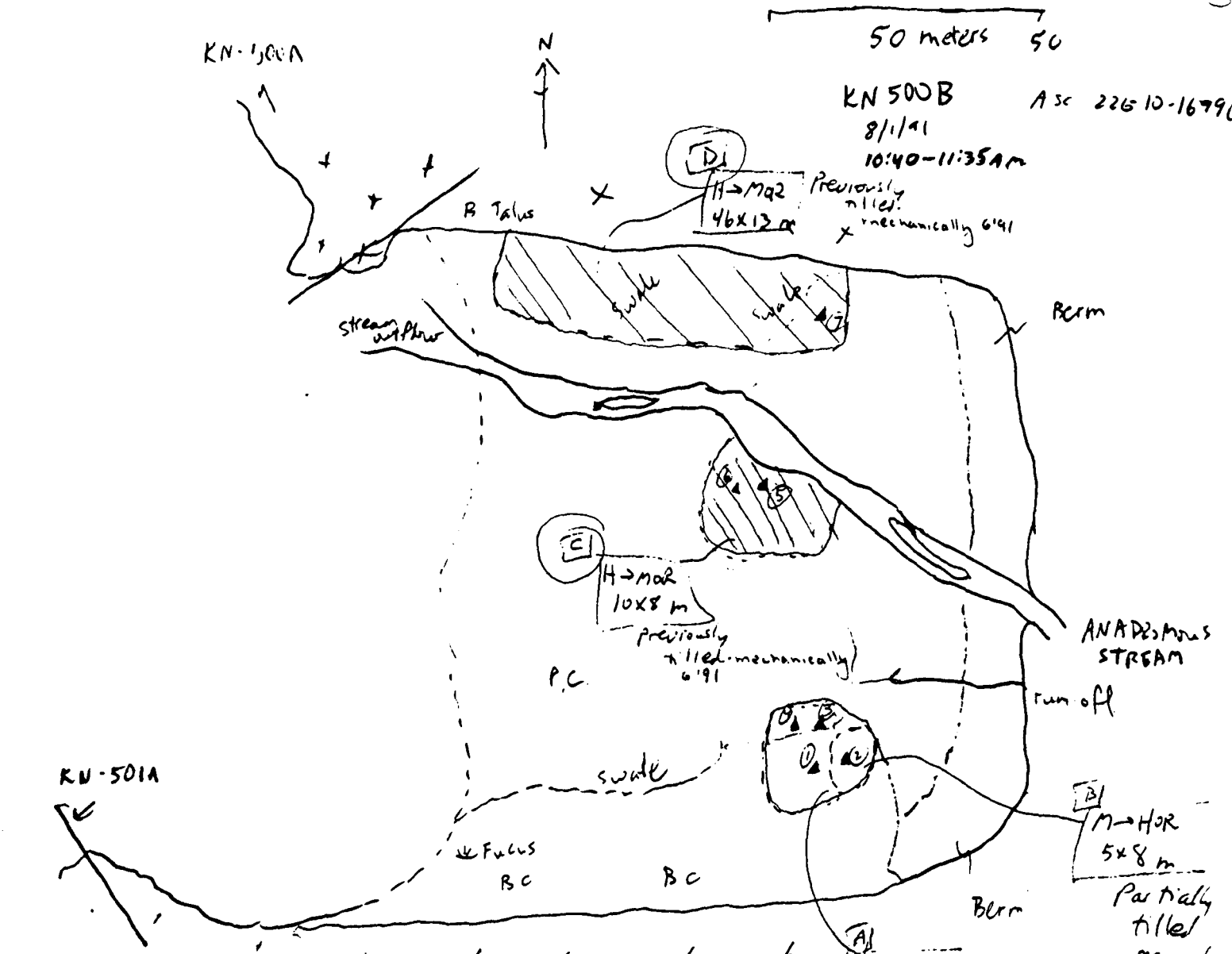
Aug 28 cont...

I saw your survey. Placement of oil is similar to ADF&G's but our areas are larger. Oil lense on north side of stream extends beneath 2 swale areas, but can be seen in adjacent depression. All 3 depressed areas should be tilled. Oil under swales is inaccessible. manually.

I guess that's about it. Now if I can only get this FAXed off to you.

Hope everything's going well. Say "hi" to the folks for me

Aimee Weseman



# Pits	(m) TD	(m) Oil	Clear below	W/T	sebs	steen
A 1)	20	LOR	Y	18	g.s.p.c	bk beading
B 2)	13	sheeting	-	13	g.s.p.c	bk beading
A 3)	24	rainbow sheeting	-	19	g.s.p.c	rainbow
A 4)	40	20-25 LOR	Y	35	g.s.p	—
C 5)	40	HOR	-	35	g.s.p.c	black beading
C 6)	60	52-57 HOR	Y	58	g.s.p.c	black beading
D 7)	20	12-17 HOR	-	15	s.g.p	black beading, rainbow

AUG-18-1991 10:25 FROM DON BOLLINGER

ALASKA DEPT OF FISH & GAME
9075633541#

P.01

AUG 19 1991

REGION II
HABITAT DIVISION

Post-It™ brand fax transmittal memo 7871

of pages >

To	MARK KUWADA	From	BAUER
Co	ADFG	Co	ADEC
Dept.	HABITAT	Phone #	363 1126
Fax #	349-1723	Fax #	563-3541

TO: JOHN BAUER

FROM: JEFF GIVALLIAS

\$

DATE: August 16, 1991

RE: DON BOLLINGER SURVEY OF KN-SOD B.

A SURVEY CREW FROM THE DON BOLLINGER (ADEC J. GIVALLIAS, USCG JERRY SCHULTZ, EXXON FRANK BOE, OG GRAHAM MACDONALD) SURVEYED THE ANADROMOUS STREAM AREA OF THIS SEGMENT ON THE ABOVE DATE, FROM 13:50 TO 14:20. THE FOLLOWING ARE MY OBSERVATIONS AND RECOMMENDATIONS, WITH AN ACCOMPANYING MAP. I WILL SKIP GEOLOGICAL COMPOSITION, ETC., AS I ASSUME MOST PARTIES ARE FAMILIAR WITH THE SEGMENT.

I OBSERVED TREATABLE OIL AT THREE SITES (Nos 1, 2, 3 ON MAP). SITE 1 IS NEAR/AGAINST THE NORTH BEDROCK WALL, APPROXIMATELY 70 METERS FROM THE STREAM. IT IS NEAR THE MITZ-UTZ, ABOUT 8M X 10M, AND APPEARS TO BE OVER A LAYER OF PENT. THERE IS STAIN/COAT ON THE NEARBY BEDROCK WALL. THE OIL IS AN UNDISTINGUISHABLE LENS, BUT READILY SHEENS GREY WHEN DISTURBED, AND IS TACKY WHEN FELT. BUT FOR THE PRESENCE OF AN ANADROMOUS STREAM, SIMILAR OILING CONDITIONS ENCOUNTERED BY THE BOLLINGER SQUAD WOULD ENTAIL PREP (RAKING/AGITATION) AND COMBINATION LUMP/CUSTOMER APPLICATION. MANUAL RAKING ALONE MAY PROVIDE SOME BENEFIT. I AM HESITANT TO RECOMMEND MANUAL REMOVAL AS I DID NOT OBSERVE DEFINABLE RECOVERABLE OIL (PAVEMENT, TARMAT, OR LENS).

SITE 2 WAS HIGHER UP THE BEACH, ABOUT 30 METERS FROM THE STREAM, JUST SOUTH OF A LOW WATER-FILLED DEPRESSION IN THE BEACH. SCATTERED WEATHERED MID SOR WAS OBSERVED IN A 5M X 5M SPORADIC AREA. RANDOM HANDFULS OCCASIONALLY SHEENED WHEN DEPOSITED IN THE WATER, CONFIRMING

AUG-18-1991 10:26 FROM DON BOLLINGER

TO 25301#0019075633541# P.02

J. BAUER

KN-500 B

Aug 16, 1991

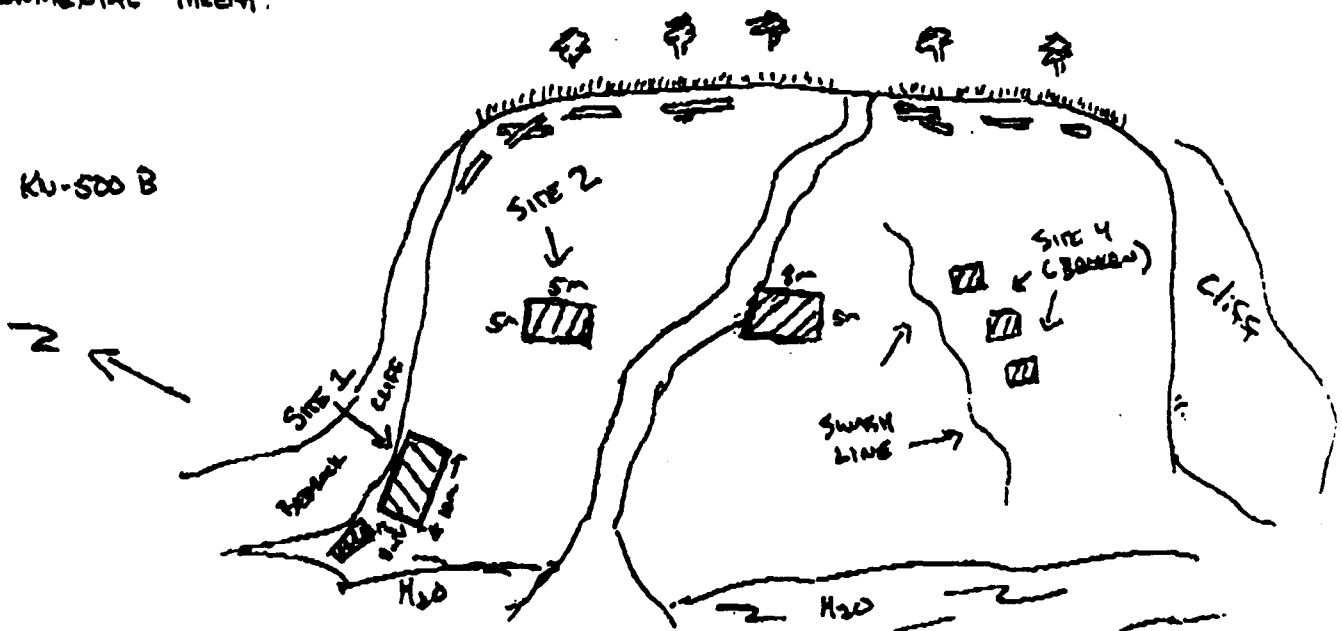
Page 2 of 2

THE OILING WAS SPORADIC. SUGGESTED TREATMENT IS MANUAL TILLING/RAKING AND INPOL/CUSTOMLEN (EXCEPT FOR ANOMALOUS STREAM PRESENCE. AGAIN, AN INSUFFICIENT DEFINABLE LENS MAKES MANUAL REMOVAL A QUESTIONABLE TREATMENT OPTION.

SITE THREE IS HORIZONTALLY PARALLEL TO SITE 2, AND CONSISTS OF A 5M X. 8M BAND ALONG THE SOUTH SIDE OF THE STREAM. IT IS RADIALLY VISIBLE. WHEN DISTURBED, THE AREA PROMPTLY BLEDS A GREY TO RAINBOW SHEEN INTO THE STREAM, WHICH COULD BE FOLLOWED TO THE MOUTH (30 METERS AT OUR TIDE). THE SAME TREATMENT PROBLEM PERSISTS AT SITE 3. ALTHOUGH VISIBLE, A DISTINCT, RETRIEVABLE LENS OR PRISMATIC IS NOT PRESENT. MANUAL RAKING MAY BE EFFECTIVE IN EXPOSING AND FRAGMENTING THE REMAINING OIL. CUSTOMLEN MAY ACCELERATE BIO-DEGRADATION.. INPOL MIGHT BE APPROPRIATE, BUT FOR THE PROXIMITY TO THE STREAM.

I DO NOT BELIEVE THE LENS EXTENDS FAR ENOUGH OR IS CONCENTRATED ENOUGH FOR MECHANICAL TILLING. HOWEVER, IF THIS OPTION IS CONSIDERED, THE BIODM ON THE BEACH APPEARS RELATIVELY SPARSE.

A FOURTH SITE, ABOUT ONE HUNDRED METERS SOUTH OF THE STREAM, JUST BEYOND THE SWASH LINE OF RETUMBERED COBBLES, SHOWS TRACES OF WEATHERED, FRAGILE LOW SOL. ADEQUATE TREATMENT COULD CONSIST OF BREAKUP BY RAKING. THE DISTANCE FROM THE STREAM AND MINIMAL REMAINING OIL SEEMS TO POSE A MINOR CONTINUING ENVIRONMENTAL THREAT.

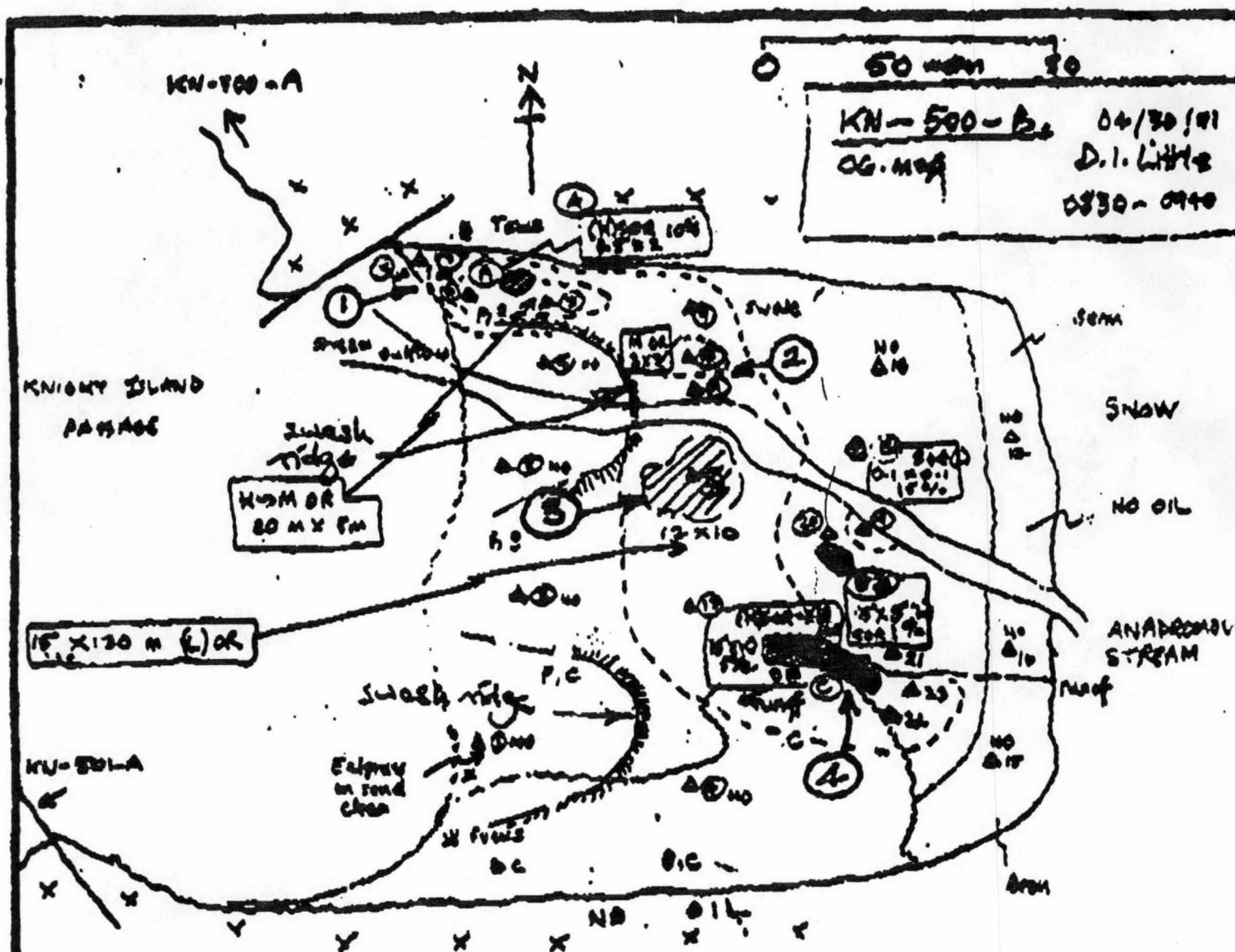


AUG-19-1991 07:39 FROM EXXON OPS

TO

ADEC ANCH

P.04/08



- Recon. survey by BART team 8-17-91 13.50 - 14.20 hrs
4.9 - 5.4 ft
- ① ≈ 6 x 30 m tiled PG, rainbow sheen
 - ② remnant look, < 10%
 - ③ 12 x 10 tiled PG; sheen readily - in area of Δ¹²
 - ④ tiled band manager CB, remnant look; sheen readily
 - ⑤ stream channel: has raised s; beachface floods; advancing surf ridges

[1/1]

revised 9/1/91

OG SUPPLEMENTAL INFO TO MAD

RED-DATE: 10/8/91

PAGE

STREAM NAME:

SEGMENT NUMBER: K V 500 B

SHORELINE TYPE:

TIME:

OG vs. MAD:

Conflict. 06 does not
show oiled area far south end of
cove (site 4 MAD)

[illegible]

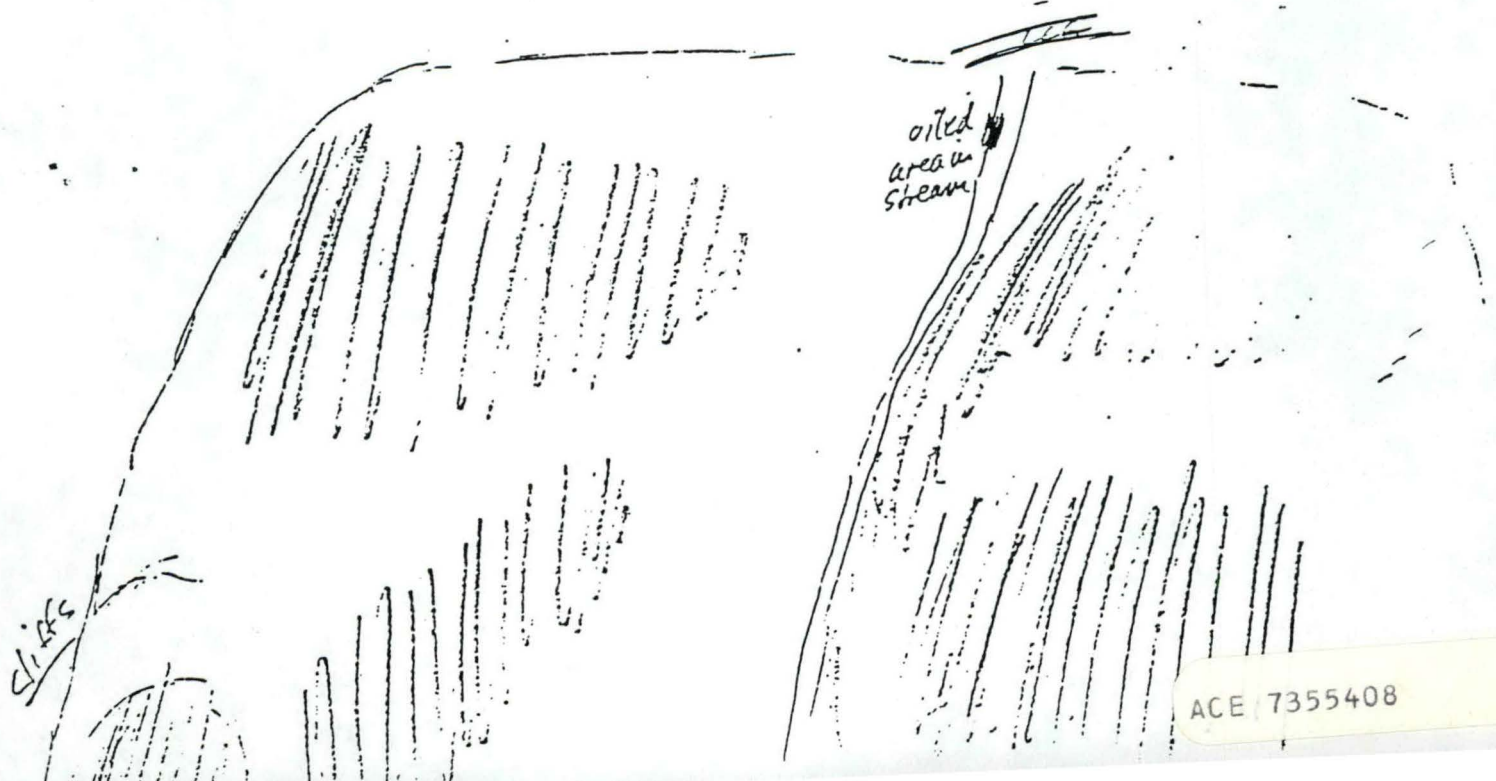


ANADROMOUS FISH STREAMS/OILING CONDITION
PWS

Segment # KN500 B ASC# 226-10-12703 Location Karait Is.
Date 8/15/80 Recorder/Observer T. C. M. / P. G. M.
Oil in streambed Yes Oil on streambanks Yes
Oil within 50m of mouth Yes Anadromous Fish present None

Description of oil and comments Both sides of this stream
have extensive areas of oiling. The north side has pockets
of heavy-mud. OR in the mid to lower ITZ near cliffs.
This may reform into lens of oil during the winter. The upper
ITZ on the north side has the remnants of a large tar mat.
Oiling persists into stream channel approx. 20 feet down from
point where stream channel cuts the berm. The south side has
large areas of mud to light OR stretching from upper ITZ
to the upper 1/4 of the LITZ. Further filling might possibly
aid breakdown of oil. No fish present

Oil Distribution Diagram



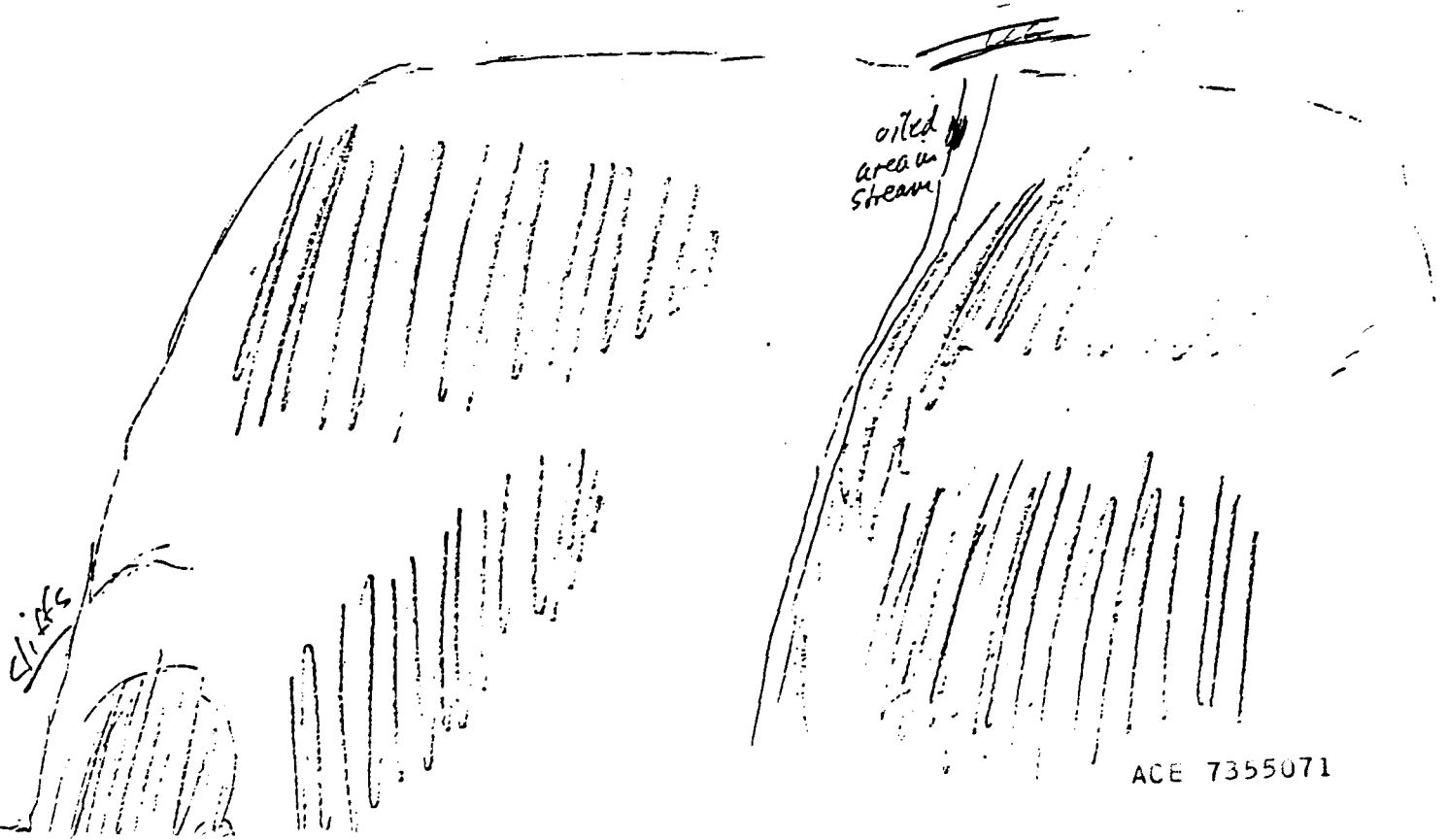
ACE 7355408

ANADROMOUS FISH STREAMS/OILING CONDITION
PWS

Segment # KN500 B ASC# 226-10-12503 Location Kauai Is.
Date 8/15/90 Recorder/Observer T. Crowe / P. G. ...
Oil in streambed Yes Oil on streambanks Yes
Oil within 50m of mouth Yes Anadromous Fish present None

Description of oil and comments Both sides of this stream
have extensive areas of oiling. The north side has pockets
of heavy mud OR in the mid to lower ITZ near cliffs.
This may reform into lens of oil during the winter. The upper
ITZ on the north side has the remnants of a large tarant.
Oiling persists into stream channel approx. 20 feet down from
point where stream channel cuts the berm. The south side has
large areas of mud to light OR stretching from upper ITZ
to the upper 1/2 of the LITZ. Further filling might possibly
side breakdown of oil. No fish present

Oil Distribution Diagram



ACE 7355071

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 Boat

3 DATE: 4-12-90 15 HIGH TIDE TIMES: 1 21 TEAM RECORDER: R. Custer
 4 START TIME: 1225 16 HIGH TIDE HTS: 1 22 OBSERVERS: 1 pilot
 5 STOP TIME: 1235 17 LOW TIDE TIMES: 1 23 AGENCY: ADFG H&B
 6 SEGMENT #: KN5005B 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#: _____
 9 STAT AREA: _____ 20 USCG QUAD: _____ Start: _____ End: _____
 10 LAT: _____ 11 LONG: _____ 26 SAMPLES TAKEN? Y N Number
 12 SOURCE: Map Loran
 13 LOCATION: KNIGHT IS.
 14 DESCRIPTION: OUTSIDE COAST PEN. HERRING BAY

EXTENT OF OIL

	SHORELINE				STREAM			
	L	W	M ²	%	L	W	M ²	%
27 SURFACE COVERAGE								
28 SURFACE THICKNESS								
29 PENETRATION								
30 OVERALL OIL IMPACT:	N	VL	L	M	H			

31 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/silt _____36 CATALOGED ANAD. FISH SREAM? Y N AJW37 CATALOG #: 226-10-16996 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: Everywhere43 ANADROMOUS FISH PRESENT? Y N44 ANADROMOUS FISH OBSERVATION
Species Aerial Ground

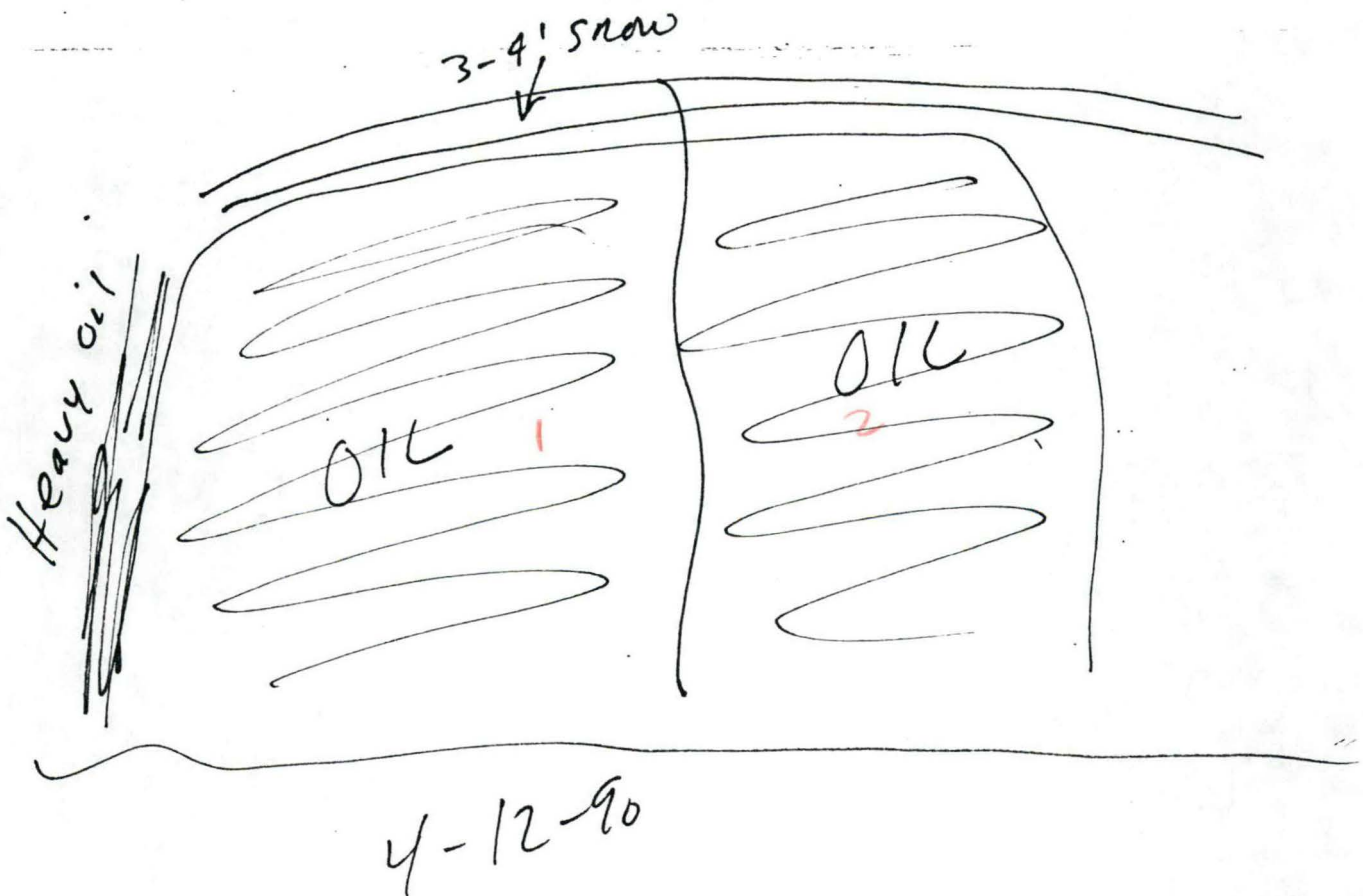
COMMENTS:

A disaster -
Thick oil everywhere.
(Dredge)

ACE 7379289 +/5

FRAME(S)

DESCRIPTION

46 OIL DISTRIBUTION DIAGRAM

KN 500S
 226-10-16996 ASW

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: 226-10-16996

SURVEY TYPE:

METHOD:

DATE: 4/12/90

START TIME:

STOP TIME:

WAVE EXPOS:

SAMPLES TAKEN?

SAMPLE I.D. NUMBERS: 1.
4.

TEAM RECORDER:

OBSERVERS:

AGENCY(IES):

PHOTOS TAKEN?

Roll #:

Frames:

VIDEO TAKEN?

Tape Number:

Counter Start:

	LENGTH	WIDTH	M2	%	THICK	PEN	OIL TYPE
SITE 1	50	50		100		20-25 cm	HORZ/OP
SITE 2	50	80		100		20-25	HORZ/OP
SITE 3							
SITE 4							
SITE 5							

OVERALL OIL IMPACT: HIGH

OIL IN STREAM CHANNEL?

SUBSTRATE

Bedrock	Granule
Boulder	Sand
Cobble	Silt
Pebble	Veget.

OIL ON BEACH WITHIN 50M OF STREAM MOUTH?

SPECIES					
COUNT					

COMMENTS:

REN MILLER
H/ICE

MAR. 14 16 Hanna Cove.
Sound Venture

mt ANADSCAT-90

ASK ABOUT GULL SET BAUL
CALL TODAY

HOW CLOSE CAN THEY WORK TO SALMON
STREAM THEY ARE VERY FLEXIBLE.

ADF&G MULTI-ASSESSMENT DATA FORM

1 SURVEY TYPE: BS SS CS TS AVS SC-A MMHS PTA 2 REGION: PWS KP, CI K, AP

METHOD: Aerial Ground Boat

3 DATE: 4-24-90 15 HIGH TIDE TIMES: 1 21 TEAM RECORDER: R. Gustin

4 START TIME: 0807 16 HIGH TIDE HTS: 1 22 OBSERVERS: A. Weseman

5 STOP TIME: 0942 17 LOW TIDE TIMES: 1 23 AGENCY: ADF&G

6 SEGMENT #: KN-500 18 LOW TIDE HTS: 1 24 PHOTOS TAKEN: Y 80

7 STATION #: BADW 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: S-B-3 Start: 076 End: 0209

10 LAT: _____ 11 LONG: _____ 26 SAMPLES TAKEN? Y 80 Number

12 SOURCE: Map Loran Oil _____

13 LOCATION: NW side Knight I Sediment _____

14 DESCRIPTION: West Coast Knight outside Henning Bay Biological _____

Water _____

EXTENT OF OIL

	SHORELINE				STREAM			
	L	W	M ²	%	L	W	M ²	%
27 SURFACE COVERAGE								
28 SURFACE THICKNESS	2-3 cm							
29 PENETRATION	4 cm	18 cm	30+		shells in bed			
30 OVERALL OIL IMPACT:	N	VL	L	M	<u>H</u>			
31 OIL TYPE:	<u>Pooled</u>	<u>Mousse</u>	<u>Tar</u>	Asphalt	Sticky	Stain		
32 OILED DEBRIS?	<u>Y</u>	N						
33 SHORELINE TYPE:	Headland	Low-lying Rocks	Beach	<u>Cove</u>				
	Lagoon	Marsh						
34 WAVE EXPOSURE:	<u>High</u>	Moderate	Low					
35 SUBSTRATE TYPE:	Bedrock	Boulder	<u>5%</u>	Cobble	<u>70</u>			
	Gravel	<u>30</u>	Sand	<u>5</u>	Mud/silt			

36 CATALOGED ANAD. FISH SREAM? Y N

37 CATALOG #: 226-10-16996

38 STREAM NAME: _____

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: _____

43 ANADROMOUS FISH PRESENT? Y N

44 ANADROMOUS FISH OBSERVATION

Species	Aerial	Ground

COMMENTS: Oil heavily in North side spots (upper LITZ) mid ITZ
center of cove near stream upper ITZ oil matts + oil along stream.
South side of cove upper ITZ large tar matts / light oiled boulder.
mid ITZ south side tar matt (210 feet 2/3 length of stream channel
oiled down to water) Tide -1.?

Continue next page

Wick to be completed below, tide window $\odot \rightarrow -1.0$ tide
Remove with scrapers tar bands on faces of
bedrock cliffs.

Remove oiled vegetation or other debris as found.

Remove oiled tar bands and sediments along stream
edge (primarily N side of stream from upper ITZ to
top of L.I.T.Z)

Remove and or wash with same type of ^{mechanical} rock washer
the oiled portions on the north side of creek
that are heavily oiled and penetrate up to 30cm.

Remove and or wash with rock washer, areas of tar mats
and deep oil penetration on south side of stream.

Remove sediments in stream that produce sheen.

Use Bolsing Process (CaOH) on large substrate
on south side of stream in upper I.T.Z.

After removal of oiled sediments till the areas
skimmed as well as other oiled areas and treat
with the Bolsing Process (CaOH).

Consult with city council of Whittier, and Homer
regarding acceptance of oiled gravels to be composted
with Bolsing Process (CaOH) and used for road repair,
maintenance, and construction rather than shipping
to Oregon. Perhaps arrangements to haul to
Whittier by Landing craft or barge + shipment
to Homer by truck/train could be arranged.

This is already being done by state cleanup crews.

(Ken Miller, Linda Hye) - State Oilspill Response.
of Whittier

Whittier Linda Hye 472-2345

Homer Planning Dept. 235-3106

KN 500-S

226-10-1699

45 PHOTOLOG

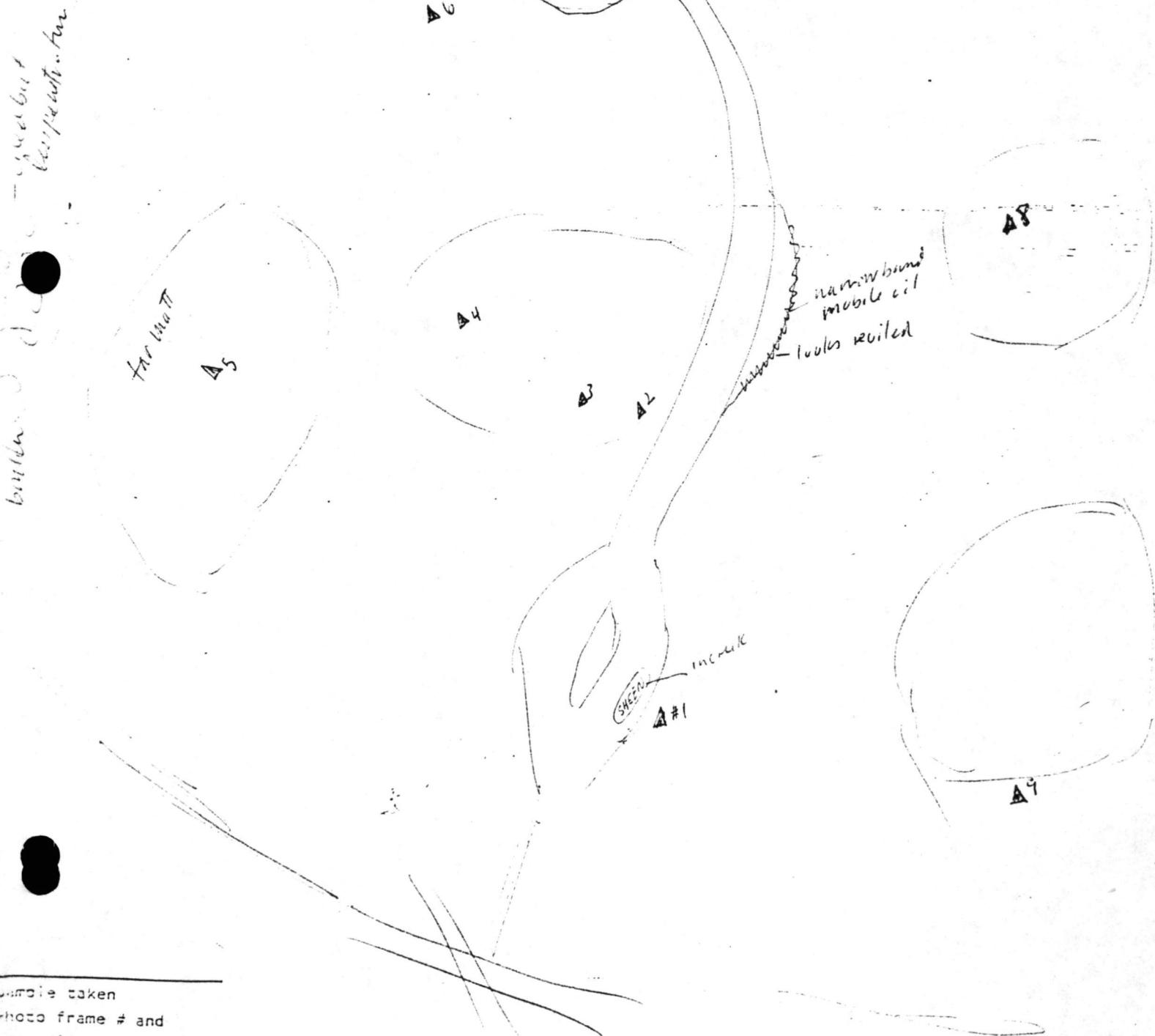
FRAME(S)

DESCRIPTION

5005012016 - 12/16/97	Pit #1	15cm deep	4cm oil from top down
	Pit #2	25cm deep	18cm oil from top down
	Pit #3	30cm deep	30cm oil from top down
	Pit #4	30cm deep	8cm oil sheen in water
	Pit #5	15cm deep	3cm oil heavy sheen
	Pit #6	14cm deep	no noticeable oil
	Pit #7	20cm deep	no oil noticed
	Pit #8	24cm deep	24cm oil deep sheen in water
	Pit #9	20cm deep	5cm deep oil

Ken Miller (Whittier)
Linda Hess project coord.

46 OIL DISTRIBUTION DIAGRAM



sample taken
photo frame # and
shot direction.

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

ASC NUMBER: 226-10-16996

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.

2.

3.

4.

5.

6.

	LENGTH m	WIDTH m	M2	%	THICK cm	PEN ^m cm	OIL TYPE
SITE 1						.03	AP
SITE 2							MS
SITE 3							FL
SITE 4							CT
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: (4) Oil on stream banks
9 pits dug - ranging from no oil to 28 cm deep penetration.

July 8, 1990

Daily Report

Monitors: T.Crowe, R.Gustin, S.Mclane
Corinthian

LA015C Traveled to the stream site to meet with Gary Reiter USCG, Tom Rielly USCG, Dale Gardner ADEC, Ray Morris ADEC, Bill Farmer USCG, Craig Levine EXXON, Leigh Carlson ADNR, Rowann Hudnall ADEC, Scott Nauman EXXON, Tom Crowe ADFG, Susan Mclane ADFG, and myself regarding an area of heavy oil on the SE side of the stream in the UITZ. The area in contention, had already been removed by the crew on site, much to everyone's surprise. The work crews were finishing up the opposite side of the stream. We agreed that according to the new definitions of OR, OP etc. etc. the work order had been met. ADEC will demobe. A small cat will smooth over the rough spots and the machines will move on. At this time we were notified that tonite at 2030 a meeting will take place at KN500B to discuss further mechanical tilling and possible manual removal.

WH003B As we arrived here the Adelle Candies was just leaving the work site. We skiffed in to inspect the work and found that the majority of the oiled sediments (Heavy OR, OP) had been removed. There were however some heavy OR sediments remaining. The work was not real carefully done. Customblen had been applied but was not raked in. But since it was a last minute job, and work is being rushed to meet the July 10 deadline, it's no surprise.

KN500B We arrived on site after dinner with Larry Fletcher USCG, Tom Reilly USCG, Gary Perry USCG, Dale Gardner ADEC, Pam Keyes ADEC, Leigh Carlson ADNR, Tom Crowe ADFG, and myself. The purpose of the meeting was to discuss further tilling and possible removal of heavy OR sediments. Unfortunately, the time for removal of the oiled sediments was at the time of tilling. This had been prevented by Larry Fletcher USCG at the time of tilling even though everyone else present agreed to do the manual removal. Nothing was really accomplished here however, so we will submit a work plan modification for further work.

At this point there remains one stream to finish and that is KN211E. This is scheduled for tomorrow.

Final Annual 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: 9/11/90

ADEC Monitor: Rowann Hudnall

TIDES:	TIME:	HEIGHT:	WEATHER: Cloudy <u>Rain</u> Fog Sun
Low			TEMP: <u>50°F</u> SEA COND: <u>1' chop</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 Scott Rainsford Exxon Al Snook
OOPS Jame Byars Other _____

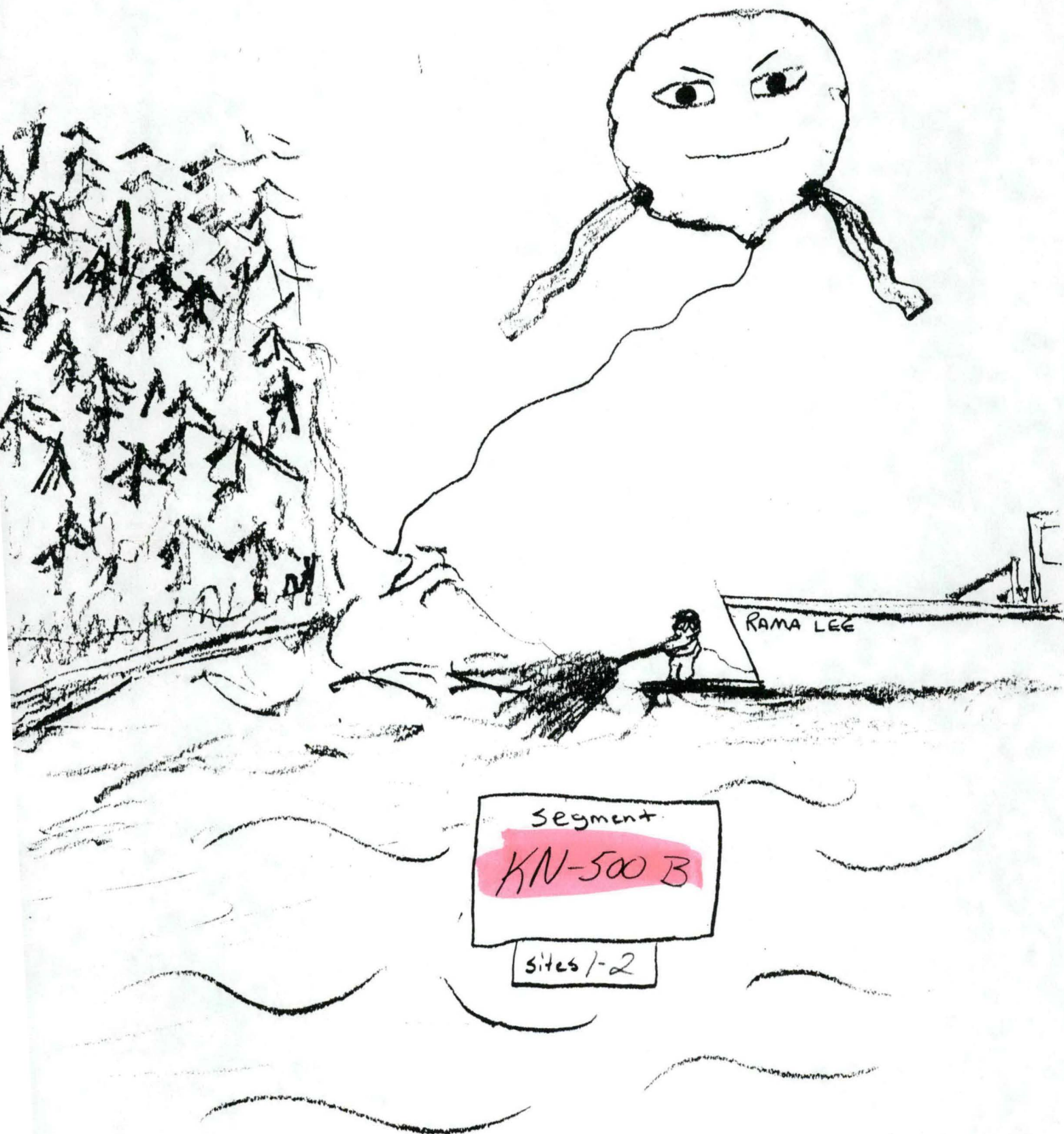
OGS Jim Conner

Segment	Sub	No. Sites	Inipol (gal)	Custom (lbs.)	Comments
KN113	A	3	114	484	3rd treat
<u>KN132</u>	<u>BS</u>	1	0	123	3rd treat
KN132	D	3	2	50	3rd treat
KN111	A	7	0	356	3rd treat
<u>KN500</u>	<u>AS</u>	3	0	76	3rd treat
<u>KN500</u>	<u>BS</u>	2	0	568	3rd treat
KN501	A	7	2	236	3rd treat
KN502	A	13	49	221	3rd treat

\shorelin\rowann\biorept 8/7/90

anner
A.T. Team 1
DON Bollinger

9-11-90



INIP /CU DMBLEN APPLICA' N F-PORT

Segment: KN-500 Subdivision: B of Site: 1 of 2

OG: Conner BAT No. 1 Date: 9/11/90

Exxon: Alh Snook Time: 1030 to 1130 Tide: +3 to +3

Wind: 0 knots from 0 Air Temp: 14° C Water Temp: 11° C

type of oil treated: Subsurface & Surface previously tilled? (YES) NO

zone treated: SUTZ UITZ MITZ ✓ LITZ asphalt removed? YES (NO)

area treated: splash patchy ✓ broken continuous

area treated with Inipol: m X m X % = sq.m. treated

gallons of Inipol applied: calculated Inipol dosage: gals/sq m

emulsification observed? YES NO

area treated with Customblen: 66 m X 48 m X 50 % = 1584 sq.m. treated

pounds of Customblen applied: 325 calculated Customblen dosage .205 lbs/sq m

comments: 3rd Treatment

IN-TU/CUSTOMBLEN APPLICATION REPORT

Segment: KN-500 Subdivision: B of Site: 2 of 2

OG: Conner BAT No. 1 Date: 9/1/90

Exxon: Al Shook Time: 1030 to 1130 Tide: +3 to +3

Wind: 0 knots from 0 Air Temp: 14° C Water Temp: 11° C

type of oil treated: Subsurface & Surface previously tilled? (YES) NO

zone treated: SUTZ UITZ MITZ LITZ asphalt removed? YES (NO)

area treated: splash patchy broken continuous

area treated with Inipol: m X m X % = sq.m. treated

gallons of Inipol applied: calculated Inipol dosage gals/sq m

emulsification observed? YES (NO)

area treated with Customblen: 44 m X 54 m X 50 % = 1188 sq.m. treated

pounds of Customblen applied: 243 calculated Customblen dosage 204 lbs/sq m

comments: 3rd Treatment

LIST OF ASAP REPORTS and TAG RECOMMENDATIONS
CONTAINING ANDROMOUS STREAMS

9/10/90

<u>SEGMENT</u>	<u>CATALOG #</u>	<u>TAG RECOMMENDATION</u>
BA002A	226-40-16450	
BP004	226-20-16392	
BP004	226-20-16397	Bio/Customblen
BP004	226-20-16388	
BP004	226-20-16395	
CH002A	226-20-16180	
CH009B	226-20-16182	Tarmat removal/Bio
CH900A	226-20-16200	
CU014A	224-20-13036	
CU013A	224-20-13030	
EL052B	226-10-16902	NTR
EV014A	226-40-16640	
EV017A	226-40-16620	
EV025A	226-40-16613	
EV071B	228-40-16484	
GR007A	NOT CATALOGED	
GR103A	227-20-17880	
KN213B	226-30-16853	NTR
KN129A	226-10-16975	
KN129B	NOT CATALOGED	
KN132B	226-10-16982	
KN135A	226-30-16285	
KN211E	226-10-16875	NTR
KN401A	226-30-16820	
KN500A	226-10-16992	NTR
KN701B	226-30-16840	NTR
LA018A	226-40-16780	
LA021B	226-40-16776	
LA021A	226-40-16774	

BARSTOW/MANN

BAT TEAM 1

Don Bollinger Squad #3

8/24/1990

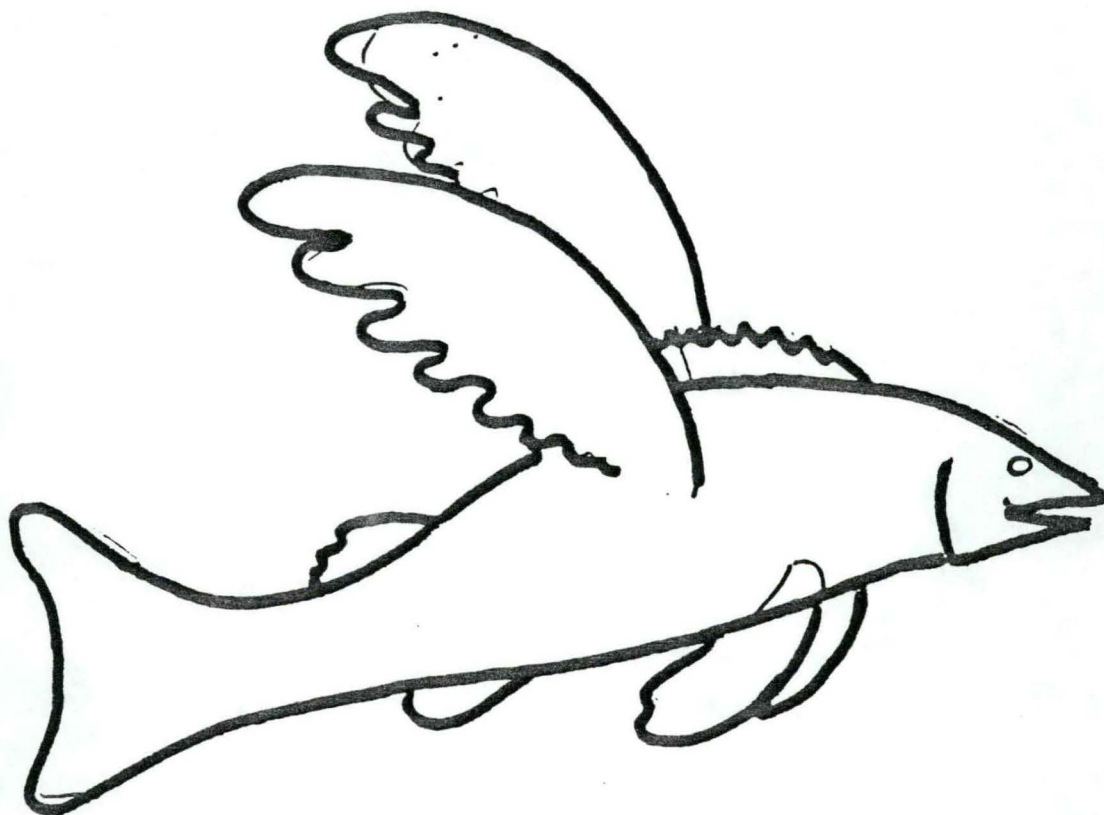
SEGMENT

KN 500 B S

retreatment

SITES

1-2



INIPOL/CUSTOMBLEN APPLICATION REPORT

Segment: KN 500 Subdivision: B5 of Site: 1 of 2

OG: Mann BAT No. 1 Date: 8/24/90

Exxon: Box Time: 12 to 1400 Tide: +5 to +7

Wind: 0 knots from 0 Air Temp: 70°F Water Temp: 55°F

type of oil treated: surface and subsurface previously tilled? (YES) NO

zone treated: SUTZ UITZ ✓ MITZ ✓ LITZ asphalt removed? (YES) NO

area treated: splash patchy ✓ broken continuous

area treated with Inipol: 0 m X 0 m X 0 % = 0 sq.m. treated

gallons of Inipol applied: 0 calculated Inipol dosage 0 gals/sq m

emulsification observed? YES NO NA

area treated with Customblen: 66 m X 48 m X 100 % = 3170 sq.m. treated

pounds of Customblen applied: 635 calculated Customblen dosage 0.2 lbs/sq m

comments:

*This treatment area is shared with portions of
KN 500 B.*

INIPOL/CUSTOMBLEN APPLICATION REPORT

Segment: KN 500 Subdivision: B5 of Site: 2 of 2

OG: Mannr BAT No. 1 Date: 8/24/90

Exxon: Box Time: 12 to 1400 Tide: +5 to +7

Wind: 0 knots from 0 Air Temp: 70°F Water Temp: 60°F

type of oil treated: surface and subsurface previously tilled? (YES) NO

zone treated: SUTZ UITZ ✓ MITZ ✓ LITZ asphalt removed? (YES) NO

area treated: splash patchy ✓ broken continuous

area treated with Inipol: 0 m X 0 m X 0 % = 0 sq.m. treated

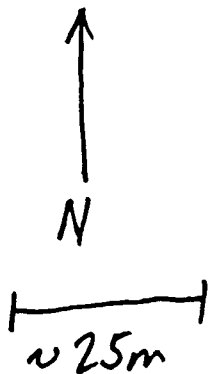
gallons of Inipol applied: 0 calculated Inipol dosage 0 gals/sq m

emulsification observed? YES NO NA

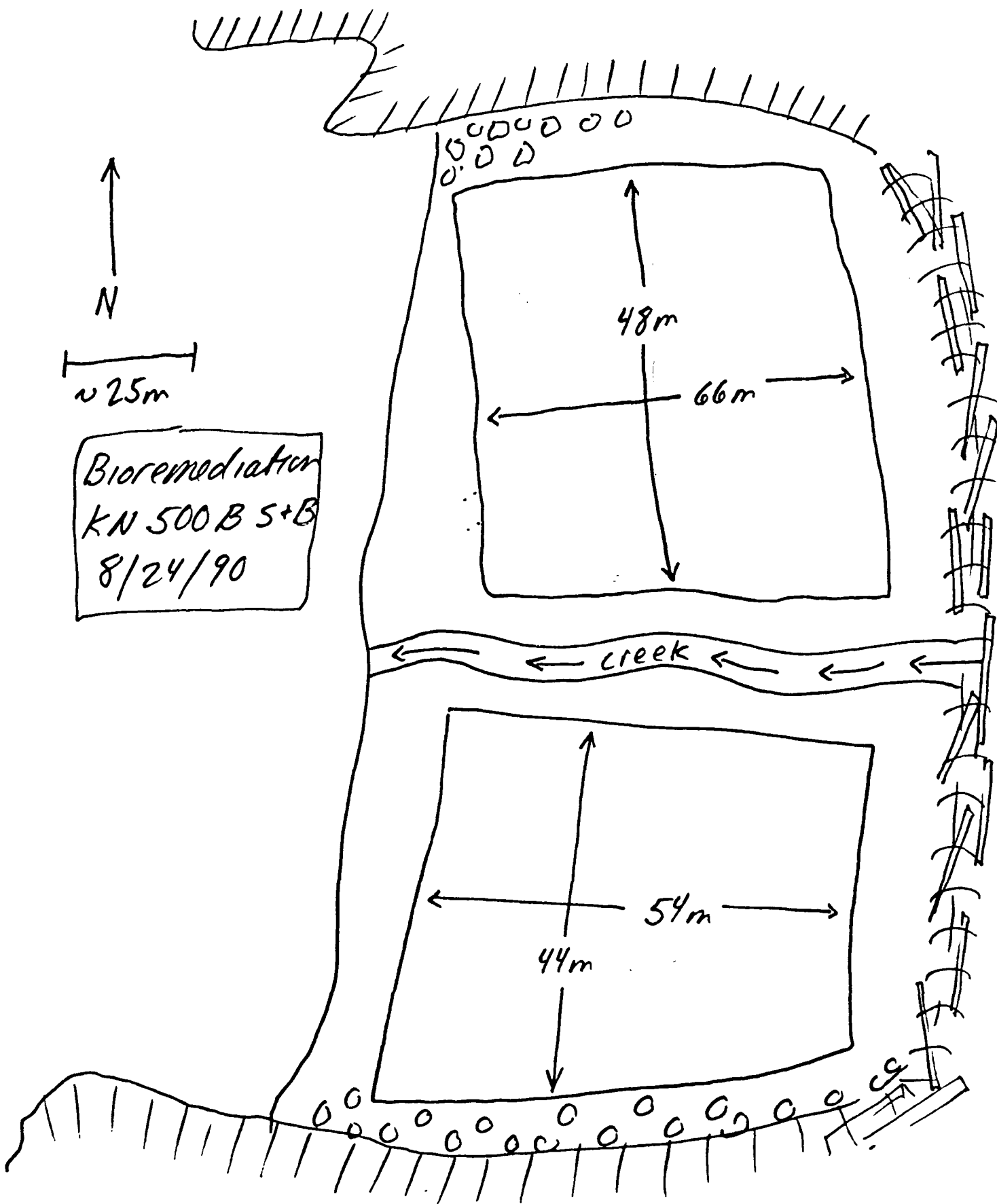
area treated with Customblen: 44 m X 54 m X 100 % = 2380 sq.m. treated

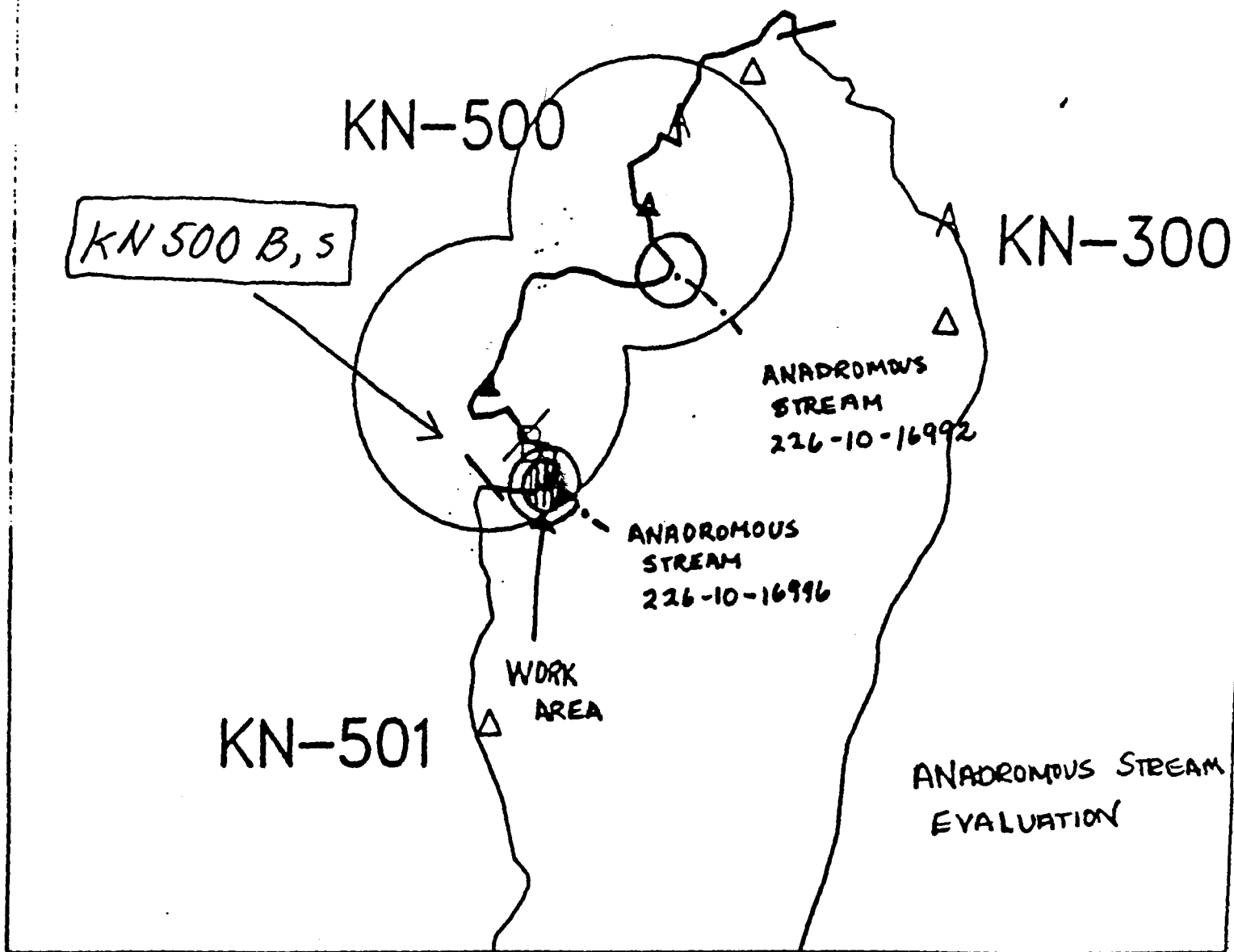
pounds of Customblen applied: 475 calculated Customblen dosage 0.2 lbs/sq m

comments: See location map. Portions of this treatment area are shared with KN 500 B.



Bioremediation
KN 500 B S+B
8/24/90





Exxon Company, USA
Map Key: PLS-101-500
June 09, 1980



ECOLOGY MAP
SEGMENT KN-500
SUBDIVISION B (1-1-2)
METERS
0 482 963

- ★ Seabird Colony
- ▲ Active Eagle Nest
- △ Inactive Eagle Nest

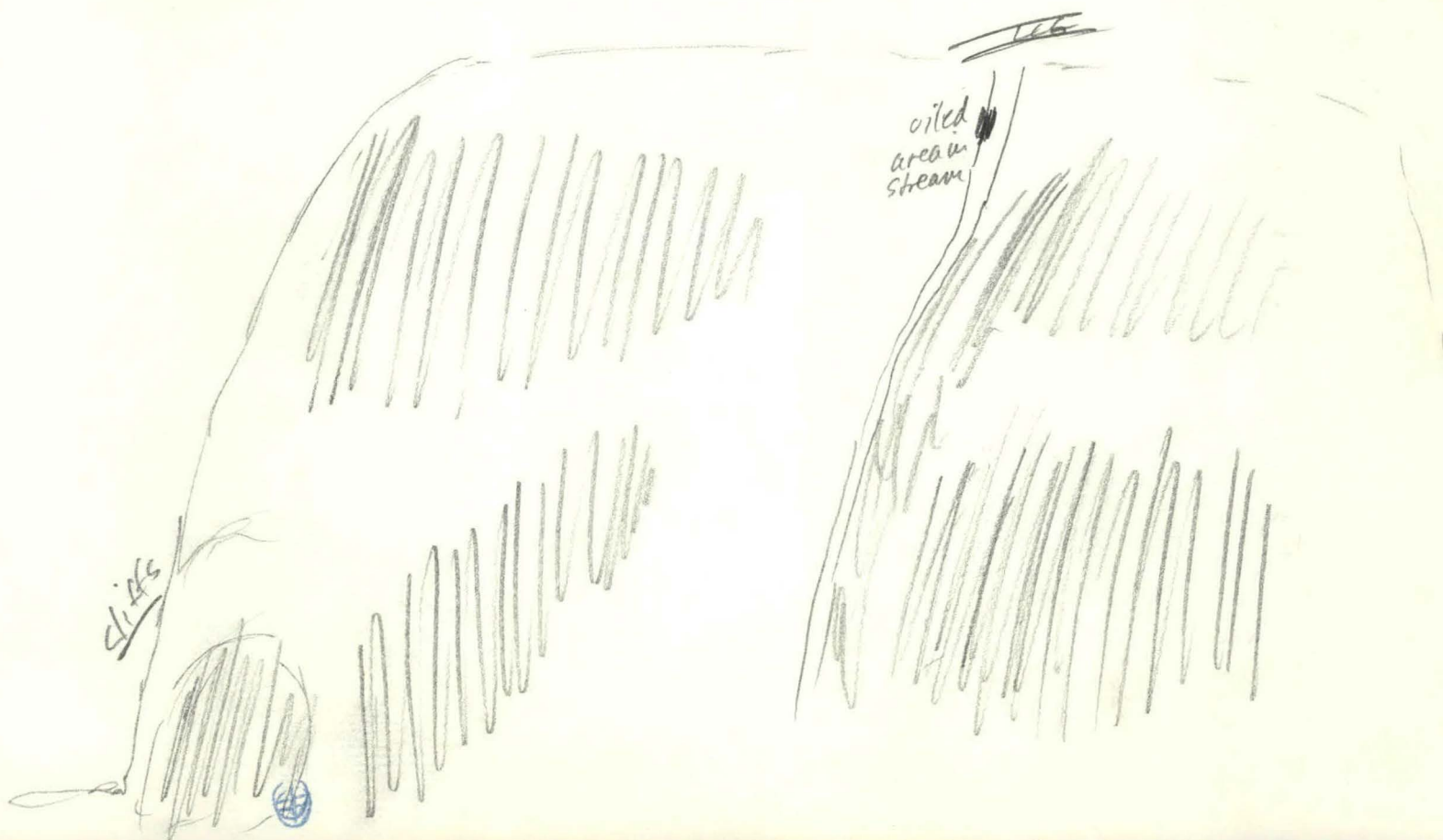
1 inch = 1482 feet

ANADROMOUS FISH STREAMS/OILING CONDITION
PWS

Segment # KN500 B ASC# 226-10-16996 Location Knight Is.
Date 8/15/90 Recorder/Observer T. Crowe / R. Austin
Oil in streambed Yes Oil on streambanks Yes
Oil within 50m of mouth Yes Anadromous Fish present None

Description of oil and comments Both sides of this stream
have extensive areas of oiling. The north side has pockets
of heavy-mud. OR in the mid to lower ITZ near 11-Pts.
This may reform into lens of oil during the winter. The upper
ITZ on the north side has the remnants of a large tar mat.
Oiling persists into stream channel approx. 20 feet down from
point where stream channel cuts the berm. The south side has
large areas of mud to light OR stretching from upper ITZ
to the upper 1/4 of the LITZ. Further filling might possibly
side breakdown of oil. No fish present

Oil Distribution Diagram



ASAP FOLLOWUP RECOMMENDATIONS

Segment: AS/ KN-500 Subd.: A Site: 4 Date: 8/8 1990

Conditions Observed: Lens of subsurface oil CR/H-M
oiled interval is from ... mld to U T2's. See OG oiling summary.

Depth of lens N/A boulders or bedrocks below 40cm. at test
pits.

Followup Recommendations: _____

Completed by Pickup Crew: ☐ YES ☐ NO

Priority for Addressing in 1990: ☐ High ☐ Mod. ☐ Low

ADEC

John Hays
 (name)

[Signature]
 (signature)

Comments: (1) Mechanically till (2) Remove any mousse or oil sediments
(3) Deploy snare booms (4) Mth. if necessary (5) Retill if necessary
(6) Bioremediate.

Bxton

Martinez Nid.
 (name)

[Signature]
 (signature)

Comments: No action needed winter storm will get
removing oil sub surface oil is deep & no
threat.

USCG

MICHAEL D. BROWN
 (name)

[Signature]
 (signature)

Comments:

NO ACTION REQUIRED

Land Rep.

DOUGLAS GIBSON
 (name)

[Signature]
 (signature)

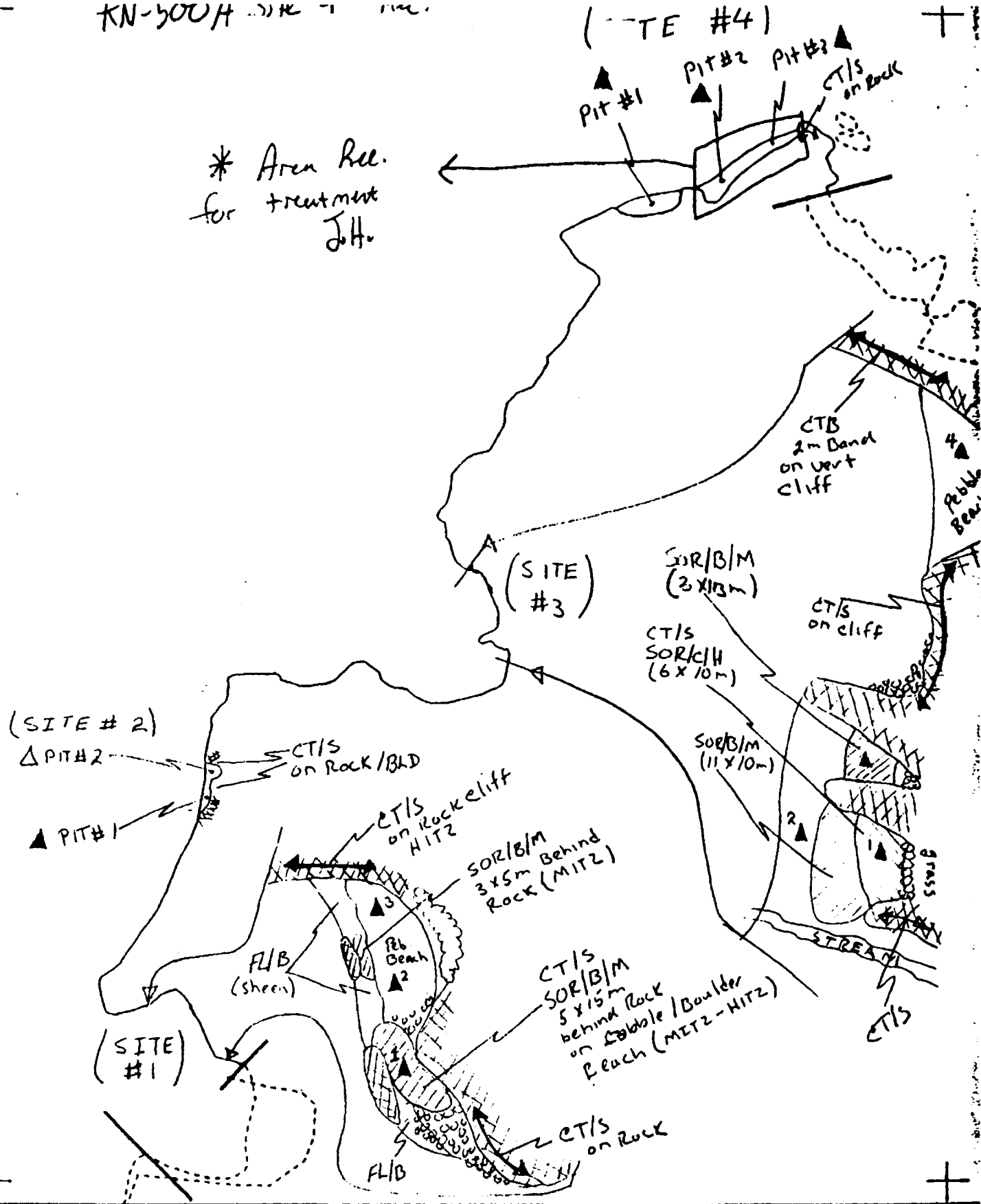
Comments:

NO FOLLOWUP REQUIRED.

KN-500A SITE 1

(SITE #4)

* Area Rec.
for treatment
J.H.



XXXX	Wide	KN-500 A	Subdivision Field Map
////	Medium	ADEC Subsegment Length: 2175m	Map Key: KNIK-500A
----	Narrow	METERS	Name: <u>Reimer</u>
TTTT	Very Light	0 175 340	Date: <u>8/8/90</u>
0000	No Oil	AK State Plane Zone 4 1:6810	Date Entered:
		AKN-500A	

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: 4/30/91 16) HIGH TIDE TIME: _____ 22) TEAM RECORDER: TAM CROWE
- 5) START TIME: 0817 17) HIGH TIDE HTS: _____ 23) OBSERVERS: AMIE WESEMAN
- 6) STOP TIME: 1010 18) LOW TIDE TIMES: 0900 24) AGENCY: ADF&G
- 7) SEGMENT #: KN500B 19) LOW TIDE HTS: -2 25) PHOTOS TAKEN: Y (N)
- 8) K-UNIT: _____ 20) TIDE HT AT SURVEY: -2 tot. 2 ROLL #: _____ FRAMES: _____
- 9) LAT: _____ Ebb (Slack) Flood Slack 26) VIDEO TAKEN: Y (N)
- 10) LONG: _____ 21) USCG QUAD: _____ TAPE #: _____
- 11) ASC #: 226-10-16996 START: _____ STOP: _____
- 12) STREAM NAME: _____ 27) SAMPLES TAKEN? Y (N)
- 13) LOCATION: KNIGHT ISLAND 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	30 M	60 M				12	LOR
SITE 2	10 M	40 M				12	MOR
SITE 3	20 M	10 M				20	HOR
SITE 4	20 M	20 M				35	MOR
SITE 5	1 M	10 M				20	MOR
SITE 6	20 M	30 M				12	LOR

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 95% Sand _____ Cobble _____ Mud/Silt _____

35) COMMENTS: ALL PIT INFORMATION WAS RECORDED BY OG. IN THE FIELD.

SITE. OBVIOUSLY ALL SITES ON THIS MAP DESCRIBE A VERY LARGE AREA THAT REMAINS OILED. ALL GRAVEL SEEMS TO BE SATURATED WITH OIL INCLUDING THE FIRST 6 CM ON THE SURFACE. AS LAST YEAR AS THE BEST AND PROVEN TREATMENT RECOMMENDED IS MECHANICAL TILLING.

34) WILDLIFE OBSERVATION

Species Number
HALIBUT DUCK 3K
HALIBUT DUCK 25+
Rock Blennies

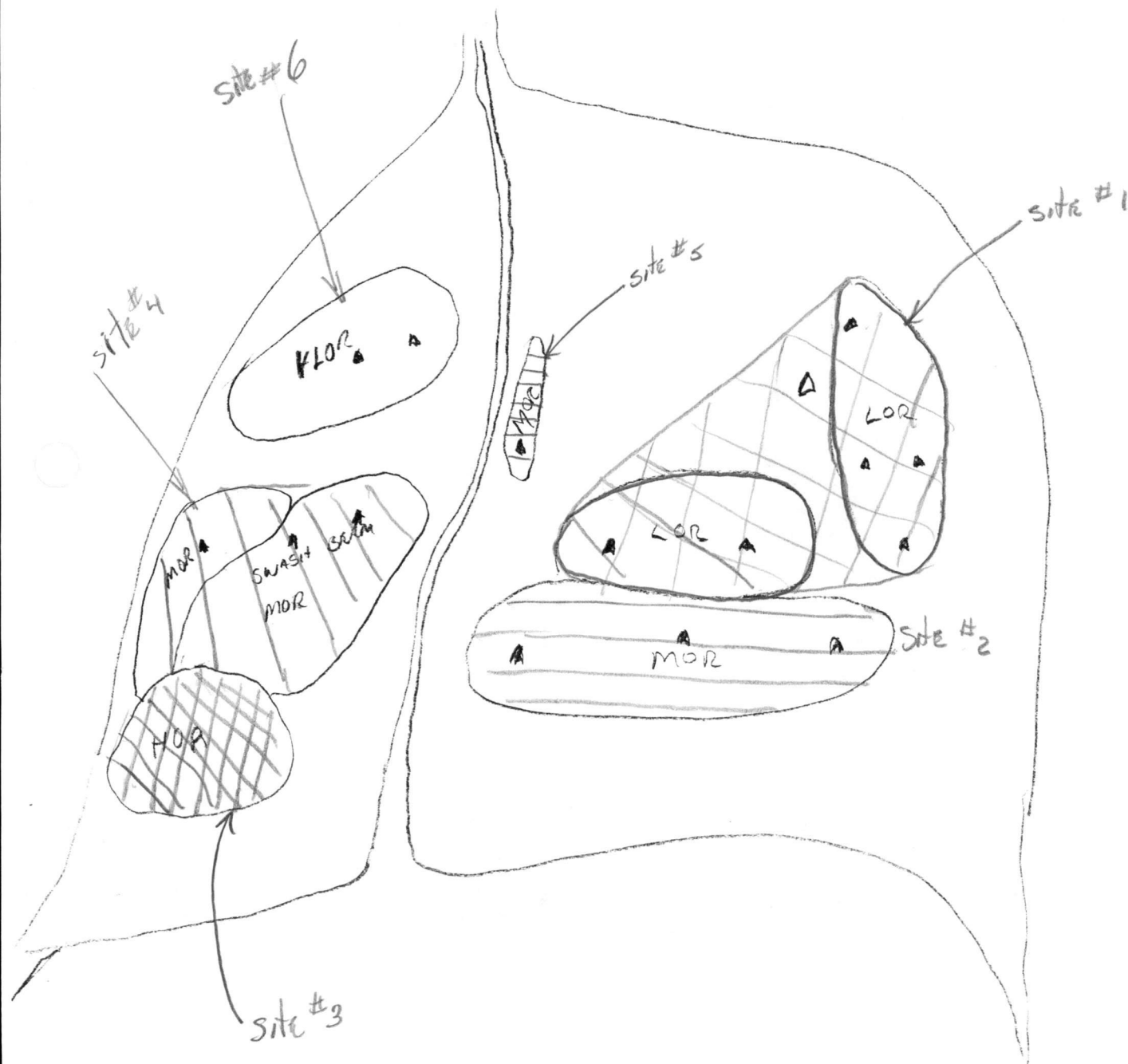
3

①

4/30/91

KN 5000

ASA 226 - 10 - 16996



CATALOG NUMBER: 2261016996

STREAM NAME:

LOCATION: KNIGHT ISLAND, NORTHWEST SIDE

SEGMENT NUMBER: KN500 B

SHORELINE TYPE:

DATE: 04/12/90 TIME: COVE -1235

SITE	WIDTH (m)	LENGTH (m)	AREA (sqm)	PERCENT OIL	THICKNESS (cm)	PENETRATION (cm)	SURFACE SUBSURF	OIL TYPES	COMMENTS
1							SURFACE	HOR OP	
2							SURFACE	HOR OP	

COMMENTS:

A DISASTER, THICK OIL EVERYWHERE. (DREDGE) OIL ON STREAM BANKS: YES OIL WITHIN 1 MILE OF STREAM: YES, EVERYWHERE

CATALOG NUMBER: 2261016996

STREAM NAME:

LOCATION: KNIGHT ISLAND, NORTHWEST SIDE

SEGMENT NUMBER: KN500 B

SHORELINE TYPE:

DATE: 04/24/90 TIME: COVE -0942

SITE	WIDTH (m)	LENGTH (m)	AREA (sqm)	PERCENT OIL	THICKNESS (cm)	PENETRATION (cm)	SURFACE SUBSURF	OIL TYPES	COMMENTS
1						35	SURFACE _{Sub}	AP	Pit 11 9-5cm oil tarmats, upper ITZ south side, tarmats, pit 2 - 15cm oil LITZ, heavy oil, north side, pit 28 28cm oil south side, upper ITZ, pit 4 5-15cm oil
2						30	SURFACE _{Sub}	MS AP	
3						28	SURFACE _{Sub}	FL AP	
4						15	SURFACE _{Sub}	CI AP	

COMMENTS:

OIL HEAVILY IN NORTH SIDE SPOTS (UPPER LITZ) MID ITZ CENTER OF COVE NEAR STREAM UPPER ITZ OIL MATS & OIL ALONG STREAM. SOUTH SIDE OF COVE UPPER ITZ LARGE TARMATS/LIGHT OILED BOULDER. MID ITZ SOUTH SIDE TARMAT (210 FEET 2/3 LENGTH OF STREAM CHANNEL OILED DOWN TO WATER) TIDE -1.2 RECOMMENDATIONS: WORK TO BE COMPLETED DURING TIDE WINDOW 0 - 1.0 TIDE. REMOVE WITH SCRAPERS TAR BANDS ON FACES OF BEDROCK CLIFFS. REMOVE OILED VEGETATION ON OR OTHER DEBRIS AS FOUND. REMOVE OILED TAR BANDS AND SEDIMENTS ALONG STREAM EDGE (PRIMARILY N SIDE OF STREAM FROM UPPER ITZ TO TOP OF LITZ). REMOVE AND OR WASH WITH SOME TYPE OF MECHANICAL ROCK WASHER THE OILED PROTIONS ON THE NORTH SIDE OF CREEK THAT ARE HEAVILY OILED AND PENETRATE UP TO 30CM. REMOVE AND OR WASH WITH ROCK WASHER, AREAS OF TARMATS AND DEEP OIL PENETRATION ON SOUTH SIDE OF STREAM. REMOVE SEDIMENTS IN STREAM THAT PRODUCE SHEEN. USE BOLSING PROCESS (CAOH) ON LARGE SUBSTRATE ON SOUTH SIDE OF STREAM IN UPPER ITZ. AFTER REMOVAL OF OILED SEDIMENTS TILL THE AREAS SKIMMED AS WELL AS OTHER OILED AREAS AND TREAT WITH THE BOLSING PROCESS (CAOH). CONSULT WITH CITY COUNCIL OF WHI

CATALOG NUMBER: 2261016996

STREAM NAME:

LOCATION: KNIGHT ISLAND, NORTHWEST SIDE

SEGMENT NUMBER: KN500 B

SHORELINE TYPE:

DATE: 04/30/91 TIME: COVE -1010

SITE	WIDTH (m)	LENGTH (m)	AREA (sqm)	PERCENT OIL	THICKNESS (cm)	PENETRATION (cm)	SURFACE SUBSURF	OIL TYPES	COMMENTS
1	60					12	SURFACE	LOR	
2	40					12	SURFACE	MOR	
3	10					20	SURFACE	HOR	
4	20					35	SURFACE	MOR	
5	10					20	SURFACE	MOR	
6	30					12	SURFACE	LOR	

COMMENTS:

ALL PIT INFORMATION WAS RECORDED BY OG IN THE FIELD SITE. OBVIOUSLY ALL SITES ON THIS MAP DESCRIBE A VERY LARGE AREA THAT REMAINS OILED. ALL GRAVEL SEEMS TO BE SATURATED WITH OIL INCLUDING THE FIRST 6CM ON THE SURFACE. AS LAST YEAR AS THE BEST AND PROVEN TREATMENT RECOMMENDED IS MECHANICAL TILLING.

CATALOG NUMBER: 2261016996

SEGMENT NUMBER: KN500 B

STREAM NAME:

SHORELINE TYPE:

LOCATION: KNIGHT ISLAND, NORTHWEST SIDE

DATE: 08/01/91 TIME: COVE -1135

SITE	WIDTH (m)	LENGTH (m)	AREA (sqm)	PERCENT OIL	THICKNESS (cm)	PENETRATION (cm)	SURFACE SUBSURF	OIL TYPES	COMMENTS
A1							PIT	LOR	
A3							PIT	TR	
A4							PIT	LOR	
B2							PIT	TR	
C5							PIT	HOR	
C6							PIT	HOR	
D7							PIT	HOR	
A	7	10	70				SUBSUR	LOR	
B	5	8	40				SUBSUR	MOR HOR	
C	10	8	80				SUBSUR	HOR MOR	
D	46	13	598				SUBSUR	HOR MOR	

COMMENTS:

MECHANICALLY TILLED AREAS C AND D, STILL WITH OIL (NO OIL LENSE IN PITS DUE TO MIXING). EXPOSED HOR TO MOR, SHEENING, BLACK BEADING WHEN DISTURBED. NO SURFACE OIL TO SPEAK OF OTHER THAN COATS OR STAINS ON BEDROCK. NEW TARMAT POSSIBLY TO BE FORMED FROM OIL EXPOSED FROM TILLING. NEEDS TO BE REASSESSED IN SPRING OF 1992. NO PINKS OBSERVED. *SURVEY FOCUSED ON DOCUMENTED OILING TREATED IN 1991.

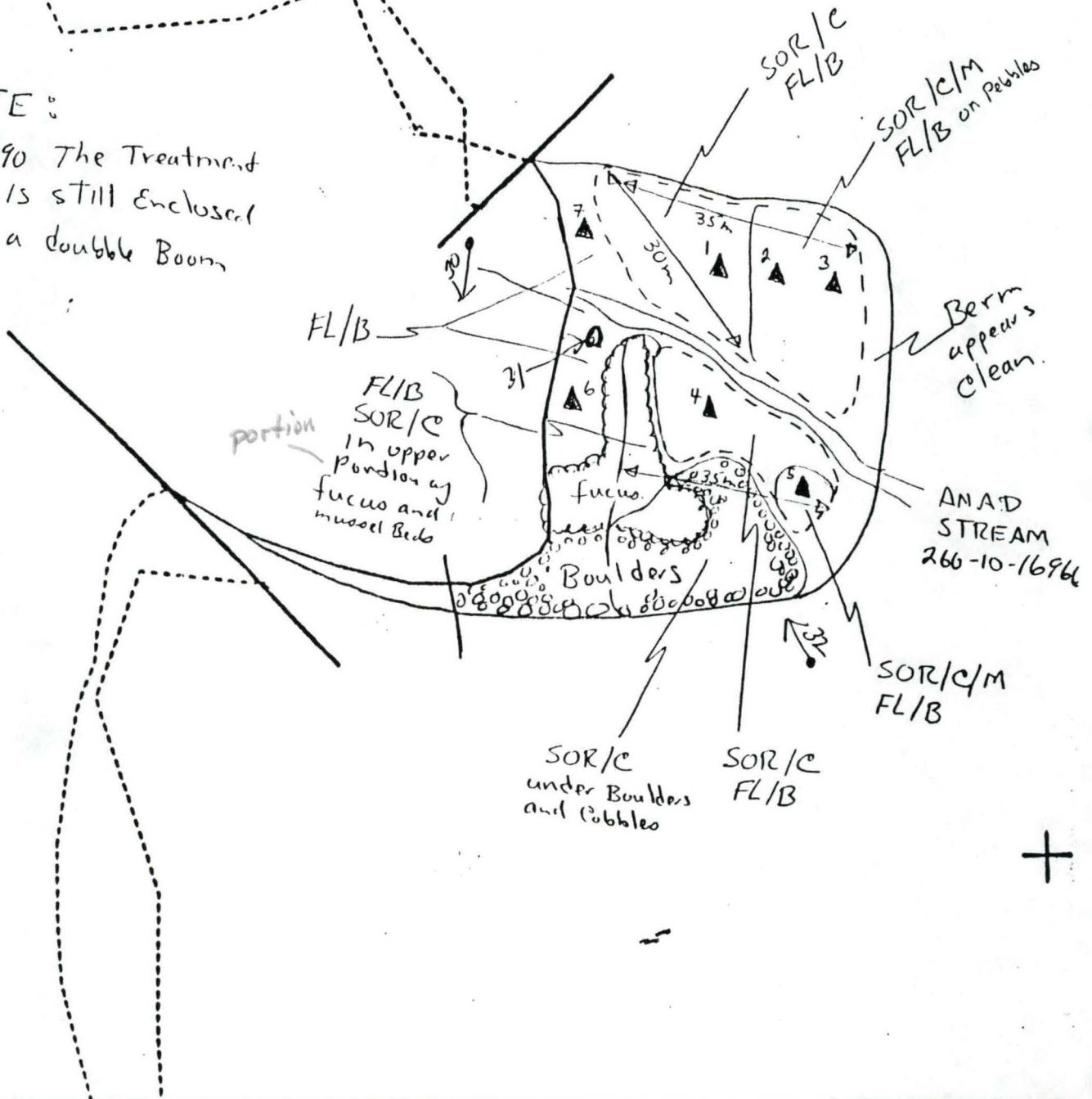
KN 500

--- TREATMENT AREA

==== Fucus

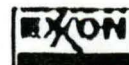
oooo - Boulders/cobbles

NOTE:
8/8/90 The Treatment
area is still Enclosed
with a double Boom



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

KN-500 B
ADEC Subsegment Length: 379m
METERS
AK State Plane Zone 9 1:2223
KN-500b



Subdivision Field M
Map Key: KNKN-500B
Name: Reimer
Date: 8/8/90
Data Entered:

INO ONE EXXON MARTINEZ SEGMENT AS K11-500
 Reimer US BROWN SUBDI N B
 EC HAYES LA REP GIBSON TOTAL NO. SITES 1
 DATE 8 / 8 / 90 TIME 7:30 to 10:10 TIDE LEVEL -2 to -1
 TOTAL EST LENGTH OF SHORELINE SURVEYED: 260 m
 SURVEYED FROM: ☒ Foot ☐ Boat ☐ Helo WEATHER: ☐ Sun ☒ Clouds ☐ Fog ☐ Rain ☐ Snow
 OIL CATEGORY LENGTH: W 260 m M 0 m N 0 m VL 0 m NO 0 m US 116 m

SURFACE OIL					SITE 1				SITE 2					SITE 3										
CHARACTER	DISTRIBUTION				OILED ZONES				DISTRIBUTION				OILED ZONES				DISTRIBUTION				OILED ZONES			
	/C	/B	/P	/S	SU	UI	MI	LI	/C	/B	/P	/S	SU	UI	MI	LI	/C	/B	/P	/S	SU	UI	MI	LI
ASPHALT																								
S.O.R.	M X					M X	M X	X																
POOLED																								
COVER																								
COAT																								
STAIN																								
MOUSSE																								
PATTIES/T.B.																								
FILM		X				X	X	Y																
NO OIL					X																			
EST. SITE LENGTH					260																			

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	
1	1	30		M			5-25	Y			X		P-GSP
	2	40		X			5-30	Y		X			P-GSP
	3	30		X			5-15	Y		Y			P-GSP
	4	30			X		5-15	Y		Y			P-GS
	5	20		X			5-10	N		X			P-GSP
	6	30			X		5-25	Y				X	P-GP
	7	40			X		5-10	Y				X	P-GPS
							.						
							.						
							.						
							.						
							.						

Photographs:
 Roll No. ASAP-01-03
 Frames 30, 31, 32

Pit filled with H₂O fresh water Run-off.

COMMENTS Large Embayment with Low angle Beach and tidal flats
 the entire head of the bay has SOR sediments across the
 middle and upper ITZ and a portion of the LITZ. Much of
 this beach was (filled) (dashed line) exposing subsurface op.
 OR Sediment and still found in Pits. ANAD Stream 266-10-16966

FIELD SHORELINE COMMENT SHEET

SEGMENT AS / KN-500 SUBDIVISION: B SITE: 1 DATE 8/8/90 DSW

USCG

NAME MSTC Michael D. Brown SIGNATURE Michael D. Brown

☒ YES ☐ NO PRIORITY SITE FOR REASSESSMENT IN 1991

REASON: MAJORITY OF SEG IS HEAVY SOR TO OP SURFACE.

ADEC

NAME John Hayer SIGNATURE John Hayer

☒ YES ☐ NO PRIORITY SITE FOR REASSESSMENT IN 1991

REASON: Everyone seems interested in this one.
Continue to assess effectiveness of mechanical tilling of
oiled sediments and recovery of heavily oiled sediment layers.
This segment was continuing to rinse with tides and is a
good example for the combination till, rinse, and bio treatment done
this season. No further treatment at this time although retilling will be
considered for 1991 pending spring assessment. Stream has OALM-H along lower banks.

LAND MANAGER

NAME DOUGLAS GIBSON SIGNATURE Douglas Gibson

☒ YES ☐ NO PRIORITY SITE FOR REASSESSMENT IN 1991

REASON:

EXXON

NAME Martinez N.J. SIGNATURE Nicholas J. Martinez

☒ YES ☐ NO PRIORITY SITE FOR REASSESSMENT IN 1991

REASON: Area still has a lot of SOR on surface
is responding well to treatment
should be assessed in 1991.

TEAM NO ONE EXXON MARTINEZ SEGMENT AS/ KAI-500
 OG Reimer USCG BROWN SUBDIVISION B
 ADEC HAYES LAND REP GIBSON TOTAL NO. SITES 1
 DATE 8/8/90 TIME 9:30 10:10 TIDE LEVEL -2 10 -1
 TOTAL EST LENGTH OF SHORELINE SURVEYED: 260 m
 SURVEYED FROM: ☒ Foot ☐ Boat ☐ Helo WEATHER: ☐ Sun ☒ Clouds ☐ Fog ☐ Rain ☐ Sr
 OIL CATEGORY LENGTH: W 260 m M 0 m N 0 m VL 0 m NO 0 m US 116 m

SURFACE OIL

SITE 1

SITE 2

SITE 3

CHARACTER	DISTRIBUTION				OILED ZONES			
	/C	/B	/P	/S	SU	UI	MI	LI
ASPHALT								
S.O.R.	M	X				M	M	X
POOLED								
COVER								
COAT								
STAIN								
MOUSSE								
PATTIES/T.B.								
FILM		X				X	X	Y
NO OIL					X			
EST. SITE LENGTH								260

CHARACTER	DISTRIBUTION				OILED ZONES			
	/C	/B	/P	/S	SU	UI	MI	LI
ASPHALT								
S.O.R.								
POOLED								
COVER								
COAT								
STAIN								
MOUSSE								
PATTIES/T.B.								
FILM								
NO OIL								
EST. SITE LENGTH								

CHARACTER	DISTRIBUTION				OILED ZONES			
	/C	/B	/P	/S	SU	UI	MI	LI
ASPHALT								
S.O.R.								
POOLED								
COVER								
COAT								
STAIN								
MOUSSE								
PATTIES/T.B.								
FILM								
NO OIL								
EST. SITE LENGTH								

SUBSURFACE OIL

SITE NO.	PIT NO.	PIT DEPTH (cm)	SUBSURFACE OIL CHARACTER				OILED INTERVAL (cm)	CLEAN BELOW (Y/N)	PIT ZONE				SURFACE-SUBSURFACE SEDIMENTS
			OP	OR	OF	NO			SU	UI	MI	LI	
1	1	30		M			5-25	Y			X		P-GSP
	2	40		X			5-30	Y		X			P-GSP
	3	30		X			5-15	Y		Y			P-GPS
	4	30			X		5-15	Y		Y			P-GS
	5	20		X			5-20	N		X			P-GSP
	6	30			X		5-25	Y				X	P-GP
	7	40			X		5-10	Y				X	P-GPS

Photographs:

Roll No. ASX2-0-03

Frames 30, 31, 32

Pit filled with H₂O from water pump.

REVIEWED

8/14/90 - 10

COMMENTS

Large Embayment with Low angle Beach and tidal flats to the end of the bay has SOR sediments across the middle and upper ITZ and a bounding line.

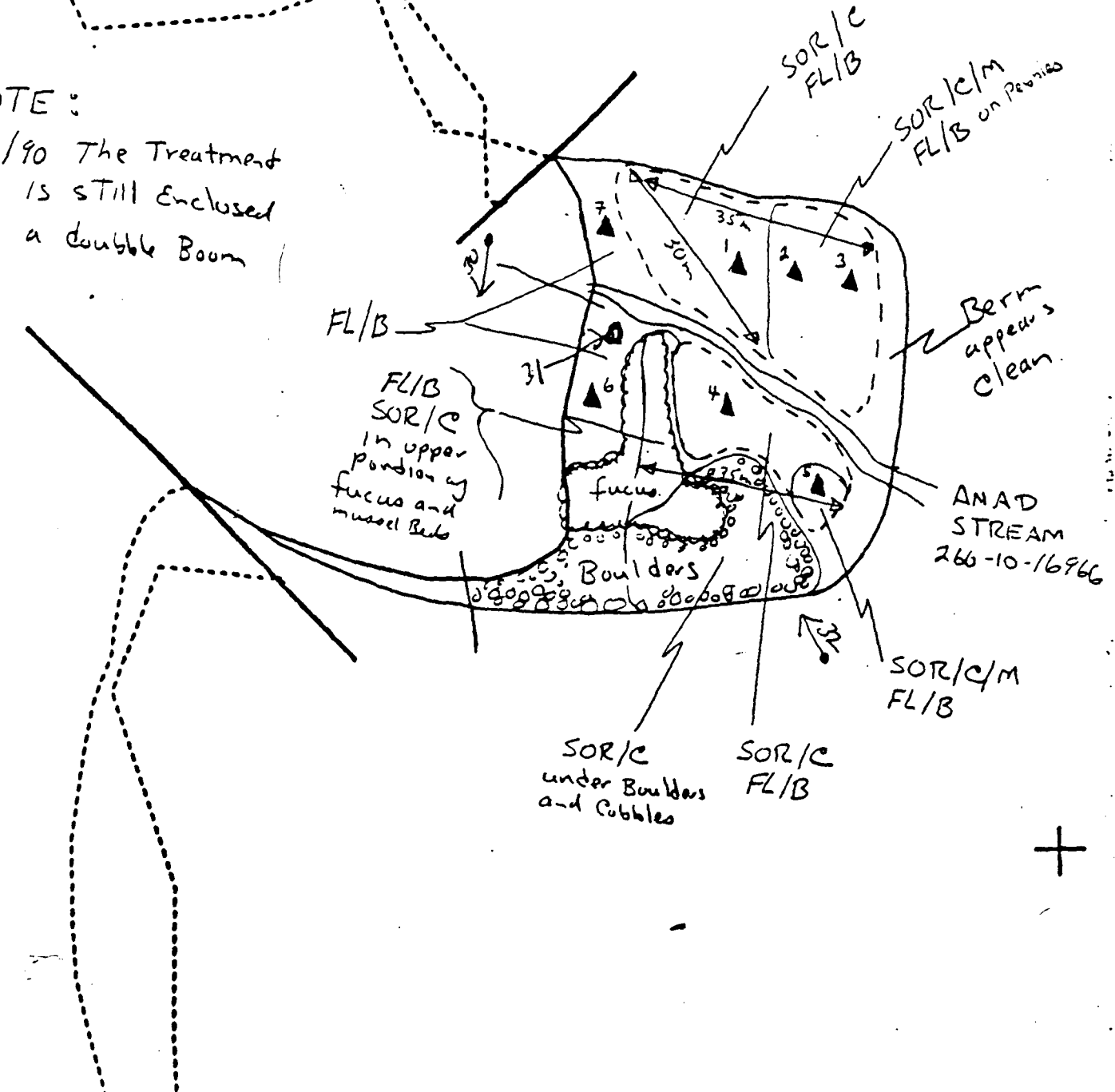
--- TREATMENT AREA

--- Fucus

--- Boulders/Cobbles

NOTE:

8/8/90 The Treatment area is still enclosed with a double Boom



KXXX Wide
 '/// Medium
 --- Narrow
 -TTT Very Light
 1000 No Oil

KN-500 B

ADEC Subsegment Length: 379m

METERS

0 50 113

AK State Plane Zone 9 1:2223

AK-500b



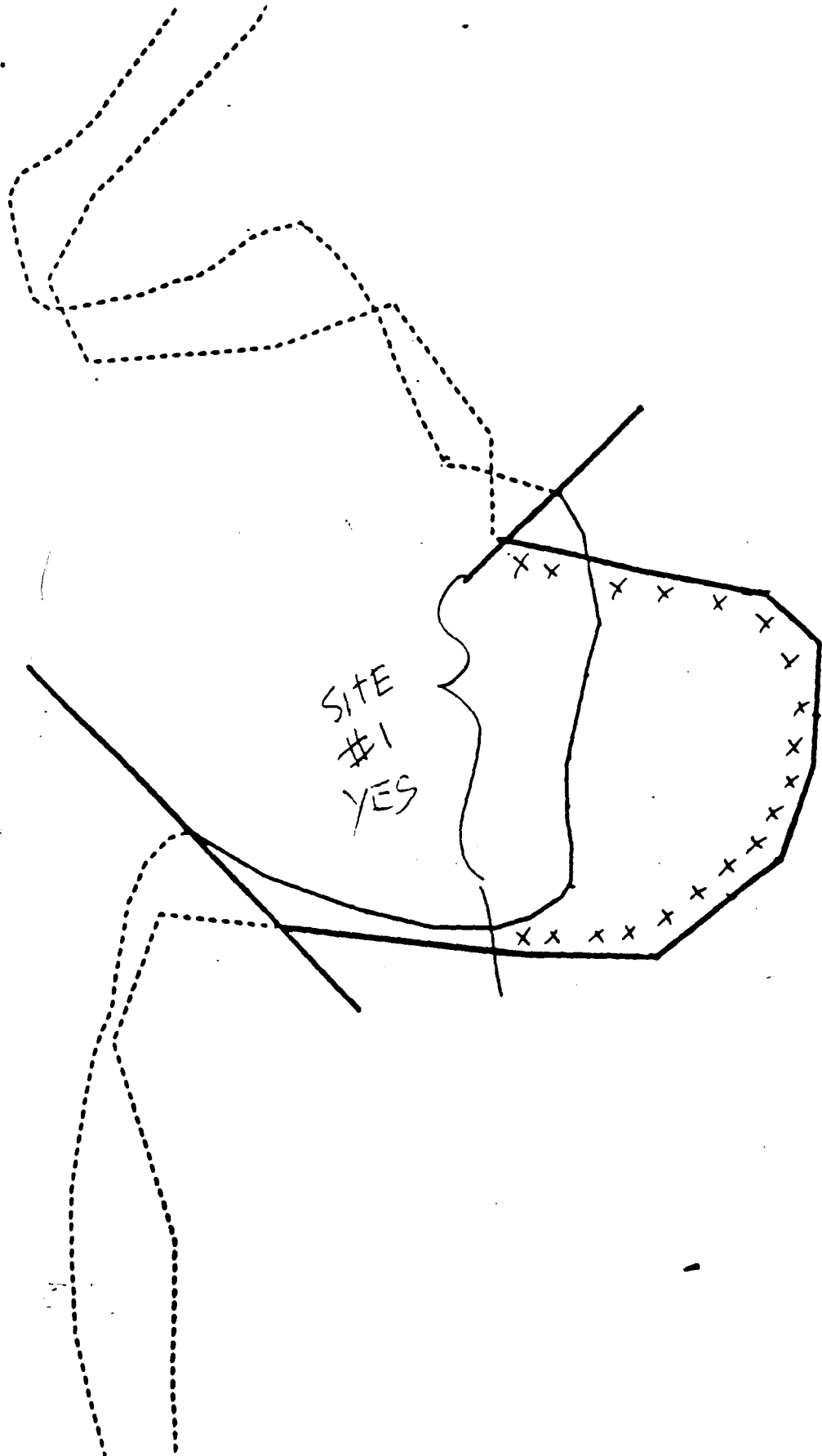
Subdivision Field No

Map Key: KNKN-500B

Name: Reimer

Date: 8/8/90

Date Entered:



B

XXX Wide
// Medium
--- Narrow
TTT Very Light
200 No Oil

KN-500 B
ADEC Subsegment Length: 379m
METERS
0 50 100
AK State Plane Zone 4

Subdivision Field Map
Map Key: KNKN-500B
Name: Reimer
Date: 8/8/90
EXON

Aimee Wesseman
ADF&G/Oil Spill Response
M/V Corinthian, PWS

July 22, 1990

Re: Stream Report
ASC# 226-10-16996 Seg. KN 500B

A second treatment occurred to this stream site on July 20, 1990. The initial treatment, which had occurred on July 6 and 7 was incomplete. A work order modification and subsequent visit from TAG on July 10 resulted in a work plan addendum calling for "mechanical tilling of the entire oiled area, with the application of CustomBlen and INIPOL.

Doug Hill, ADF&G and I were on site on the 20th to monitor the second treatment. The area first received an application of CustomBlen. The south side of the stream received 137# and the north 175#. The entire oiled area above the fucus line was then mechanically tilled using a small backhoe with a raker bar attachment. The oiled streambanks and between channel gravel tongue were also tilled at my request. The tilling process appeared to do some good, exposing buried oil. However the tines on the raker should have been at least 6 inches longer in order to reach more of the subsurface oil lense.

Rows of snare boom were run along the streambanks and across the beach at the lower end of the oiled zone. The tide rose and fell and appreciable amounts of oil were released. Crews were on hand during the tide to mop up and contain any free floating oil.

The remainder of the crew returned at low tide and applied INIPOL to the entire oiled area, maintaining a 15 foot buffer from the stream channel(no fish were present). INIPOL dosages consisted of 329 gallons on the north side of the stream and 295 gallons on the south side. Doug spoke with some of the INIPOL crew who informed him that the actual dosages that were applied were often different than those computed by the Oil Geomorphologists(OG's). Measurements of the INIPOL tank were via a "dip stick" which was often unreadable. Also workers could only estimate how much they were applying by sight.

A concern was expressed by the ADEC monitor Chris Strand that the 10 foot buffer between water line and INIPOL spray had been violated during application. Several reports were written on this. Being required to maintain quite a distance from the actual application, I was not a witness to this occurrence.

It was agreed to leave the protective booming in place for several days to continue catching any released oil.

The site was demobilized that same evening.

Aimee Weseman

Daily Report
Doug Hill-ADFTG

1127 hrs.-Arrive CH-1. One 1 meter x 30-50 meter tarmat-medium to light OR-on south beach. Could use some manual tilling. Met NOAA folks on beach. They had a 2 to 2-3/4 mesh gillnet fishing for dolly varden---oil spill related.

1200 hrs.-Arrive Corinthian.

1652 hrs.-Aimee and I depart Corinthian on M/V Tlingit Princess.

1715 hrs.-Arrive CH-900. A few scattered patties of thick black oil and oiled debris. Looks good.

1830 hrs.-Arrive CH-14. A few patties observed. Looks good.

1945 hrs.-Arrive M/V Corinthian.

July 20

0940 hrs.-Aimee, Dave Kenagy(ADNR) and I depart M/V Corinthian on the M/V Malibu.

1020 hrs.-Arrive KN-500B. On the beach we met Vince Mulligan(USCG), Chris Strand(ADEC), Darrin Smiuth(OOPS), Gary Parry(USCG), Glenn Haymen(OG), Tony Diaz(EXXON) and Chuck Swarta(EXXON). The beach on either side of the stream was being mechanically tilled with a small cat. A ripper with tines about 16" long was being dragged by the cat. The ripper penetrated only about 6-8" and the oil is often found at greater depths than this. Customblen was applied prior to tilling. On another beach the OG erroneously told me it is not good to till the customblen into the substrate because the customblen would not recieve enough oxygen. On the south bank of the stream I observed heavy OR and light OP at depths below what was being tilled. We pointed this out to Tony Diaz. Tony had the cat till this area even though the ripper would not reach to the depths of this oil deposit. After tilling we found the heaviest oil concentration below what had been tilled. As the tide rose we observed globs of oil on the water surface.

The crew snare boomed the banks of the stream at Aimee's request. No Jumpers were observed near shore.

1359 hrs.-High tide. Significant amounts of sheen in stream channel. We spent about an hour and one-half sopping the sheen and oil globs from the stream channel---using pom poms. Inipol was kept 15' from the stream bank. The OG calculated that 295 gallons of Inipol were necessary for the north beach. Upon completion of the north beach the 300 gallon Inipol tank level had dropped only 10". However, the OG told me that over a period of time the amount of Inipol applied comes within a 10% margin of what he calculates. He had no answer as to what that period of time is. The application rate is ultimately determined by the person applying the stuff---"A good even coat" as they say so often these days. No flow meters exist in this operation. Chuck Buffington(VECO) told me that the dipstick used to measure

the 300 gallon tank is barely readable. Chuck also told me that when Al Snook (EXXON) was in charge of this crew they were always rushed. Al apparently wanted to set records as the fastest Inipol crew. Hence, Chuck says, proper decon procedures were not followed and they even applied the stuff in 50 knot winds---much of the stuff ended up in the bushes. Even today with this light 10 knot breeze alot of misting and horizontal flow is occurring.

1750 hrs.-Crew begins applying Inipol.

1852 hrs.- Inipol application is complete.

1919 hrs.-Arrive Bay of Isles---M/V Corinthian does not arrive in Bay of Isles until 0030.

0100 hrs.-13 tired folks board the Corinthian.

July 21

1410 hrs.-Aimee and I depart Bay of Isles on ERA Helo N125DN.

1427 hrs.-Arrive KN-402(Stream). 8-9,000 pinks present. Numerous carcasses throughout area. South shore---slide area to point to south---UITZ. Pooled mousse and mousse saturated debris. Reassess this area

1610 hrs.-Arrive EV-25. Observed oil in stream channel-heavy to medium OR and light OP. Saturated sediment to 3" depth. Found Inipol hazing balloons in drift. Work modification needed.

1653 hrs.-Arrive EV-17A(226-40-16620). Tarmat on west side of stream-15 feet from channel-in LUITZ-OR sediments-found to depths of 4" plus. Should be removed.

1723 hrs.-Arrive EV-17(226-40-16630). OR sediment patches ofn west side bank-found at 1-5" depths. Should be removed.

1824 hrs.-Stopped at Chenega to talk with Gail Ebanov. Gail was not found.

1906 hrs.-Arrive KN-701B. Tar patties and pooled mousse in MITZ and UITZ. The majority of the remaining oil is on the east bank. A work modification calling for Inipol of the west bank is currently in process. No Inipol! The area needs manual pickup.

2000 hrs.-Arrive at Corinthian.

July 22

0900 hrs.-Skiff to KN-135B. Light to heavy OP (primarily light)-heavy OR-tarmats-north shore of stream in MITZ and UITZ. Should be removed.

1045 hrs.-Aimee and I depart Bay of Isles of ERA helo N125DN.

1052 hrs.-Arrive GR-103. Numerous pinks finning and jumping in LITZ. Sporadic OR and OP---in stream channel and on north beach. Should be reassessed. We tilled a portion of the south bank.

Aimee Wesseman
ADF&G/Oil Spill Response
M/V Corinthian, PWS

July 22, 1990

Re: Stream Report
ASC# 226-10-16996 Seg. KN 500B

A second treatment occurred to this stream site on July 20, 1990. The initial treatment, which had occurred on July 6 and 7 was incomplete. A work order modification and subsequent visit from TAG on July 10 resulted in a work plan addendum calling for "mechanical tilling of the entire oiled area, with the application of CustomBlen and INIPOL.

Doug Hill, ADF&G and ^{Aimee Wesseman} (I) were on site on the 20th to monitor the second treatment. The area first received an application of CustomBlen. The south side of the stream received 137# and the north 175#. The entire oiled area above the focus line was then mechanically tilled using a small backhoe with a raker bar attachment. The oiled streambanks and between channel gravel tongue were also tilled at my request. The tilling process appeared to do some good, exposing buried oil. However the tines on the raker should have been at least 6 inches longer in order to reach more of the subsurface oil lense.

Rows of snare boom were run along the streambanks and across the beach at the lower end of the oiled zone. The tide rose and fell and appreciable amounts of oil were released. Crews were on hand during the tide to mop up and contain any free floating oil.

The remainder of the crew returned at low tide and applied INIPOL to the entire oiled area, maintaining a 15 foot buffer from the stream channel (no fish were present). INIPOL dosages consisted of 329 gallons on the north side of the stream and 295 gallons on the south side. Doug spoke with some of the INIPOL crew who informed him that the actual dosages that were applied were often different than those computed by the Oil Geomorphologists (OG's). Measurements of the INIPOL tank were via a "dip stick" which was often unreadable. Also workers could only estimate how much they were applying by sight.

A concern was expressed by the ADEC monitor Chris Strand that the 10 foot buffer between water line and INIPOL spray had been violated during application. Several reports were written on this. Being required to maintain quite a distance from the actual application, I was not a witness to this occurrence.

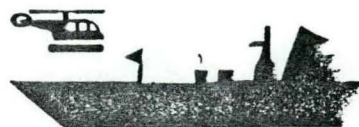
It was agreed to leave the protective booming in place for several days to continue catching any released oil.

The site was demobilized that same evening.

Aimee Wesseman

ADEC

Arctic Salvor / Bat Team 2



Location: NW KNIGHT ISL

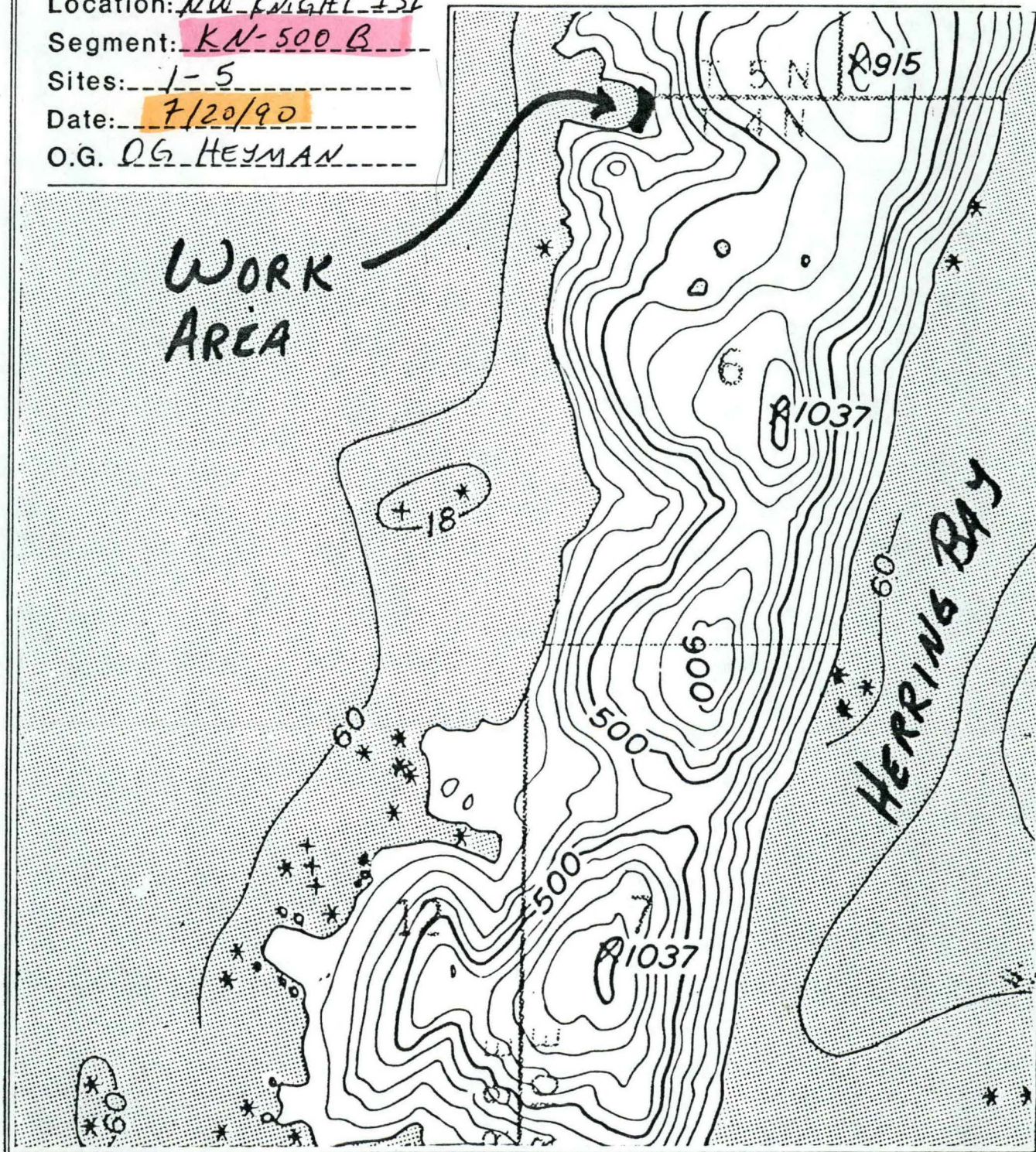
Segment: KN-500 B

Sites: 1-5

Date: 7/20/90

O.G. OG HEYMAN

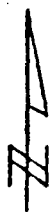
WORK
AREA



BIO COMPUTER MAP

OMH
7/20/90

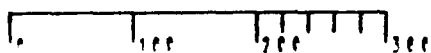
SITES 1-5 ~ 150M



SEGMENT KN-500

Exxon Segment Length: 2709m

METERS



Map Key: KNI-KN-500a

Exxon Company, USA

May 15, 1990

1 inch = 500 feet

UPLANDS

← Z →

INIPOL
IN ADDITION TO TILLED AREAS

SNARE
BOOM

Stream

TILL WITHIN THESE AREAS
WHERE OILED SEDIMENTS EXIST
THAT SHOULD BE BIOREMEDIATED
MINIMIZE TILLING TO THE DEPTH
OF THE OILED LENSE. APPLY
CUSTOMER DURING TILLING
FOLLOWED BY INIPOL APPLIC.
OF ALL OILED SEDIMENTS EX

DO NOT TILL AREA OF
FUCUS + MUSSEL BEDS

SIC WORK ORDER MAP

OG 06 HEYMAN

SEGMENT STIKN-500

SUBDIVISION B

DATE 7 120/90

CHECKLIST

☐ N Arrow
☐ Approx. Scale
☐ Seg/Sub Gridy
☐ Oil Date
☐ Width
☐ Length
☐ % Cover
☐ Substrate Character
☐ Est. HWA/LWL
☐ SSL
☐ Profile Location(s)
☐ Profile(s)
☐ P/L Location(s)
☐ Photo Location(s)

LEGEND

1 Δ
P/L - No Subsurface Oil

2 Δ
P/L - Subsurface Oil

CT/C
Continuous Distribution

CT/D
Broken Distribution

CT/P
Patchy Distribution

CT/S
Splashed Distribution

CCCC
Oiled Vegetation

1 \rightarrow
Photo location, direction,
and number

METERS
(APPROXIMATE)
SCALE

LEGEND

X INIPOL/CUSTOMBLEN BOUNDARY,
(CUSTOMBLEN ALSO APPLIED TO
EDGE OF STREAM BANK AT
ADFIG REQUEST.

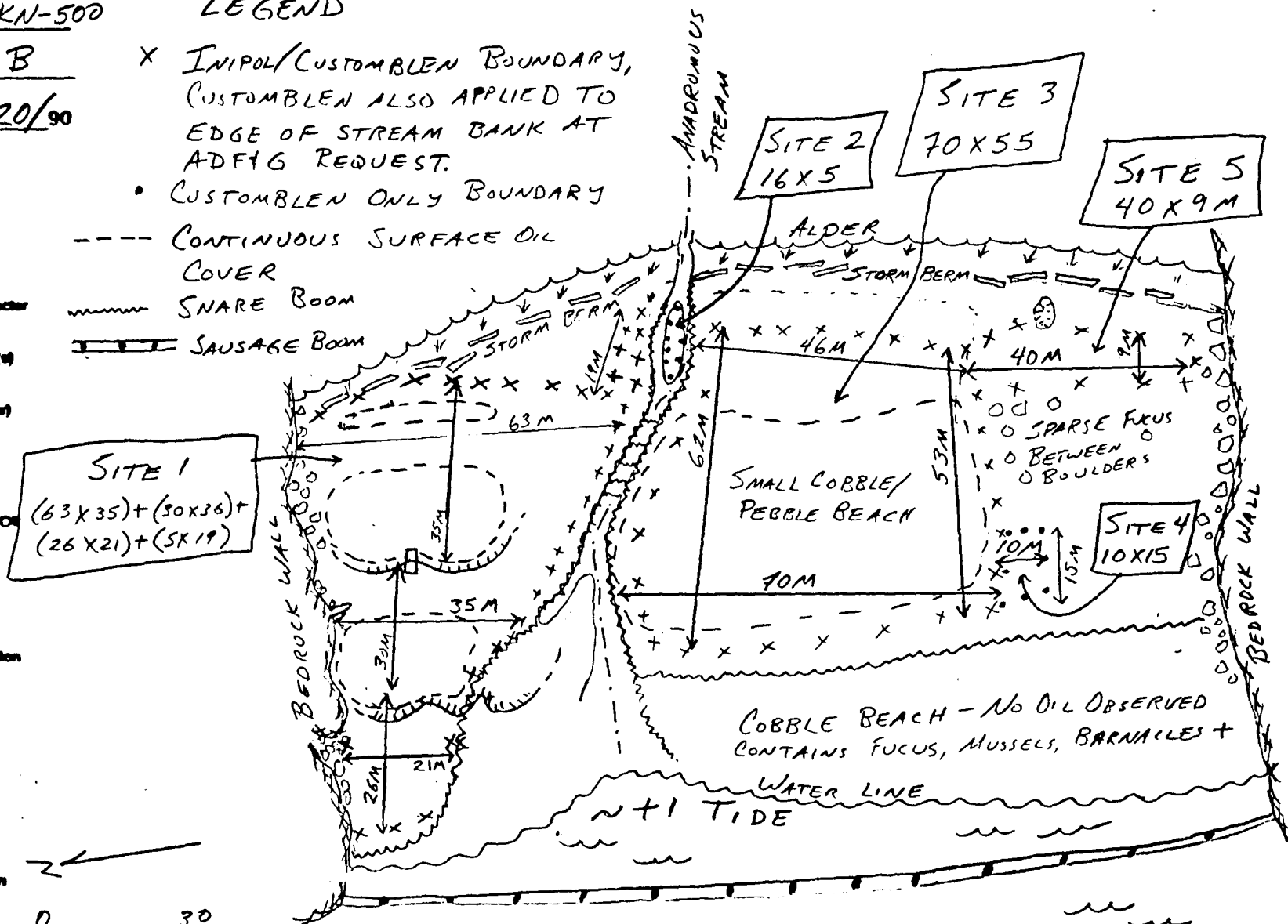
• CUSTOMBLEN ONLY BOUNDARY

--- CONTINUOUS SURFACE OIL
COVER

~~~~~ SNARE BOOM

===== SAUSAGE BOOM

## BIO LOCATION SKETCH MAP



# INIPOL/CUSTOMBLLEN APPLICATION REPORT

Segment: KN-500B Subdivision: 2 of 2 Site: 1 of 5

OG: OG HEYMAN BAT No. 2 Date: 7/20/90

Exxon: T DIAZ Customblen 1630-1710 / 1853-1854: +6 to +5 / +3 3/4  
Time: to Tide: +3 3/4 to +5  
SPRAY 1845 to 1955 →

Wind: 1-5 knots from W Air Temp: 19° C Water Temp:      C

type of oil treated: CT/C to P, FL/S, CV/S previously tilled? YES NO  
PO/S < 1%, Subsurface OR OF, OPC 1%

zone treated: SUTZ X UITZ X MITZ X LITZ      asphalt removed? YES NO NA

area treated: splash      patchy      broken X continuous       
(63 x 35) + (30 x 36) + (26 x 21) + (5 x 19)

area treated with Inipol:      m X      m X 100% = 3926 sq.m. treated

gallons of Inipol applied: 310 calculated Inipol dosage 0.079 gals/sq m

emulsification observed? YES NO

(63 x 35) + (30 x 36) + (26 x 21) + (9 x 30)  
area treated with Customblen:      m X      m X 100% = 425 sq.m. treated

pounds of Customblen applied: 176 calculated Customblen dosage 0.0414 lbs/sq m

~~In~~ Large low angle beach with 2 prograding cobble/pebble bars (sketch map). Three areas within the site had ~~res~~ continuous residual oil from tar mats, the remainder of the site had < 60% cover. Customblen was applied during the morning low tide, then the site was tilled mechanically & Inipol sprayed during the PM low tide. However, the AM low tide covered the lower 5-10 M of the site during Customblen application, & the +3 3/4 PM low tide did not expose the lower 5 M of the site. ADEC & ADF&G (C. Strand & A. Weseman) Ok'd applying Customblen in the water & then tilling down to the no oil line below water. We then sprayed the site from 15' away from the stream across to the bedrock wall & down to near the water line. It was noted that the crew began spraying near the water line & the spray came w/in 2-3 ft to the rising water

## INIPOL/CUSTOMBLEN APPLICATION REPORT

Segment: KN-500B Subdivision: 2 of 2 Site: 2 of 5

OG: DG HEYMAN BAT No. 2 Date: 7/20/90

Exxon: T DIAZ Time: 1000 to 1002 Tide: +4 to -

Wind: 1 to 5 knots from W Air Temp: 19° C Water Temp:        C

type of oil treated: CT/P<sub>1</sub> previously tilled? (YES) NO

Subsurface OR

zone treated: SUTZ        UITZ X MITZ        LITZ        asphalt removed? YES NO NA

area treated: splash        patchy X broken        continuous       

area treated with Inipol:        m X        m X        % =        sq.m. treated

gallons of Inipol applied:        calculated Inipol dosage        gals/sq m

emulsification observed? YES NO

area treated with Customblen: 16 m X 5 m X 100 % = 80 sq.m. treated

pounds of Customblen applied: 3 calculated Customblen dosage 0.0375 lbs/sq m

comments: A miscommunication between ADFIG & myself resulted in Customblen application to this cobble/pebble/boulder bar within the stream. A. Weseman requested that the bar be tilled, but she did not intend that it be bio'd. When she requested tilling, I assumed that we would bio the area & calculated dosages based on a dual application. She caught my error after lunch during the PM tide.

## INIPOL/CUSTOMBLLEN APPLICATION REPORT

Segment: KN-500 B Subdivision: 2 of 2 Site: 3 of 5

OG: OG HEYMAN BAT No. 2 Date: 7/20/90

Exxon: T DIAZ Granular - 0942 to 1002 +4 to +4 1/4  
Time: to Tide: to  
Inipol 1630-1710 +6 to +5

Wind: 1-7 knots from W Air Temp: 17° C Water Temp:      C

type of oil treated: CT/C to /P, CV/S, FL/S previously tilled? YES NO  
PO/S < 1%, Subsurface OR w/ OF, OP < 1%

zone treated: SUTZ      UITZ X MITZ X LITZ      asphalt removed? YES NO

area treated: splash      patchy      broken X continuous     

area treated with Inipol: 70 m X 55 m X 100 % = 3850 sq.m. treated

gallons of Inipol applied: 304 calculated Inipol dosage 0.079 gals/sq m

emulsification observed? YES (NO)

area treated with Customblen: 70 m X 55 m X 100 % = 3850 sq.m. treated

pounds of Customblen applied: 144 calculated Customblen dosage 0.0574 lbs/sq m

comments:

Customblen was applied to this site and the site was mechanically tilled during the AM low tide. The site was sprayed with Inipol during the PM low tide. The lower 2/3 - 3/4 of the beach face w/ the site has an essentially continuous cover of oiling. The rest of the beach face had < 60% cover. Inipol spray was kept 15 ft from the stream bank, but the dosage was not adjusted for this change, ~~in the~~ which occurred shortly prior to application. No Inipol near the stream as ADF86 reported salmon in the stream at high

## INIPOL/CUSTOMBLEN APPLICATION REPORT

Segment: KN-500B Subdivision: 2 of 2 Site: 4 of 5

OG: OG HEYMAN BAT No. 2 Date: 7/29/90

Exxon: T DUAZ Time: 0942 to 1002 Tide: +4 to +4 1/4

Wind: 1-7 knots from W Air Temp: 17° C Water Temp:      C

type of oil treated: PT/S, CT/S, FL/P previously tilled? YES NO  
RAKED

zone treated: SUTZ      UITZ X MITZ X LITZ      asphalt removed? YES NO NA

area treated: splash      patchy X broken      continuous     

area treated with Inipol:      m X      m X      % =      sq.m. treated

gallons of Inipol applied:      calculated Inipol dosage      gals/sq m

~~emulsification observed?~~ YES NO

area treated with Customblen: 10 m X 15 m X 100 % = 150 sq.m. treated

pounds of Customblen applied: 31 calculated Customblen dosage 0.207 lbs/sq m

comments: This small area had ~~pt~~ PT & CT w/ FL with cover not greater than 30%, but focus was growing with a sparse to medium distribution within the area, ~~some~~ sparse barnacles were also observed. The PT was raked prior to Customblen application.

## INIPOL/CUSTOMBLLEN APPLICATION REPORT

Segment: KN-500B Subdivision: 2 of 2 Site: 5 of 5

OG: OG HEYMAN BAT No. 2 Date: 7 120190

Exxon: T DIAZ Granular 0942 to 1002 +4 to +4 1/4  
Time: to Tide: to  
Inipol 1630-1710 +6 to +5

Wind: 1-7 knots from W Air Temp: 17° C Water Temp:      C

type of oil treated: CT/P, CV/S, FL/S, PT/S previously tilled? YES NO  
Subsurface OR (light) & OF RAKED

zone treated: SUTZ      UITZ X MITZ      LITZ      asphalt removed? YES NO NO

area treated: splash      patchy X broken      continuous     

area treated with Inipol: 40 m X 9 m X 100 % = 360 sq.m. treated

gallons of Inipol applied: 29 calculated Inipol dosage 0.0806 gals/sq m

emulsification observed? YES NO

area treated with Customblen: 40 m X 9 m X 100 % = 360 sq.m. treated

pounds of Customblen applied: 14 calculated Customblen dosage 0.039 lbs/sq m

comments: This area was not tilled as there were too many small boulders in the area. The small, thin PT's were raked & bio'd with continuously with the application @ Site 3.

majority of the working day. At one point Ms. Keyes seemed to be giving Chris a lecture in adement terms earlier in the day.

After the crew was back on the Arctic Salvor I asked all parties involved what they had seen. No one said they saw any direct spray into the water, but that at the beginning spray was within a few feet. This corresponds to my observations. The Veco worker controlling the airless sprayer told me that he did not switch the suction on the sprayer from water to inipol until the wand crew was just about to start their second leg and that only water was sprayed on the first leg. The USCG monitor (MK2 Vince Mulligan) said he saw no violation and that if the ADEC monitor saw a violation he was negligent in his duties to not bring it to his or my attention right away. Another member of the Veco crew stated that he saw Chris taking pictures the entire time the wand crew was clearing their lines and making their first pass.

It is becoming evident that the ADEC monitors are taking deliberate pains to build tension between Exxon and themselves to either delay site demobilizations or to provoke an incident or both. Working relationships that have been built all summer are systimatically being reverted to one of tension and mistrust. I had a talk with all monitors and OOPS personnel the night before to stress that we in the field had no control over office politics and that the only way to get our job done done was to maintain respect and trust within the team. The response by all was positive and I am still hopefull that productive work in a spirit of cooperation is still possible.

Tony Diaz

# O.G. / OPERATIONS BIOREMEDIATION APPLICATION REPORT

SEGMENT: KN-500B 2 of 2.

Page 21 of 2.

OG : Heyman.

EXXON: T DIAZ.

DATE : 7/20/90

BAT TEAM: 2.

SITE ( 1 ) [ \_\_\_\_\_ ]

CUSTOMBLEN ONLY  $\Rightarrow$  \_\_\_\_\_ m. X \_\_\_\_\_ m. @ \_\_\_\_\_ % = \_\_\_\_\_ Sq Meters.

\_\_\_\_\_ Lbs. Applied Dosage = \_\_\_\_\_ Lbs/Sq Meters.

COMBINATION  $\Rightarrow$

Inipol >  $\frac{(63 \times 35) + (30 \times 36) + (26 \times 21) + (5 \times 19)}{100}$  m. X \_\_\_\_\_ m. @ 100 % = 3926 Sq Meters.

Customblen >  $\frac{310}{(63 \times 35) + (30 \times 41) + (26 \times 21) + (9 \times 30)}$  Gal. Applied Dosage = 0.079 gal/Sq Meters.

\_\_\_\_\_ Lbs. Applied Dosage = 0.0414 Lbs/Sq Meters.

SITE ( 2 ) [ \_\_\_\_\_ ]

CUSTOMBLEN ONLY  $\Rightarrow$  16 m. X 5 m. @ 100 % = 80 Sq Meters.

3 Lbs. Applied Dosage = 0.0375 Lbs/Sq Meters.

COMBINATION  $\Rightarrow$

Inipol > \_\_\_\_\_ m. X \_\_\_\_\_ m. @ \_\_\_\_\_ % = \_\_\_\_\_ Sq Meters.

\_\_\_\_\_ Gal. Applied Dosage = \_\_\_\_\_ gal/Sq Meters.

Customblen > \_\_\_\_\_ m. X \_\_\_\_\_ m. @ \_\_\_\_\_ % = \_\_\_\_\_ Sq Meters.

\_\_\_\_\_ Lbs. Applied Dosage = \_\_\_\_\_ Lbs/Sq Meters.

SITE ( 3 ) [ \_\_\_\_\_ ]

CUSTOMBLEN ONLY  $\Rightarrow$  \_\_\_\_\_ m. X \_\_\_\_\_ m. @ \_\_\_\_\_ % = \_\_\_\_\_ Sq Meters.

\_\_\_\_\_ Lbs. Applied Dosage = \_\_\_\_\_ Lbs/Sq Meters.

COMBINATION  $\Rightarrow$

Inipol > 70 m. X 55 m. @ 100 % = 3850 Sq Meters.

304 Gal. Applied Dosage = 0.079 gal/Sq Meters.

Customblen > 70 m. X 55 m. @ 100 % = 3850 Sq Meters.

144 Lbs. Applied Dosage = 0.0374 Lbs/Sq Meters.

Lbs. Applied      Dosage =      Lbs/Sq Meters.

# STATE OF ALASKA

## DEPARTMENT OF FISH AND GAME

STEVE COWPER, GOVERNOR

333 RASPBERRY ROAD  
ANCHORAGE, ALASKA 99518-1599  
PHONE: (907) 344-0541

### EXXON Valdez Oilspill Cleanup

### Anadromous Fish Stream Authorization

Date JULY 11, 1990

EXXON Authorized Representative J. A. Diaz

Shoreline Segment KN-500B

Anadromous Fish Stream Number(s) 226-10-18996 <sup>16996</sup>

APPROVED CLEANUP METHODS ARE TO BE IN ACCORD-  
ANCE WITH THE ANADROMAT WORK PLAN ADDENDUM PREPARED  
BY THE TAG ON JULY 11, 1990, IN WHICH IT IS STIPULATED  
THAT THE ENTIRE AREA TO BE BIOREMEDIATED WILL  
BE MECHANICALLY TILLED BEFORE APPLYING CUSTOMBIEN  
AND/OR INIPOL. BOTH TILLING AND BIOREMEDIATING ARE  
AUTHORIZED TO BE APPLIED UP TO THE STREAM  
BANK, PROVIDED THAT SPAWNING SALMON ARE NOT PRESENT  
IN THE STREAM.

Approved Cleanup Period JULY 11, 1990 THROUGH  
JULY 21, 1990

Alaska Department of Fish and Game

John R. Morrison  
Authorized Officer 7-11-90

R. A. Ensign  
Permittee's Signature

Approved Cleanup techniques have been reviewed and complied

with: J. A. Diaz 7/20/90  
EXXON Authorized Field Representative

Date 20 July 1990

Squad # 4

Segment Kn-500B

Adec monitor - Chris  
Strand

USCG monitor mk2

Mulligan

Exxon supervisor

TONY

Diaz

This is a USCG Report written for the Report filled by Adec monitor Chris Strand on an incident that happen on Segment Kn-500B At Aprox. 1856.

At Aprox 1856 hrs Veco workers began spraying Inopol to the northwest corner of Kn500B, Adec monitor mentioned above, observed worker Chuck Buffington, spraying what he may beleive to be either water or Inopol to a band  $1\frac{1}{2}'$  to  $2\frac{1}{2}'$  Aprox from water line, the tide rose inland in aprox 10 minutes observed white milky-foamy bubble collecting at occulating tidal line.

Adec monitor later on after segement was completed, talked to Exxon Supervisor TONY Diaz and told him of the problem observed, and that he was going to file a Report of violation of application of Inopol. to his home office along with his nightly Report of this Segment.

I feel as a role of the Adec monitor

for the summer 90 Valdez Clean-up is clearly stated. to monitor clean-up to observe and to correct problems along with the help ~~of~~ <sup>of</sup> the uscg monitor on that Segment.

Before leaving that ~~the~~ <sup>Beach</sup> Adec monitor is to at that time ~~to~~ express his concerns of problems observed and get them corrected in a timely manner, to prevent problems down the road.

Not to wait until we get back to vessel in which they are staying and mention a report or Violation to something that happens on the beach or Segment that day.

Its poor monitoring, its not keeping the uscg monitor informed on whats going on.

Unfortunately I was not at the scene of the incident its not first case in this Squad of a problem like this happening.

I informed cdmr perry on 20<sup>th</sup> July 1990 of an incident happening on another Segment, I also informed him of the fact that the monitors had work the problem out.

I talked with Chris Strand Adec monitor at aprox. 2145 on 20 July 1990 that he needs to get with me when he ~~see's~~ <sup>sees</sup> a problem so we can correct it. It right now is affecting the trust between monitors and Exxon in getting this spill cleaned up.

Request some advise on this problem.

(+) mka mulligan uscg monitor squad #4  
1990 2315 hrs

pg 1 of 2

Drafted by Chris Strand - ADEC Cleanup Monitor (July 20, 1990)  
for: specific request of USCG monitor Vince Mulligan

General Report of Bioremediation Assessment Team, Arctic Salvor, Squad #4, at subsegment KN-500B. As per work order, crews killed surface/subsurface areas with mechanical John Deere tractor and manual raking, then broed areas with sun cruiser Inipol applicator and Customblen spreader. Customblen application was completed properly. Inipol application 98+% properly completed with exception of lowest stretch at northwest corner of beach. This was the start of the second and final spray area for segment. Morning tides prevented application until evening low tide. At the change of tide (1840, 3.5 ft.), water line was ~5m above (horizontally) the lowest of marked bio areas, and final billing allowed water to rise slightly until initial spraying began at 1856. I observed application from bedrock wall, ~30m upwind and ~5m above site. Initial spray was blind to my vantage, although I observed spray/mist floating from behind intervening bedrock outcrop. The sprayer came into view spraying approximately 15 seconds later applying spray between 1.5 feet and 2 feet from shore/tide water interface, and continued in this manner for length of ~20m section parallel to water line. I never observed spray enter water. I further cannot attest to the fact that the spray

was either water, Inipol, both, or other, I did mark points on beach, and estimated 2 feet of tide rose inland in ten minutes, at which point a white foam/bubbles collected along oscillating tidal line (~1.5 inch variance), and border water turned milky along  $\frac{1}{3}$  (southern) of stretch. After this, application went up beach, and I noted at least 80m of hose deployed. When I asked crewmen of hose condition afterwards, I was informed that initial spraying had begun with water in line, and approximately twice length of line observed was in use.  $\perp$

C. Thier Stnd 7/20/90

M/V ARCTIC SALVOR  
SQUAD #4 (BIO)TO: EXXON OPERATIONS  
BILL STILLINGS

DATE: 7/20/90

FROM: TONY DIAZ

SUBJECT: TREATMENT OF KN-500B

On Friday, July 20, 1990 the Bio team from the Arctic Salvor treated the anadromous stream subdivision of KN-500B. This subdivision was a wide tidal flat that had a small stream running down the middle. The work order called for mechanical tilling and bioremediation. The subdivision was tilled with a small John Deere bulldozer with ripper attachment borrowed from the Columbia and then bioremediated with my squad's equipment. All treatment of the subdivision took place according to the work order and without incident until the last section was ready to be sprayed.

Low tide occurred at 6:40 and the beach to be treated had just been tilled. I directed the Veco supervisor to start the inipol treatment from on the rising tide from the bottom up. The top of the treatment area was about 80 meters from the low tide mark, so a large amount of hose was necessary. When the airless sprayer started, a large amount of water had to clear the line before inipol began to spray. The Veco crew at first sprayed water against a bedrock outcrop and then began to work their way across the low tide area parallel to the water line with the direct spray from my perspective (about 70' away directly opposite on the other side of the stream bed) reaching about 2'-3' away at first and then further away as they made their way down the beach. Water at this point still appeared to be coming from the hose judging from the fine mist present which is not typical of inipol. I then directed my attention to LCDR Perry (Scot Commander) who was on scene to answer a question. When I directed my attention back to the inipol application, the spray crew was on their next line up the beach a good 10'-15' from the water and inipol was clearly being sprayed at this time. The area was treated with no problems.

At the end of the treatment while preparing to leave for the berthing vessel, the ADEC monitor, Mr. Chris Strand, asked me how close I thought the spray came to the water. I answered that at the start when water was being sprayed that it was about two feet, but with no direct spray going into the water, and that by the time I noticed inipol being sprayed the crew was well above the water line. Chris then informed me he intended to file a violation notice with his agency that we came within the prescribed standoff from the water when applying inipol which is 10'. I told Chris that I did not see any direct spray into the water, and that by the time it took the inipol to reach the spray wand over a course of 80' of hose that the crew was probably finished with the first line of spray anyway. I further informed him that he was being very nitpicky (which is not typical of him - we have worked together before). He told me he knew it was, but that he (quote) "had no choice since so many cameras were on the beach today". Monitors from ADFG, DNR, Pam Keyes from ADEC, and the USCG Scot commander were all present at the treatment site the

## WORK PLAN ADDENDUM

Segment KN 500

Subdivision B

Dated 7/11/90.

## MODIFICATION

## 1. REASON FOR MODIFICATION

- TAG RECOMMENDATION FOR SECONDARY TREATMENT

## 2. ADJUSTMENT TO WORK PLAN

- REAPPLICATION OF BIOREMEDIATION RECOMMENDED FOR THE AREA WITH REMAINING DIL AS INDICATED ON ATTACHED SKETCH. ADFHC HAVE APPROVED INIPOL APPLICATION FOR THE ENTIRE BEACH AREA PRIOR TO SALMON SPAWNING (PERMIT REQ'D). IN PREPARATION FOR THE INIPOL APPLICATION, MECHANICALLY TILL THE ENTIRE AREA WHERE APPLICATION TO OCCUR. DURING TILLING REAPPLY CUSTOMBLAN. LOCATE SNARE BOOM ON THE BEACH TO RECOVER ANY FREE OIL. (SEE ATTACHED SKETCH)

SHPO APPROVAL NEEDED YES \_\_\_\_\_  
NO X

SHPO SIGNATURE

TAG APPROVAL DATE 7/11/90 JD

ADEC JOHN BAUER John Bauer

EXXON ANDY TGAZ ~~11~~

FOSC) \_\_\_\_\_ DATE \_\_\_\_\_

NOAA *Burl Wescott Burl Wescott*

USCG G.A. REITER G.A. Reiter

# STATE OF ALASKA

## DEPARTMENT OF FISH AND GAME

STEVE COWPER, GOVERNOR

333 RASPBERRY ROAD  
ANCHORAGE, ALASKA 99518-1599  
PHONE: (907) 344-0541

### EXXON Valdez Oilspill Cleanup

### Anadromous Fish Stream Authorization

Date JULY 11, 1990

EXXON Authorized Representative \_\_\_\_\_

Shoreline Segment KN-500B

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IN THE STREAM.

Approved Cleanup Period JULY 11, 1990 THROUGH  
JULY 21, 1990

Alaska Department of Fish and Game

John A. Morrison  
Authorized Officer 7-11-90

\_\_\_\_\_  
Permittee's Signature

Approved Cleanup techniques have been reviewed and complied  
with: \_\_\_\_\_

EXXON Authorized Field Representative

## WORK PLAN MODIFICATION RECOMMENDATION

SEGMENT KN500

SUBDIVISION B

DATE July 8, 1990

ANADROMOUS STREAM CATALOG NUMBER:

226-10-16996

### MODIFICATION

#### 1. REASON FOR MODIFICATION

Tilling of this anadromous stream site was incomplete during the time of treatment. Further treatment will be beneficial to removing and degradation oiled sediments from this salmon spawning area.

#### 2. SUGGESTED ADJUSTMENT TO WORK PLAN

Mechanically till and customblen remaining untreated areas to aerate and expose buried oiled sediments.

#### 3. TIMING ISSUES

July 10, 1990 salmon spawning restriction. (It is likely that salmon will not move into this area until late July or early August according to ADF&G observations last summer.)

ADEC\_\_\_\_\_

EXXON\_\_\_\_\_

USCG\_\_\_\_\_

LAND MANAGER\_\_\_\_\_ (if field rep is on scene)

## WORK PLAN MODIFICATION RECOMMENDATION

SEGMENT KNS00 SUBDIVISION B DATE July 8, 1990

ANADROMOUS STREAM CATALOG NUMBER: 226-10-18996

## MODIFICATION

## 1. REASON FOR MODIFICATION

Tilling of this anadromous stream site was incomplete during the time of treatment. Further treatment will be beneficial to removing and degradation oiled sediments from this salmon spawning area.

USCG

Further treatment not necessary. Snare boom should be replaced as necessary until sheen is subsided.

## 2. SUGGESTED ADJUSTMENT TO WORK PLAN

Mechanically till and customblen remaining untreated areas to aerate and expose buried oiled sediments.

USCG

The remaining untreated areas are substantially unoiled, therefore tilling is not necessary.

## 3. TIMING ISSUES

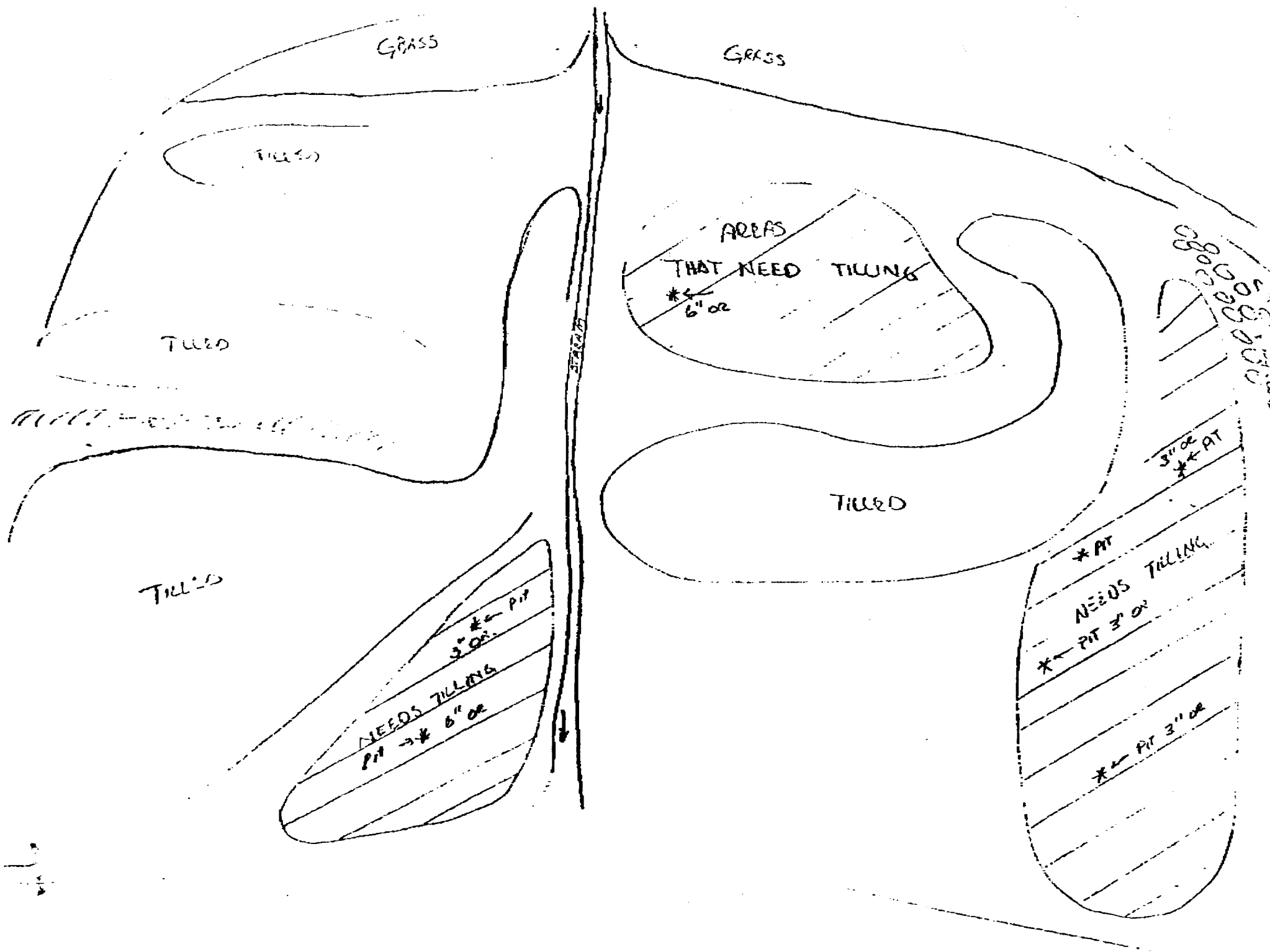
July 10, 1990 salmon spawning restriction. (It is likely that salmon will not move into this area until late July or early August according to ADF&G observations last summer.)

ADEC Paul Tom Cone (ADF&G)

EXXON \_\_\_\_\_

USCG Thomas R. Ruff, LCDR FF

LAND MANAGER \_\_\_\_\_ (if field rep is on scene)



TO: Dale Gardener  
DEC  
M/V Corinthian

FROM: Tom Crowe  
ADF&G  
M/V Corinthian

DATE: July 7, 1990

SUBJECT: Tilling at KN500B

I arrived with Rick Gustin today to monitor the tilling at and anadromous stream segment KN500B. A small tractor with a rake drag was to be used to till the oiled sediments. When we arrived only a small part of the oiled area had been tilled. Rick asked Rey Sotelo (EXXON squad leader) why they were not tilling the rest of the beach. To our surprise Rey told us that they were getting ready to demobe. We approached the Scott Thomas (Coast Guard rep.) find out why he had stopped the tilling. His answer was that his orders were not to "tear up the beach". We asked him how he thought that tilling was tearing up the beach. His reply was that he did not want to talk further with us and if we had a concern we would have to talk to the DEC monitor Wes Ghormly. After talking to Wes we managed to get Scott Thomas to agree to tilling more of the beach. However a large part of the beach that would have benefitted from tilling did not receive it because Scott Thomas did not feel that the oiling was severe enough, even though this determination had already been decided by the TAG and the work order was specific to the extent of the oiling.

After talking to the tractor operator I discovered that Bill Stillings (EXXON Rep.) had walked him through the beach and told him to rake entire area covered by the work order. Ray Sotelo was also willing to comply with our wishes to use the tiller where applicable. The only hold up to completing any meaningful work was the Coast Guard monitor who stopped it.

The concern that tilling or raking was "tearing up the beach" was completely unfounded. This fine gravel beach is perfectly suited for this type of treatment. The rake did exactly what it was designed to do which was rake and break up the oiled sediments, oxygenate and expose oiled gravel. The fine sand and gravel was not moved other than just brought to the surface. Tearing up the beach was obviously not an issue. What was at issue was the deliberate attempt by the Coast Guard to stop beneficial and previously approved cleanup.

July 13, 1990  
Rick Gustin  
Salmon Stream Report  
KN500B Knight Island  
ASC#226-10-16996

Work began here on July 6 at the same time that KN500A was being worked across the point north. Again it was the crew of the Buella Candies with Rey Satella Exxon, Scott Thomas USCG, Wess Ghormley ADEC, Tommy Smith OOPS and myself. The work had begun here about 0745 halfway through the flood. I arrived around 0800 and the crews were hand tilling with the rising tide. Areas on the north side of 500B had large tarmats with oil penetrating 25 to 30 cm. deep beneath. As the crews tilled these areas they were hitting a band of heavy OR and OP at a depth of 6 to 8 inches. This band was anywhere from 3 to 10 inches thick. I asked Rey if they could manually remove this as they tilled and he said yes, but they were waiting for the buckets and 4 wheeler to arrive. It became apparent that the tide was coming in so fast that they would not get the chance to remove any of the sediments, so we agreed that when the cat arrived, we would skim off the heavy OR and OP at that time. The crews worked ahead of the rising tide and snare boom was deployed. Heavy sheening was observed.

July 7

When I arrived on scene the bulldozer had already been tilling for an hour or so. The heavy OR and OP sediments being turned up were not being removed however. Larry Fletcher of the USCG had instructed the Exxon rep to leave them. He has stated many times in the past that he does not believe in manual removal of oiled sediments and exercised his power here by stating that the sediments here were not heavy OR or OP. This is untrue, however the time to remove the sediments was as the tilling occurred. Now that they have been washed by 4 or 5 tides, the heavy OR and OP has been spread over the entire beach and is not practically recoverable. Later in the day after Larry Fletcher left his monitor Scott Thomas refused to allow the entire oiled area to be tilled saying he thought we were tearing the beach up too much. Since the cleaning of this salmon stream was being hindered so much by the USCG we had no other alternative but to bump it up to TAG for a decision. The areas tilled with the bulldozer were customblen'd and tilled again to get the fertilizer deeper into the ground.

July 10

Tag met here at KN500B today to discuss further mechanical tilling of the beach on either side of the stream. Tag consisted of Gary Reiter USCG, Andy Teal Exxon, Tom Rielly USCG, John Morrison ADFG, Larry Fletcher USCG, and Burl Wescott NOAA. After looking the beach over everyone except Gary Reiter USCG suggested doing more tilling. What can I say.

# STATE OF ALASKA

## DEPARTMENT OF FISH AND GAME

STEVE COWPER, GOVERNOR

333 RASPBERRY ROAD  
ANCHORAGE, ALASKA 99518-1599  
PHONE: (907) 344-0541

### EXXON Valdez Oilspill Cleanup

### Anadromous Fish Stream Authorization

Date 6/14/90

EXXON Authorized Representative \_\_\_\_\_

Shoreline Segment KN-500B

Anadromous Fish Stream Number(s) 226-10-1699<sup>6</sup>

Approved Cleanup Techniques are to be in accordance with the AnadScat stream work order approved by the FOSC with special emphasis on manual removal of all oil of any form within the stream channel and bottom substrate, and on the stream banks within the high water limits. Minimize removal of stream bank substrate and surface components to that required for removing oiled materials.

Approved Cleanup Period 5/15/90 to 7/10/90

Alaska Department of Fish and Game

[Signature]  
Authorized Officer

[Signature]  
Permittee's Signature

Approved Cleanup techniques have been reviewed and complied with: \_\_\_\_\_

EXXON Authorized Field Representative

Date \_\_\_\_\_

## ADEC DAILY SHORELINE ASSESSMENT

LOCATION: Knight Island SEG KN-500 SUBSEG AMONITOR(S): Wesley GhormleyDATE: 7/5/90TIME: BEGIN 1500 END 1930

TIDES: TIME: HEIGHT:

LOW 6:50 0.0HIGH ... ...LOW 6:31 4.6HIGH 11:29 9.0WEATHER: CLOUDY RAIN FOG SUNTEMP: 55° SEA COND: CalmWIND DIR: N-NE-E-SE-S-SW-W-NWWIND SPEED (KNOTS): 0-15 16-30 30+

ENVIRONMENTAL CONSTRAINTS: (SEAL HAULOUTS, EAGLE NESTS, MUSSEL BEDS, ETC.) ADF-G ANADYOMOUS Stream # 226-10-16992, Fry outmigration 3/1-5/15, Spawning 7/10-8/31, Active Eagle Nest 3/1-9/1, Recreation: Special use destination  
Avoid damage to unopened biota.

WAVE EXPOSURE: LOW MED HIGH  
 ACROSS SHORE ZONE: SU UITZ MITZ LITZ

SURFACE SEDIMENTS: R - B - C 20 P 20 G 60 S -SUBSURFACE SEDIMENTS: R - B - C 10 P 30 G 30 S 30

## OIL CHARACTERISTICS

SURFACE: POOLED - MOUSSE - TARBALL - COVER - COAT - STAIN Asphalt  
 SUBSURFACE: OP OR - OF

## TREATMENT TECHNIQUES

MANUAL RAKING/TILLING

MANUAL REMOVAL: PO-MS-AP-TB

SPOT WASHING

OTHER

HEADER FLOOD (HOT/COLD)

BIOREMEDIATION

MECHANICAL

EQUIPMENT USED: ShovelsNAMES OF REPS & OTHER AGENCIES: EXXON Rey SaleoUSCG Scott ThomasOTHER: USFWS Dong StineWORKERS ON SITE: ORTS 4

OTHER:

## WASTE HANDLING/DISPOSAL

ITEMS USED TO ABSORB/CONTAIN OIL Plastic "Geo" bags

# OF BAGS COLLECTED:

OILED DEBRIS 2 smallOIL & SEDIMENTS 1/10OILED VEG. 1 smallOILED LOGS PRESENT: Y N# OF LOGS REMOVED None\* Exxon measures in SuperSacks.

4/20/90

## PHOTO/VIDEO DOCUMENTATION

PHOTOGRAPHS: ROLL #      FRAME(S):      REASON:     VIDEO: TAPE #      REASON:     

## COMMENTS

PROBLEMS: ENFORCEMENT ACTIVITIES, UPLAND CONT., ETC.

(PLEASE NOTE IF PROBLEM WAS DISCUSSED WITH PROPER AUTHORITY,  
AND SUBSEQUENT RESPONSE.)

1. There is a tremendous amount of black, pooled, liquid mobile oil present subsurface. A work modification will be made out.

OBSERVATIONS: TREATMENT EFFICIENCY, POSSIBLE IMPROVEMENTS, ETC.

1. Tar mats removed, area filled w/ black mobile pooled oil.
2. 2 oiled spare rooms were removed, along with a large bag of trash.
3. Area has a tremendous amount of black pooled oil subsurface. Oil lens is approx 15 cm.
4. Area needs to be mechanically ripped: oil brought to surface to be picked up.
5. Area is very feasible to use a rock washer & dredge, there is a tremendous amount of heavy, mobile oil present subsurface.

SIGNATURE

# ANADROMOUS FISH STREAM EVALUATION ADDENDUM

CONSTRAINTS FOR STREAM NO. 226-10-16996

SEGMENT KN-500 SUBDIVISION B

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## WORK WINDOW

---

Manual Pickup and Tarmat Removal  
Less Than 400m From Active Nest

**CLOSED**

Bioremediation, Manual Tilling, and Manual Raking  
Less Than 400m From Nest and  
Less Than 100m From Stream

**CLOSED**

---

### ARCHAEOLOGICAL STANDARD CONSTRAINT

If cultural resources are uncovered, PHONE 564-3274.

### APPLICABLE ECOLOGICAL TIME CONSTRAINTS

1A,1B Salmon Stream

ADF&G catalogued anadromous stream (226-10-16996) is in Subdivision B. This subdivision is closed to bioremediation, manual tilling and manual raking less than 100m from stream 7/10 to 8/31. Before 7/10, bioremediation, manual tilling, and manual raking are permitted less than 100m from stream with on-site ADF&G monitor or ADEC alternate present. No constraint to bioremediation, manual tilling, and manual raking more than 100m from stream. No constraint to manual pickup and tarmat removal.

5T Bald Eagle Nest

USFWS 6/1/90 map indicates an active nest in Subdivision B. Closed to manual pickup, tarmat removal, bioremediation, manual tilling, and manual raking within 400m of active nest. No constraint to manual pickup, tarmat removal, bioremediation, manual tilling, and manual raking more than 400m from active nest.

### OTHER ECOLOGICAL CONSIDERATIONS

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

**SEE SUBDIVISION CONSTRAINT ADDENDUM KN-500B  
FOR ADDITIONAL CONSTRAINT INFORMATION.**

FOSC

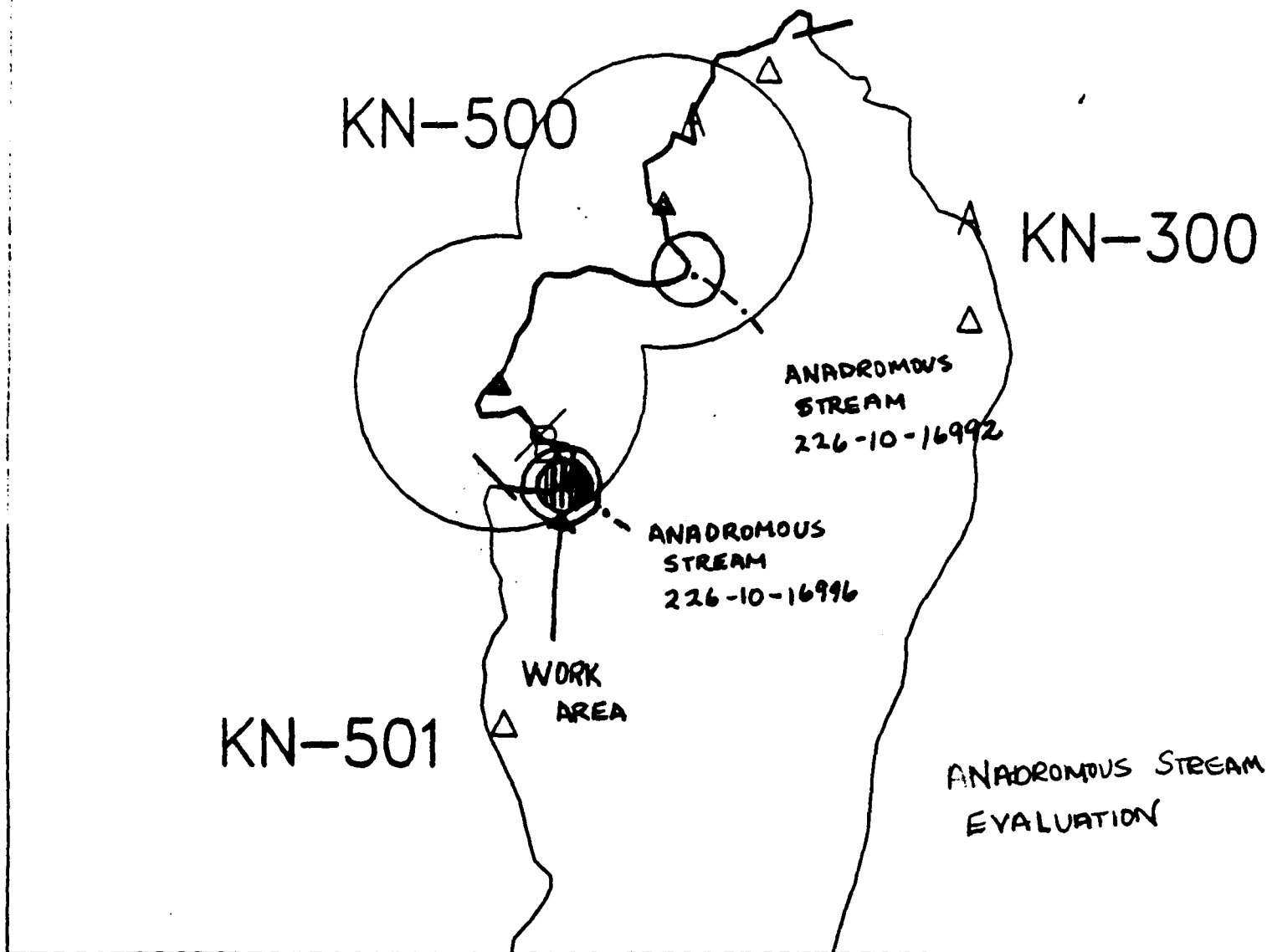
Date

6-12-90

Prepared by

Date

6/11/90



Exxon Company, USA  
Map Key: PMS-KN-500  
June 09, 1990



ECOLOGY MAP  
SEGMENT KN-500  
SUBDIVISION B (1 of 2)  
METERS  
0 452 903

- ★ Seabird Colony
- ▲ Active Eagle Nest
- △ Inactive Eagle Nest

1 inch = 1482 feet

SEGMENT ST/ KN-500 B STRI NO: 226-10-16996 DATL 4/24/90

**SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:**

Subject stream and 226-10-16992 (Ps, 2/90)

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

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

5T-2 All bald eagle nests (3/1 to 6/1)-Active eagle nests (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. Subject stream is located within Subdivision B (2 of 2).

**ARCHAEOLOGICAL CONSTRAINTS:**

If cultural resources are uncovered during shoreline treatment, stop work in the vicinity, mark the location of the find and contact a member of Exxon's Cultural Resource Program immediately (564-3657; 564-3658 or 564-3276).

SHPO SIGNATURE: [Signature] DATE: 5/10/90

Subsurface Oil Observed: Yes X No      Maximum Depth 30+ cm

**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

X\* Other (see comments)

COMMENTS: Recommended treatment includes 1) manual removal of tarmats, 2) manual pickup of mousse patties and oiled debris, 3) manual tilling of area with subsurface oil, and 4) bioremediation of areas shown on attached sketch map. Work should be conducted between 6/1 and 7/10 based on salmon constraints with approval of ADF&G regarding tilling and bioremediation of stream banks.

SEE ADDENDUM dated 6/11/90  
CONSTRAINTS

TAG COMMENTS: MANUAL TILLING TAKING ADJACENT TO + WITHIN  
THE STREAM BED AS INDICATED ON THE SKETCH.

TAG APPROVAL DATE: 5/10/90

ADEC [Signature]

EXXON [Signature]

NOAA [Signature]

USCG [Signature]

FOSC: [Signature] DATE: 5-15-90

## ANADROM 3 FISH STREAM EVALUATION

SEGMENT ST/ KN-500 B STREAM NO: 226-10-16996 DATE 4/24/90

## SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:

Subject stream and 226-10-16992 (Ps, 2/90)

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

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

5T-2 All bald eagle nests (3/1 to 6/1)-Active eagle nests (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 unoiled biota and substrate. Subject stream is located within Subdivision B (2 of 2).

## ARCHAEOLOGICAL CONSTRAINTS:

If cultural resources are uncovered during shoreline treatment, stop work in the vicinity, mark the location of the find and contact a member of Exxon's Cultural Resource Program immediately (564-3657; 564-3658 or 564-3276).

SHPO SIGNATURE: [Signature] DATE: 5/10/90Subsurface Oil Observed: Yes X No        Maximum Depth 30+ cm

## RECOMMENDATIONS:

       No Treatment RecommendedX Treatment RecommendedX Manual PickupX BioremediationX Tarmat Removal       Snare/Absorbent Booms       Oil Snares (pom poms)       Absorbents (pads, rolls, etc)       Spot Washing:        Wands       Beach CleanerX\* Other (see comments)

COMMENTS: Recommended treatment includes 1) manual removal of tarmats,  
2) manual pickup of mousse patties and oiled debris, 3) manual tilling  
of area with subsurface oil, and 4) bioremediation of areas shown on  
attached sketch map. Work should be conducted between 5/1 and 7/10  
based on salmon constraints with approval of ADF&G regarding tilling  
and bioremediation of stream banks.

TAG COMMENTS: MANUAL TILLING RAKING ADJACENT TO + WITHIN  
THE STREAM BED AS INDICATED ON THE SKETCH.

TAG APPROVAL DATE: 5/10/90ADEC ART WEINEREXXON ANDY TEALNOAA Burt WescottUSCG D.D. ROMEFOSC: [Signature] DATE: 5-15-90

03 CAL LARSON  
 SEGMENT ST/ KAS04

# SKETCH MAP

STATION 226-10-10776

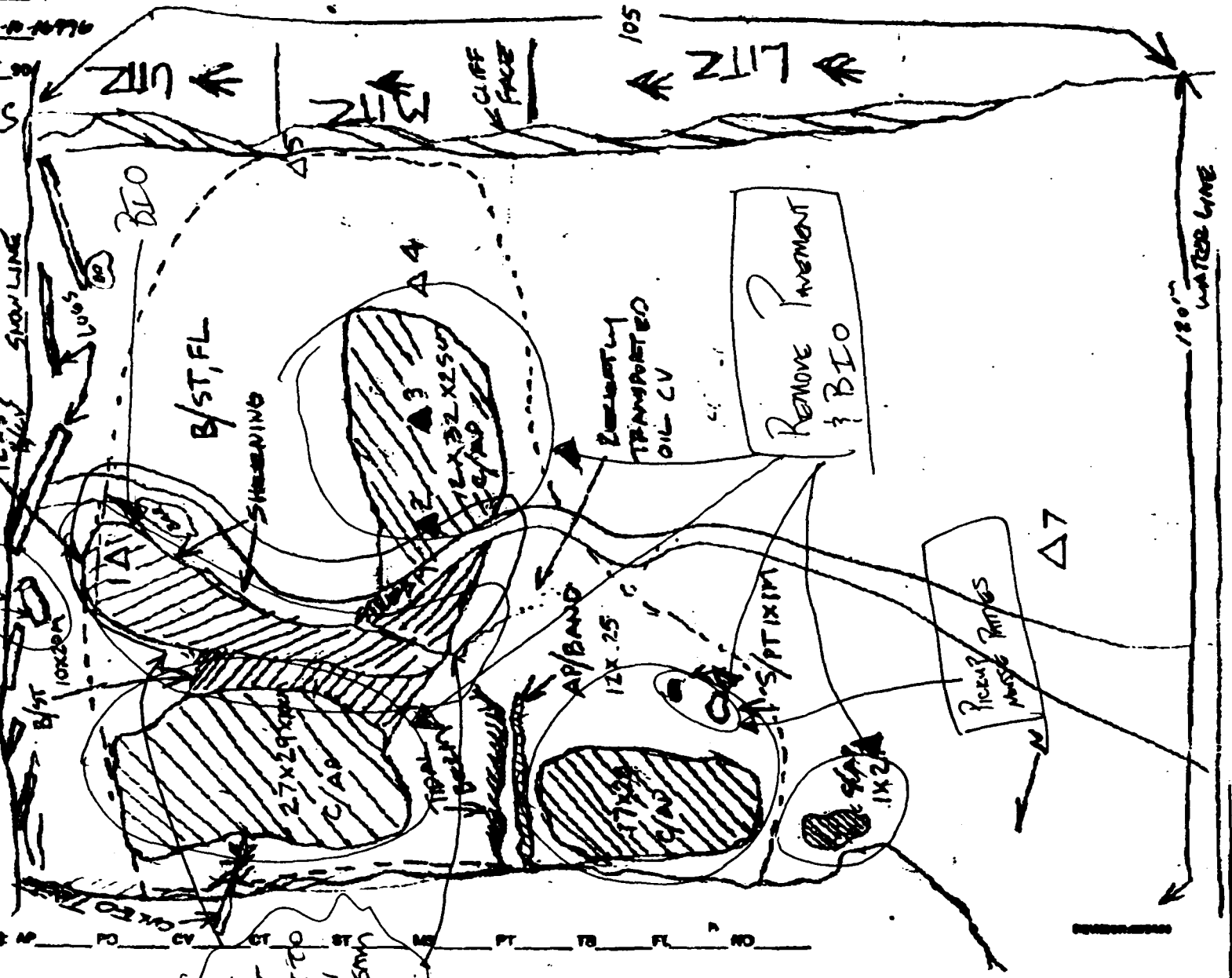
DATE 1/24/90

## CHECKLIST

- Map Area
- Approx. Date
- Sketch Scale
- On Site
- Width
- Length
- to Cover
- Sketches/Drawings
- Est. MRL/VL
- SW
- Profile Location(s)
- Photo(s)
- Photo Location(s)
- Photo Location(s)

## LEGEND

- 1. A
- 2. B
- 3. C
- 4. D
- 5. E
- 6. F
- 7. G
- 8. H
- 9. I
- 10. J
- 11. K
- 12. L
- 13. M
- 14. N
- 15. O
- 16. P
- 17. Q
- 18. R
- 19. S
- 20. T
- 21. U
- 22. V
- 23. W
- 24. X
- 25. Y
- 26. Z
- 27. AA
- 28. AB
- 29. AC
- 30. AD
- 31. AE
- 32. AF
- 33. AG
- 34. AH
- 35. AI
- 36. AJ
- 37. AK
- 38. AL
- 39. AM
- 40. AN
- 41. AO
- 42. AP
- 43. AQ
- 44. AR
- 45. AS
- 46. AT
- 47. AU
- 48. AV
- 49. AW
- 50. AX
- 51. AY
- 52. AZ
- 53. BA
- 54. BB
- 55. BC
- 56. BD
- 57. BE
- 58. BF
- 59. BG
- 60. BH
- 61. BI
- 62. BJ
- 63. BK
- 64. BL
- 65. BM
- 66. BN
- 67. BO
- 68. BP
- 69. BQ
- 70. BR
- 71. BS
- 72. BT
- 73. BU
- 74. BV
- 75. BW
- 76. BX
- 77. BY
- 78. BZ
- 79. CA
- 80. CB
- 81. CC
- 82. CD
- 83. CE
- 84. CF
- 85. CG
- 86. CH
- 87. CI
- 88. CJ
- 89. CK
- 90. CL
- 91. CM
- 92. CN
- 93. CO
- 94. CP
- 95. CQ
- 96. CR
- 97. CS
- 98. CT
- 99. CU
- 100. CV
- 101. CW
- 102. CX
- 103. CY
- 104. CZ
- 105. DA
- 106. DB
- 107. DC
- 108. DD
- 109. DE
- 110. DF
- 111. DG
- 112. DH
- 113. DI
- 114. DJ
- 115. DK
- 116. DL
- 117. DM
- 118. DN
- 119. DO
- 120. DP
- 121. DQ
- 122. DR
- 123. DS
- 124. DT
- 125. DU
- 126. DV
- 127. DW
- 128. DX
- 129. DY
- 130. DZ
- 131. EA
- 132. EB
- 133. EC
- 134. ED
- 135. EE
- 136. EF
- 137. EG
- 138. EH
- 139. EI
- 140. EJ
- 141. EK
- 142. EL
- 143. EM
- 144. EN
- 145. EO
- 146. EP
- 147. EQ
- 148. ER
- 149. ES
- 150. ET
- 151. EU
- 152. EV
- 153. EW
- 154. EX
- 155. EY
- 156. EZ
- 157. FA
- 158. FB
- 159. FC
- 160. FD
- 161. FE
- 162. FF
- 163. FG
- 164. FH
- 165. FI
- 166. FJ
- 167. FK
- 168. FL
- 169. FM
- 170. FN
- 171. FO
- 172. FP
- 173. FQ
- 174. FR
- 175. FS
- 176. FT
- 177. FU
- 178. FV
- 179. FW
- 180. FX
- 181. FY
- 182. FZ
- 183. GA
- 184. GB
- 185. GC
- 186. GD
- 187. GE
- 188. GF
- 189. GG
- 190. GH
- 191. GI
- 192. GJ
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- 195. GM
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- 197. GO
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- 199. GQ
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- 201. GS
- 202. GT
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- 206. GX
- 207. GY
- 208. GZ
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- 214. HF
- 215. HG
- 216. HH
- 217. HI
- 218. HJ
- 219. HK
- 220. HL
- 221. HM
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- 223. HO
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- 225. HQ
- 226. HR
- 227. HS
- 228. HT
- 229. HU
- 230. HV
- 231. HW
- 232. HX
- 233. HY
- 234. HZ
- 235. IA
- 236. IB
- 237. IC
- 238. ID
- 239. IE
- 240. IF
- 241. IG
- 242. IH
- 243. II
- 244. IJ
- 245. IK
- 246. IL
- 247. IM
- 248. IN
- 249. IO
- 250. IP
- 251. IQ
- 252. IR
- 253. IS
- 254. IT
- 255. IU
- 256. IV
- 257. IW
- 258. IX
- 259. IY
- 260. IZ
- 261. JA
- 262. JB
- 263. JC
- 264. JD
- 265. JE
- 266. JF
- 267. JG
- 268. JH
- 269. JI
- 270. JJ
- 271. JK
- 272. JL
- 273. JM
- 274. JN
- 275. JO
- 276. JP
- 277. JQ
- 278. JR
- 279. JS
- 280. JT
- 281. JU
- 282. JV
- 283. JW
- 284. JX
- 285. JY
- 286. JZ
- 287. KA
- 288. KB
- 289. KC
- 290. KD
- 291. KE
- 292. KF
- 293. KG
- 294. KH
- 295. KI
- 296. KJ
- 297. KK
- 298. KL
- 299. KM
- 300. KN
- 301. KO
- 302. KP
- 303. KQ
- 304. KR
- 305. KS
- 306. KT
- 307. KU
- 308. KV
- 309. KW
- 310. KX
- 311. KY
- 312. KZ
- 313. LA
- 314. LB
- 315. LC
- 316. LD
- 317. LE
- 318. LF
- 319. LG
- 320. LH
- 321. LI
- 322. LJ
- 323. LK
- 324. LL
- 325. LM
- 326. LN
- 327. LO
- 328. LP
- 329. LQ
- 330. LR
- 331. LS
- 332. LT
- 333. LU
- 334. LV
- 335. LW
- 336. LX
- 337. LY
- 338. LZ
- 339. MA
- 340. MB
- 341. MC
- 342. MD
- 343. ME
- 344. MF
- 345. MG
- 346. MH
- 347. MI
- 348. MJ
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- 354. MP
- 355. MQ
- 356. MR
- 357. MS
- 358. MT
- 359. MU
- 360. MV
- 361. MW
- 362. MX
- 363. MY
- 364. MZ
- 365. NA
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- 368. ND
- 369. NE
- 370. NF
- 371. NG
- 372. NH
- 373. NI
- 374. NJ
- 375. NK
- 376. NL
- 377. NM
- 378. NN
- 379. NO
- 380. NP
- 381. NQ
- 382. NR
- 383. NS
- 384. NT
- 385. NU
- 386. NV
- 387. NW
- 388. NX
- 389. NY
- 390. NZ
- 391. OA
- 392. OB
- 393. OC
- 394. OD
- 395. OE
- 396. OF
- 397. OG
- 398. OH
- 399. OI
- 400. OJ
- 401. OK
- 402. OL
- 403. OM
- 404. ON
- 405. OO
- 406. OP
- 407. OQ
- 408. OR
- 409. OS
- 410. OT
- 411. OU
- 412. OV
- 413. OW
- 414. OX
- 415. OY
- 416. OZ
- 417. PA
- 418. PB
- 419. PC
- 420. PD
- 421. PE
- 422. PF
- 423. PG
- 424. PH
- 425. PI
- 426. PJ
- 427. PK
- 428. PL
- 429. PM
- 430. PN
- 431. PO
- 432. PP
- 433. PQ
- 434. PR
- 435. PS
- 436. PT
- 437. PU
- 438. PV
- 439. PW
- 440. PX
- 441. PY
- 442. PZ
- 443. QA
- 444. QB
- 445. QC
- 446. QD
- 447. QE
- 448. QF
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- 450. QH
- 451. QI
- 452. QJ
- 453. QK
- 454. QL
- 455. QM
- 456. QN
- 457. QO
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- 462. QT
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- 477. RI
- 478. RJ
- 479. RK
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- 482. RN
- 483. RO
- 484. RP
- 485. RQ
- 486. RR
- 487. RS
- 488. RT
- 489. RU
- 490. RV
- 491. RW
- 492. RX
- 493. RY
- 494. RZ
- 495. SA
- 496. SB
- 497. SC
- 498. SD
- 499. SE
- 500. SF
- 501. SG
- 502. SH
- 503. SI
- 504. SJ
- 505. SK
- 506. SL
- 507. SM
- 508. SN
- 509. SO
- 510. SP
- 511. SQ
- 512. SR
- 513. SS
- 514. ST
- 515. SU
- 516. SV
- 517. SW
- 518. SX
- 519. SY
- 520. SZ
- 521. TA
- 522. TB
- 523. TC
- 524. TD
- 525. TE
- 526. TF
- 527. TG
- 528. TH
- 529. TI
- 530. TJ
- 531. TK
- 532. TL
- 533. TM
- 534. TN
- 535. TO
- 536. TP
- 537. TQ
- 538. TR
- 539. TS
- 540. TT
- 541. TU
- 542. TV
- 543. TW
- 544. TX
- 545. TY
- 546. TZ
- 547. UA
- 548. UB
- 549. UC
- 550. UD
- 551. UE
- 552. UF
- 553. UG
- 554. UH
- 555. UI
- 556. UJ
- 557. UK
- 558. UL
- 559. UM
- 560. UN
- 561. UO
- 562. UP
- 563. UQ
- 564. UR
- 565. US
- 566. UT
- 567. UY
- 568. UZ
- 569. VA
- 570. VB
- 571. VC
- 572. VD
- 573. VE
- 574. VF
- 575. VG
- 576. VH
- 577. VI
- 578. VJ
- 579. VK
- 580. VL
- 581. VM
- 582. VN
- 583. VO
- 584. VP
- 585. VQ
- 586. VR
- 587. VS
- 588. VT
- 589. VU
- 590. VV
- 591. VW
- 592. VX
- 593. VY
- 594. VZ
- 595. WA
- 596. WB
- 597. WC
- 598. WD
- 599. WE
- 600. WF
- 601. WG
- 602. WH
- 603. WI
- 604. WJ
- 605. WK
- 606. WL
- 607. WM
- 608. WN
- 609. WO
- 610. WP
- 611. WQ
- 612. WR
- 613. WS
- 614. WT
- 615. WU
- 616. WV
- 617. WW
- 618. WX
- 619. WY
- 620. WZ
- 621. XA
- 622. XB
- 623. XC
- 624. XD
- 625. XE
- 626. XF
- 627. XG
- 628. XH
- 629. XI
- 630. XJ
- 631. XK
- 632. XL
- 633. XM
- 634. XN
- 635. XO
- 636. XP
- 637. XQ
- 638. XR
- 639. XS
- 640. XT
- 641. XU
- 642. XV
- 643. XW
- 644. XX
- 645. XY
- 646. XZ
- 647. YA
- 648. YB
- 649. YC
- 650. YD
- 651. YE
- 652. YF
- 653. YG
- 654. YH
- 655. YI
- 656. YJ
- 657. YK
- 658. YL
- 659. YM
- 660. YN
- 661. YO
- 662. YP
- 663. YQ
- 664. YR
- 665. YS
- 666. YT
- 667. YU
- 668. YV
- 669. YW
- 670. YX
- 671. YY
- 672. YZ
- 673. ZA
- 674. ZB
- 675. ZC
- 676. ZD
- 677. ZE
- 678. ZF
- 679. ZG
- 680. ZH
- 681. ZI
- 682. ZJ
- 683. ZK
- 684. ZL
- 685. ZM
- 686. ZN
- 687. ZO
- 688. ZP
- 689. ZQ
- 690. ZR
- 691. ZS
- 692. ZT
- 693. ZU
- 694. ZV
- 695. ZW
- 696. ZX
- 697. ZY
- 698. ZZ



MANUAL  
 TILLING  
 ADJACENT TO  
 + WITHIN  
 THE STREAM

Q

00 Character Length (ft) AP PD CV CT ST ME PT TB FL NO

FRAME(S)

DESCRIPTION

|        |           |                            |
|--------|-----------|----------------------------|
| pit #1 | 20cm deep | no visible oil             |
| pit #2 | 15cm      | seen in water at bottom    |
| pit #3 | 32cm      | 10cm oil deep surface down |
| pit #4 | 25cm      | no oil                     |

## 40 OIL DISTRIBUTION DIAGRAM



Sample taken  
photo frame # and  
snow direction.

1A, 1B  
5T (2)  
6Y

## 1:63 360 SERIES (TOPOGRAPHIC)

(SEWARD C-2)



BALD EAGLE  
NESTS  
(2 IN SEQUENCE)  
KN-500

PWS  
367B

KN-500A

- southern boundary of ST/KN-500A

SUBJECT STREAM  
LOCATED IN KN-500B  
(2 of 2)

XXXX Wide

//// Medium

--- Narrow

TTTT Very Light

0000 No Oil

KN-500A

ADEC Segment Length: 2554m



Map Key: PWS-367a

Name: Sawyer

Date: Apr. 8, 1990

Date Entered:

KEN MILLER  
LINDA HVCE

MAR. 14 Hanna Cove.  
16 Small Venture

ASK ABOUT EAGLE SET BAIL  
CALL TODAY

HOW CLOSE CAN THEY WORK TO SALMON  
THEY ARE VERY FLEXIBLE. STREAM

ADF&G MULTI-ASSESSMENT DATA FORM

1 SURVEY TYPE: BS SS DS TS AVS SCHA MMHS PTA

2 REGION: PWS KP, CI K, AP

METHOD: Aerial Ground Boat

3 DATE: 4-24-90

15 HIGH TIDE TIMES: 1

21 TEAM RECORDER: R. Gustin

4 START TIME: 0807

16 HIGH TIDE HTS: 1

22 OBSERVERS: A. Weseman

5 STOP TIME: 0942

17 LOW TIDE TIMES: 1

23 AGENCY: ADF&G

6 SEGMENT #: KN-5005

18 LOW TIDE HTS: 1

24 PHOTOS TAKEN: Y 80

7 STATION #: BATH

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: S-B-3

Start: 070 End: 0209

10 LAT:

11 LONG:

26 SAMPLES TAKEN? Y N Number

12 SOURCE: Map Loran

Oil

13 LOCATION: NW side Knight I

Sediment

14 DESCRIPTION: West Coast Knight outside Henning Bay

Biological

Water

EXTENT OF OIL

27 SURFACE COVERAGE

| SHORELINE |   |                |   | STREAM |   |                |   |
|-----------|---|----------------|---|--------|---|----------------|---|
| L         | W | M <sup>2</sup> | % | L      | W | M <sup>2</sup> | % |
|           |   |                |   |        |   |                |   |

36 CATALOGED ANAD. FISH SREAM? Y N

37 CATALOG #: 226-10-16996

38 STREAM NAME:

28 SURFACE THICKNESS

|       |      |     |  |               |  |  |  |
|-------|------|-----|--|---------------|--|--|--|
| 2-3cm |      |     |  |               |  |  |  |
| 4cm   | 18cm | 30+ |  | shells in bed |  |  |  |

39 OIL IN STREAM BED? Y N

40 OIL ON STREAM BANKS? Y N

30 OVERALL OIL IMPACT: N VL L M H

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

42 OIL WITHIN 1 MILE OF STREAM? Y N

31 OIL TYPE: Pooled Mousse Tar Asphalt Sticky Stain

Where:

32 OILED DEBRIS? Y N

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

43 ANADROMOUS FISH PRESENT? Y N

34 WAVE EXPOSURE: High Moderate Low

44 ANADROMOUS FISH OBSERVATION  
Species Aerial Ground

35 SUBSTRATE TYPE: Bedrock  Boulder 5% Cobble 70  
Gravel 20 Sand 5 Mud/silt

| Species | Aerial | Ground |
|---------|--------|--------|
|         |        |        |
|         |        |        |
|         |        |        |
|         |        |        |

COMMENTS: Oil heavily in North side spots (upper LITZ) mid ITZ  
center of cove near stream upper ITZ oil mats + oil along stream.  
South side of cove upper ITZ large tar mats / light oiled boulder.  
mid ITZ south side tar mat (210 feet 2/3 length of stream channel  
oiled down to water) Tide - 1.?

W & to be completed dur, tide window  $\odot \rightarrow -1.0$  tide

Remove with scrapers tar bands on faces of bedrock cliffs.

Remove oiled vegetation or other debris as found.

Remove oiled tarbands and sediments along stream edge (primarily N side of stream from upper ITZ to top of L.I.T.Z)

Remove and or wash with some type of <sup>mechanical</sup> rock washer the oiled portions on the north side of creek that are heavily oiled and penetrate up to 30cm.

Remove and or wash with rock washer, areas of tar mats and deep oil penetration on south side of stream.

Remove sediments in stream that produce sheen.

Use Bolsing Process ( $\text{CaOH}$ ) on large substrate on south side of stream in upper I.T.Z.

~~Use Bolsing~~

After removal of oiled sediments till the areas skimmed as well as other oiled areas and treat with the Bolsing Process ( $\text{CaOH}$ ).

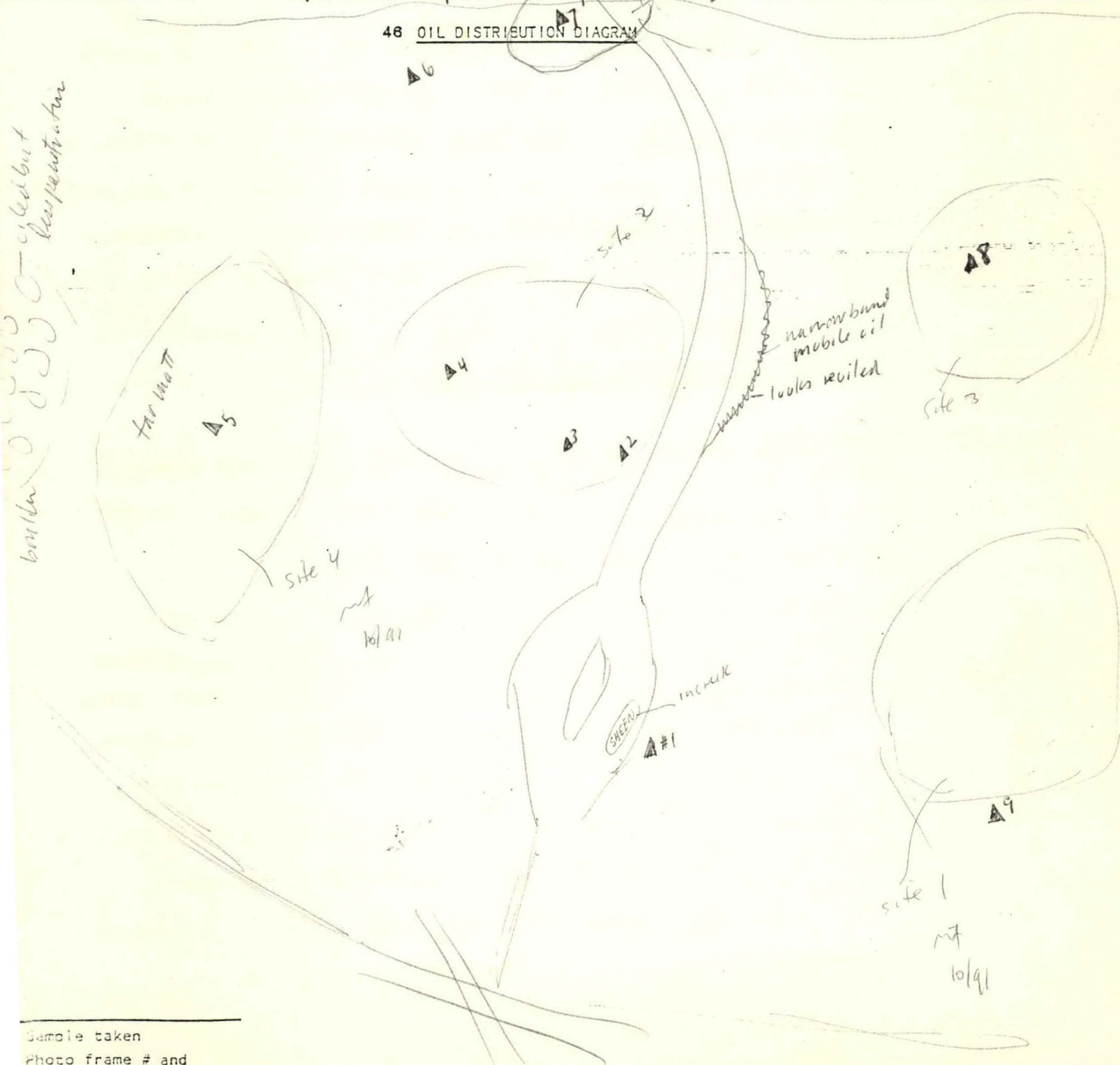
Consult with city council of Whittier, and Homer regarding acceptance of oiled gravels to be composted with Bolsing Process ( $\text{CaOH}$ ) and used for road repair, maintenance, and construction rather than shipping to Oregon. Perhaps arrangements to haul to Whittier by Landing craft or barge + shipment to Homer by truck/train could be arranged.

This is already being done by state cleanup crews.

(Ken Miller, Linda Hyce) - State Oilspill Response.  
of Whittier

Whittier Linda Hyce 472-2345

Homer Planning Dept. 235-3106

46 OIL DISTRIBUTION DIAGRAM

Sample taken  
Photo frame # and  
shot direction.

OG CALLARSON  
 SEGMENT ST/KN500.5

# SKETCH MAP

STREAM 226-10-16996

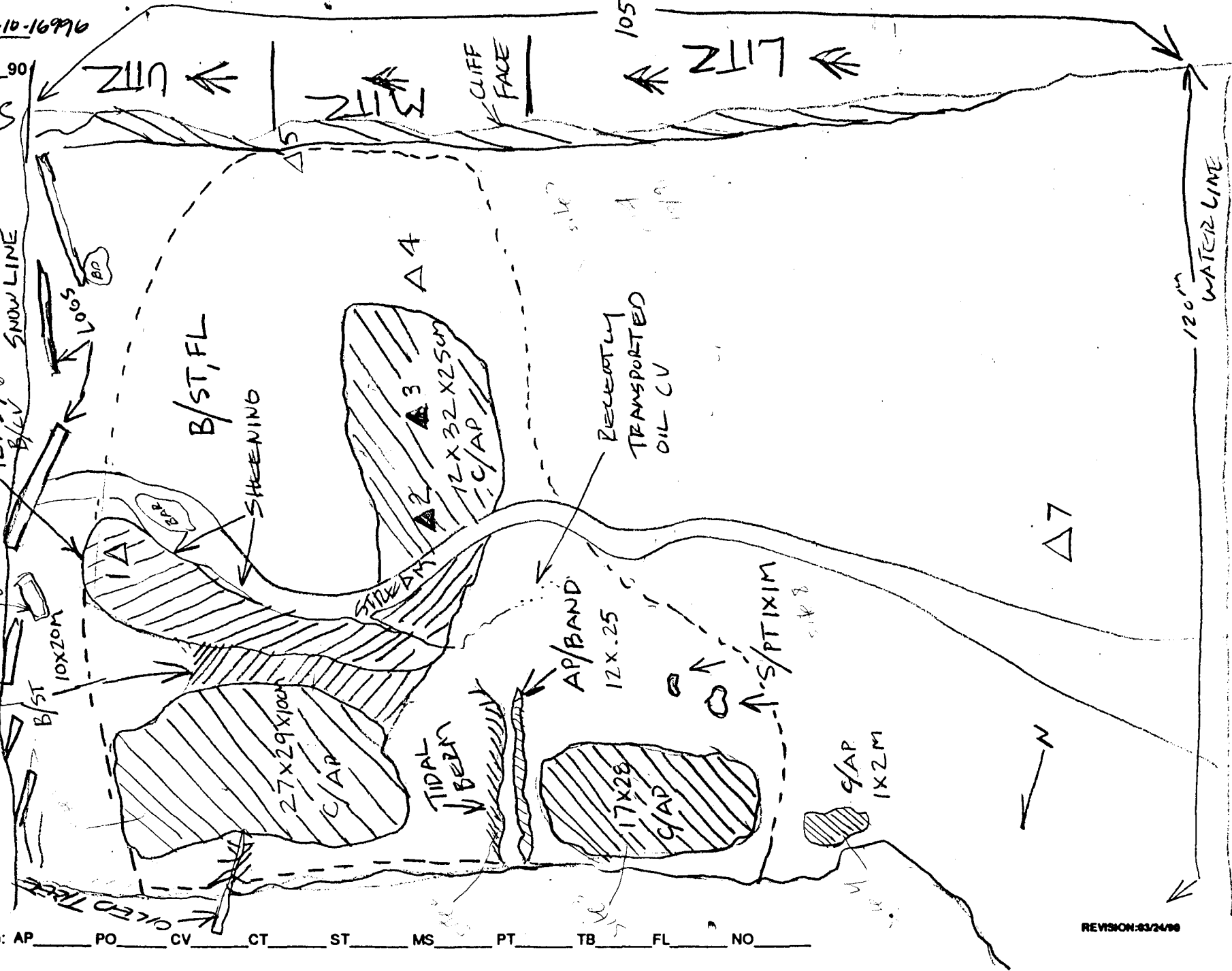
DATE 4/24/90

## 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  $\Delta$  Pit - No Subsurface Oil
- 2  $\Delta$  Pit - Subsurface Oil
- CT/C Continuous Distribution
- CT/B Broken Distribution
- CT/P Patchy Distribution
- CT/S Splashed Distribution
- Oil Vegetation
- Photo location, direction, and number



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

STREAM 226-10-16996

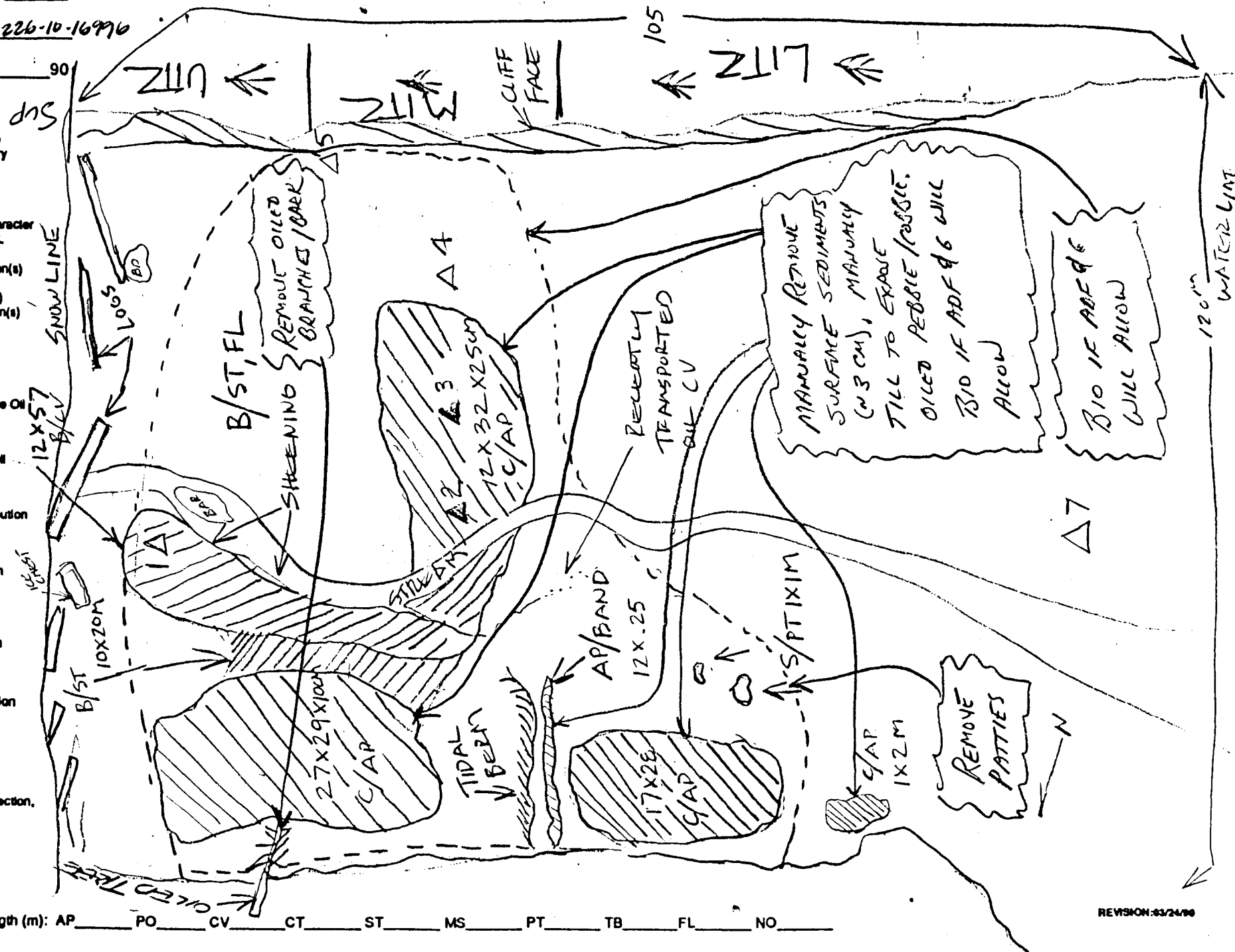
DATE 1 / 90

**CHECKLIST**

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

**LEGEND**

- 1  $\Delta$   
Pli - No Subsurface Oil
- 2  $\blacktriangle$   
Pli - Subsurface Oil
- $\square$  CT/C  
Continuous Distribution
- $\square$  CT/B  
Broken Distribution
- $\square$  CT/P  
Patchy Distribution
- $\square$  CT/S  
Splashed Distribution
- $\lll$   
Oiled Vegetation
- 1  $\rightarrow$   
Photo location, direction, and number



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

Seg. ID: KN-500S Subdiv: 226-10-16996  
Survey Date: 4/24/90  
Comments by: Ken Critchlow

Extensive portions of the UITZ, MITZ and LITZ were significantly oiled to either side of the stream; asphalt pavement was present along the banks in the UITZ and MITZ. Sheen was observed along edges of the stream and particularly in a side channel in the MITZ. Rits in the MITZ indicate significant amounts of and penetration by oil.

An ADEC cleanup crew was on-site to remove coated oil on bedrock walls of the pocket beach. The team leader, Ken Miller (Whittier), indicated plans to remove surface asphalt layer on the beach. Oiled debris is to be removed.

The lower MITZ and extensive LITZ are characterized by dense mussel beds that appear to be healthy. This bed would be adversely affected by foot traffic during cleanup efforts.

Asphalt pavement can be removed by shovel, as can patties. Subsurface oil will be difficult to remove by any method. I suggest that UITZ and MITZ sediments be "tilled" by hand tools and Inipol applied. This may be necessary.

p2 of 2 ~~to~~  
KN-500S/42  
226-10-16996  
4/24/90

more than once (ie, tilling again and bio-remediation) to enhance exposure of sub-surface oil to weathering and bacterial activity. The cove should be boomed-off and pompons placed in strategic locations across the intertidal to minimize escape of sheen from this site. Work would have to be accomplished within a time frame approved by ADFG.

5/48

# FIELD SHORELINE COMMENT SHEET

SEGMENT ST 1 KN-500 S SUBDIVISION: <sup>ASC #</sup> 226-10-16996 DATE 24 APR 90

## USCG

NAME Kerwin L. Dreher SIGNATURE CWO K. L. Dreher

☐ NO TREATMENT RECOMMENDED ☒ TREATMENT SUGGESTED

### COMMENTS

Treatment is recommended, dependent on TAG methodology and approval.  
Further investigation of and consideration of the below is highly advised.

~~ADEC~~ → ADFdG

NAME Rick Gustin SIGNATURE Richard J. Gustin

☐ NO TREATMENT RECOMMENDED ☒ TREATMENT SUGGESTED

COMMENTS Work to be completed during tide window 0.0 → -1.0 tide  
Remove with scrapers tar bands on faces of bed rock cliffs.  
Remove oiled vegetation or other debris as found.  
Remove oiled tar bands and sediments along stream edge (Primarily N. side of  
Stream from upper ITZ to top of Lower I. T. Z.)  
Remove and or wash with some type of mechanical rock washer, the oiled  
portions on the north side of the creek that are heavily oiled and penetrate  
as much as 30 cm. Remove and or wash with rock washer, areas of  
tar mats and deep oil penetration on south side of stream.  
Remove sediments in stream that produce sheen.

~~LAND MANAGER~~ → NONE

NAME Rick Gustin SIGNATURE Richard J. Gustin

☐ NO TREATMENT RECOMMENDED ☒ TREATMENT SUGGESTED

### COMMENTS

Use Bolsing Process (CaOH) on large substrate on south side  
of stream in upper I. T. Z.

After removal of oiled sediments, till the areas skimmed  
and other remaining oiled areas, and treat with Bolsing Process.

over

4/24/90  
48

# OPERATIONS FIELD NOTES

See Back for Instructions

SEGMENT ID AMAD RN-5005  
 STREAM ID # 226-10-16996  
 ANNOTATED MAP INCLUDED Y/N

DATE 4-24-90  
 NAME DARRYL POE  
 TEAM # 14

| SURFACE OIL   | Quantities in Meters |       |      | Treatment Recommendation |                |         |         |         |                |         |
|---------------|----------------------|-------|------|--------------------------|----------------|---------|---------|---------|----------------|---------|
|               |                      |       |      | None                     | Bioremediation |         | Tilling |         | Spot Hot Water |         |
|               | Length               | Width | Area |                          | Y/N            | % Treat | Y/N     | % Treat | Y/N            | % Treat |
| Wide Band     | SEE AREA BELOW       |       |      |                          | Y              | 100     | Y       | 100     | N              | —       |
| Medium Band   |                      |       |      |                          |                |         |         |         |                |         |
| Narrow Band   |                      |       |      |                          |                |         |         |         |                |         |
| Very Light    |                      |       |      |                          |                |         |         |         |                |         |
| TOTAL MANDAYS |                      |       |      |                          |                | 3       |         | 30      |                |         |

## SUBSURFACE OIL

|                   |  |
|-------------------|--|
| Other (Describe)? |  |
|                   |  |
|                   |  |

| TARMATS              | Quantities in Meters |       |           | Treatment Rec |         |        | # of Bags | Mandays Required |        |
|----------------------|----------------------|-------|-----------|---------------|---------|--------|-----------|------------------|--------|
|                      | Length               | Width | Thick(cm) | None          | Breakup | Remove |           | Breakup          | Remove |
| Area #1              | 27                   | 29    | 10        |               |         | ✓      | 1000      |                  | 15     |
| Area #2              | 12                   | 32    | 25        |               |         | ✓      | 500       |                  | 8      |
| Area #3              | 12                   | 25    | 1         |               |         | ✓      | 10        |                  | 1      |
| Area #4              | 17                   | 28    | 1         |               |         | ✓      | 800       |                  | 10     |
| Sporadic Mats AREA 5 | 1                    | 2     | 1         |               |         | ✓      | 10        |                  | 1      |

| MANUAL PICKUP     | Type of Debris                |                |                   | In Meters |       | # of Bags | Pickup Y/N | Manday Estimate |
|-------------------|-------------------------------|----------------|-------------------|-----------|-------|-----------|------------|-----------------|
|                   | Mousse<br>PATTIES<br>TARBALLS | Oiled<br>Veget | Cleanup<br>Debris | Length    | Width |           |            |                 |
| "Pocket" #1       | ✓                             |                |                   | 1         | 1     | 3         | Y          | 1               |
| "Pocket" #2       |                               |                |                   |           |       |           |            |                 |
| "Pocket" #3       |                               |                |                   |           |       |           |            |                 |
| Random/Continuous |                               |                |                   |           |       |           |            |                 |

|                       |                     |                       |                 |
|-----------------------|---------------------|-----------------------|-----------------|
| OILED LOGS <u>Y/N</u> | OILING <u>H/M/L</u> | QUANTITY <u>L/M/S</u> | BURN <u>Y/N</u> |
|-----------------------|---------------------|-----------------------|-----------------|

Is there Other Debris on the Beach? Y/N How Many Bags?        Is it mingled with the Oiled Debris Y/N

## GENERAL

Snow covering 10 % of the Supratidal Zone?

Wave Exposure H/M/L

Access Limitations: GOOD ACCESS

Snare Boom/Pom Poms Recommended? NO

Would the production Craft have to be relocated to complete work on this subdivision? Y/N, # of Times L

## COMMENTS:

LINDA HYCE & KEN MILLER FROM CITY OF WHITTIER HAD A PLAN OF 12 PEOPLE WORKING TYPE A CLEAN-UP IN THIS AREA

ALL WORK SHOULD BE PLANNED FOR PERIOD 5-15 → 7-10

CONTACT ADF 96 BEFORE STARTING WORK

# SHORELINE OILING SUMMARY ( IAD )

REVISION NO. 04/13/90

OG CAL LARSON USCG DREHER, CWE SEGMENT ST/ KN 5069 13/48  
 BIO KEN CRITCHLOW LAND REP STREAM 226-10 16996 ( OF )  
 EXXON DARLYL YOE ADFG ELK GUSTIN-AIMEE WESEMAN TIME 06:00 10:09:35  
 TEAM NO. 14 TIDE LEVEL +2 FT. DATE 4 124 190  
 EST. SUBDIVISION LENGTH: 120 m ☐ Sun ☒ Clouds ☐ Fog ☐ Rain ☐ Snow  
 UPLANDS DESCRIPTION: ☐ Grass ☐ Forest ☒ Rock  
 SURVEYED FROM: ☒ Foot ☐ Boat ☐ Helo  
 SURFACE SEDIMENTS: R     % B     % C 5 % P 20 % G 75 % S     % M     % V     %  
 SLOPE: Lang     % Hang     % Vert     % WAVE EXPOSURE: ☐ Low ☒ Med ☐ High  
 OIL CATEGORY LENGTH: W 100 m M     m N 20 m VL     m NO     m

## SURFACE OIL

| CHARACTER        | DISTRIBUTION |    |    |    | OIL / FILM COLOR |       |       |        |       |       |       |       | IMPACTED ZONES |    |    |    |
|------------------|--------------|----|----|----|------------------|-------|-------|--------|-------|-------|-------|-------|----------------|----|----|----|
|                  | IC           | IB | IP | IS | OR BR            | OR RW | OL GL | OL DBR | OL TL | OR BR | OR RW | OL GL | SU             | UI | MI | LI |
| ASPHALT PAVEMENT | ✓            |    |    |    |                  | ✓     |       |        |       |       |       |       |                | ✓  | ✓  | ✓  |
| POOLED           |              |    |    |    |                  |       |       |        |       |       |       |       |                |    |    |    |
| COVER            |              | ✓  |    |    |                  | ✓     |       |        |       |       |       |       |                | ✓  | ✓  |    |
| COAT             |              |    |    |    |                  |       |       |        |       |       |       |       |                |    |    |    |
| STAIN            |              | ✓  |    |    |                  | ✓     |       |        |       |       |       |       |                | ✓  | ✓  | ✓  |
| MOUSSE           |              |    |    |    |                  |       |       |        |       |       |       |       |                |    |    |    |
| PATTIES          |              |    |    | ✓  |                  | ✓     |       |        |       |       |       |       |                |    |    | ✓  |
| TARBALLS         |              |    |    |    |                  |       |       |        |       |       |       |       |                |    |    |    |
| FILM             |              |    |    | ✓  |                  |       | ✓     | ✓      |       |       |       |       |                | ✓  | ✓  | ✓  |
| NO OIL           |              |    |    |    |                  |       |       |        |       |       |       |       | ✓              |    |    |    |

PAVEMENT H F S6,486 sq. m by 15 cm

PATTIES / 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 - CM) | BELOW |    | OIL / FILM COLOR |       |       |        |       |       |    |   | PIT ZONE |   |  |  | A<br>N<br>A | SHEEN (Y/N) | ▼               | SURFACE - SUBSURFACE SEDIMENTS |
|---------|----------------|--------------------------|----|----|----|----|--------------------------|-------|----|------------------|-------|-------|--------|-------|-------|----|---|----------|---|--|--|-------------|-------------|-----------------|--------------------------------|
|         |                | OP                       | OR | OL | OF | NO |                          | UO    | UC | OR BR            | OR RW | OL GL | OL DBR | OL TL | OL LB | SU | U | M        | L |  |  |             |             |                 |                                |
| 1       | 15             |                          |    |    |    | ✓  | -                        |       |    |                  |       |       |        |       |       | ✓  |   |          |   |  |  | Y           | ✓           | GRSD/GRSD       |                                |
| 2       | 25             |                          | ✓  |    |    |    | 5-25                     | ✓     |    |                  |       |       |        | ✓     | ✓     |    |   | ✓        |   |  |  | Y           | ✓           | PBGRSD, PBGR    |                                |
| 3       | 30             |                          | ✓  |    |    |    | 5-30                     | ✓     |    |                  |       |       |        | ✓     | ✓     |    |   | ✓        |   |  |  | Y           | ✓           | PB, GRSD/PBGR   |                                |
| 4       | 30             |                          | ✓  |    |    |    | 5-E                      |       | ✓  |                  |       |       |        | ✓     | ✓     |    |   | ✓        |   |  |  | N           |             | PBGR, SD/PBGRSD |                                |
| 5       | 15             |                          |    |    |    | ✓  | -                        |       |    |                  |       |       |        |       |       |    |   | ✓        |   |  |  | Y           | ✓           | PB, GR, SD/PBGR |                                |
| 6       | 14             |                          |    |    |    | ✓  | -                        |       |    |                  |       |       |        |       |       |    |   | ✓        |   |  |  | N           | ✓           | PB, GRSD/PBGR   |                                |

COMMENTS SUBSTRAT HOLDING OIL - MOSTLY IN UPPER MID TIDAL ZONE  
 VERY MOBIL IN SMALL COARSE SEDIMENT MAKING UP MUCH  
 OF THE SUBSTRAT.

REVIEWED     DATE

ANAD  
SSAT DATA ENTRY FORM

PAGE 1 OF 2

GENERAL DATA

11  
12/48

SEG ID: KN-500S SUBDIV: 226-10 16996 TEAM: 14 SURVEY DATE: 4/24/90  
PAVEMENT: CHAR S AREA 6,486 THICKNESS 15 TARBALLS -  
OILED: LGS SM VEG - TRH - DBR - WAVE EXP: LW - MD X HG -  
FAX RCVD: - DT: - AGENCY DISAGREE: -  
EST SUBDIV LGTH: 120 OIL CATEGORY: W 102 M - N 20 VL - NO - U -

SURFACE DATA

SURFACE SEDIMENT: BRK - BLD - COB 5 PEB 20 GRN 75 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 X LI X

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

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

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

CHAR #: 5 OIL CHAR: FL OIL DIST: CONT - BRKN - PTCH - SPLH X  
OIL CLR: GY FILM CLR: SL TIDAL ZONE: SU - UI X MI X LI X  
DBR TL

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 2 OF 2

SEGMENT ID: KN-500S SUBDIV: 226-10  
16996

PIT # 1 PIT DEPTH 15 OIL CHARACTER NO OIL INTVAL: FROM - TO -  
 QUANT: - OIL CLR: - FLM CLR: - ZONE: SU - UI X MI - LI -  
 SUBSURF SEDIMENT: BRK - BLD - COB - PEB - GRN X SAN X MUD - VEG -.

PIT # 2 PIT DEPTH 25 OIL CHARACTER OR OIL INTVAL: FROM 5 TO 25  
QUANT: UO OIL CLR: DBR FLM CLR: TL ZONE: SU - UI - MI X LI -  
SUBSURF SEDIMENT: BRK EBR - BLD - COB - PEB X GRN X SAN X MUD - VEG -

PIT # 3 PIT DEPTH 30 OIL CHARACTER OR OIL INTVAL: FROM 5 TO 30  
 QUANT: 40 OIL CLR: PER FLM CLR: TL ZONE: SU - UI - MI X LI -  
 SUBSURF SEDIMENT: BRK - BLD - COB - PEB X GRN X SAN X MUD - VEG -

PIT # 4 PIT DEPTH 30 OIL CHARACTER OR OIL INTVAL: FROM 5 TO 8  
QUANT: UC OIL CLR: DBR FLM CLR: TL ZONE: SU - UI - MI X LI -  
SUBSURF SEDIMENT: BRK - BLD - COB - PEB X GRN X SAN X MUD - VEG -

PIT # 5 PIT DEPTH 15 OIL CHARACTER N2 OIL INTVAL: FROM - TO -  
QUANT: - OIL CLR: - FLM CLR: - ZONE: SU - UI - MI - LI X  
SUBSURF SEDIMENT: BRK - BLD - COB - PEB X GRN X SAN X MUD - VEG -

PIT # 6 PIT DEPTH 14 OIL CHARACTER NO OIL INTVAL: FROM - TO -  
QUANT: - OIL CLR: - FLM CLR: - ZONE: SU - UI - MI - LI X  
SUBSURF SEDIMENT: BRK - BLD - COB - PEB X GRN X SAN X 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:** \_\_\_\_\_

RECEIVED  
MAY 07 1990

DEPT. OF  
ENVIRONMENTAL CONSERVATION

ANADROMOUS FISH STREAM ASSESSMENT

REGION: PRINCE WILLIAM SOUND

SEGMENT: KN-500 B

STREAM NO: 226-10-16996

✓ unacceptable Exxon work plan.  
no mention of spot washing even on heavily oiled stream area.  
oil penetration 30+cm  
See stream summary <sup>report</sup> of ADFT6 rec on survey form

✓ Remove & agitate oiled stream bed gravels

OR should be OP at 2, 3, 4

Rock wash  
will be examined as potential  
trial area for rock washer.

ORIGINAL FIELD MAP ALTERED

ANADROMOUS FISH STREAM EVALUATION

SEGMENT ST/ KN-500 B STREAM NO: 226-10-16996 DATE 4/24/90

**SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:**

Subject stream and 226-10-16992 (Ps, 2/90)

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

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

5T-2 All bald eagle nests (3/1 to 6/1)-Active eagle nests (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 unoiled biota and substrate. Subject stream is located within Subdivision B (2 of 2).

**ARCHAEOLOGICAL CONSTRAINTS:**

If cultural resources are uncovered during shoreline treatment, stop work in the vicinity, mark the location of the find and contact a member of Exxon's Cultural Resource Program immediately (564-3657; 564-3658 or 564-3276).

SHPO SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

Subsurface Oil Observed: Yes X No \_\_\_\_\_ Maximum Depth 30+ cm

**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

X\* Other (see comments)

COMMENTS: Recommended treatment includes 1) manual removal of tarmats, 2) manual pickup of mousse patties and oiled debris, 3) manual tilling of area with subsurface oil, and 4) bioremediation of areas shown on attached sketch map. Work should be conducted between 6/1 and 7/10 based on salmon constraints with approval of ADF&G regarding tilling and bioremediation of stream banks.

TAG COMMENTS: \_\_\_\_\_

TAG APPROVAL DATE: \_\_\_\_\_

ADEC \_\_\_\_\_

EXXON \_\_\_\_\_

NOAA \_\_\_\_\_

USCG \_\_\_\_\_

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

- ✓ **Salmon stream mouth - fry outmigration (3/1 to 5)**  
 ✓ **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 uncoiled 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 Rothy 267-2206
- ✓ **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)**  
 ✓ **Special use destination**
- 7Z Subistence area: Salmon harvesting (5/1 to 9/30)**  
**7HH Finfish harvesting**  
**7H Deer harvesting (8/15 to 2/28)**  
**7J 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

# FIELD SHORELINE COMMENT SHEET

R 47/48

SEGMENT ST / KN-500 8' SUBDIVISION: 226-10-16996 <sup>ASG\*</sup> DATE 24 APR 90

USCG

NAME Kevin L. Dreher SIGNATURE CWO K. L. Dreher

☐ NO TREATMENT RECOMMENDED ☒ TREATMENT SUGGESTED

COMMENTS

Treatment is recommended, dependent on TAG methodology and approval.  
Further investigation of and consideration of the below is highly advised.

~~ADG~~ → ADG

NAME Rick Gustin SIGNATURE Richard J. Gustin

☐ NO TREATMENT RECOMMENDED ☒ TREATMENT SUGGESTED

COMMENTS Work to be completed during tide window 0.0 → -1.0 tide  
Remove with scrapers tar bands on faces of bed rock cliffs.  
Remove oiled vegetation or other debris as found.  
Remove oiled tar bands and sediments along stream edge (Primarily N. side of stream from upper ITZ to top of Lower I.T.Z.)  
Remove and or wash with some type of mechanical rock washer, the oiled portions on the north side of the creek that are heavily oiled and penetrate as much as 30 cm. Remove and or wash with rock washer, areas of tar mats and deep oil penetration on south side of stream.  
Remove sediments in stream that produce stream.

~~LAND MANAGER~~ NAME

NAME Rick Gustin SIGNATURE Richard J. Gustin

☐ NO TREATMENT RECOMMENDED ☒ TREATMENT SUGGESTED

COMMENTS

Use Bolsing Process ( $\text{CaOH}$ ) on large substrate on south side of stream in upper I.T.Z.

After removal of oiled sediments, till the areas skimmed and other remaining oiled areas, and treat with Bolsing Process.

over

## SHORELINE OILING SUMMARY (A-11AD)

REVISION NO. 001190

OG CAL LARSON USCG BOATMAN, CWS SECT ST/ KAS 29/48  
 BIO REN CATCHLOW LAND REP STREAM 226-12161961 OF 1  
 EXXON DARWIN YVES ADFG 21K GUSTIN-ALICE WISEMAN TIME 00:00:00 1009:35  
 TEAM NO. 15 TIDE LEVEL +2 ft. DATE 4/24/90  
 EST. SUBDIVISION LENGTH: 120 m ☐ Sun ☒ Clouds ☐ Fog ☐ Rain ☐ Snow  
 UPLANDS DESCRIPTION: ☒ Grass ☐ Forest ☒ Rock  
 SURVEYED FROM: ☒ Foot ☐ Boat ☐ Helo  
 SURFACE SEDIMENTS: R 5 % B 20 % C 75 % S 0 % M 0 % V 0 %  
 SLOPE: Long 100 % Hang 0 % Vert 0 % WAVE EXPOSURE: ☐ Low ☒ Med ☐ High  
 OIL CATEGORY LENGTH: W 100 m M 0 m N 20 m VL 0 m NO 0 m

## SURFACE OIL

| CHARACTER        | DISTRIBUTION |   |   |   | OIL / FILM COLOR |   |   |   | IMPACTED ZONES |    |    |   |
|------------------|--------------|---|---|---|------------------|---|---|---|----------------|----|----|---|
|                  | A            | B | C | D | 1                | 2 | 3 | 4 | SW             | SE | NE | U |
| ASPHALT PAVEMENT | ✓            |   |   |   | ✓                |   |   |   | ✓              | ✓  | ✓  | ✓ |
| POOLED           |              |   |   |   |                  |   |   |   |                |    |    |   |
| COVER            |              | ✓ |   |   | ✓                |   |   |   | ✓              | ✓  | ✓  |   |
| COAT             |              |   |   |   |                  |   |   |   |                |    |    |   |
| STAIN            |              | ✓ |   |   | ✓                |   |   |   | ✓              | ✓  | ✓  |   |
| MOUSSE           |              |   |   |   |                  |   |   |   |                |    |    |   |
| PATTIES          |              |   |   | ✓ | ✓                |   |   |   |                |    |    | ✓ |
| TARBALLS         |              |   |   |   |                  |   |   |   |                |    |    |   |
| FILM             |              |   |   | ✓ | ✓                | ✓ | ✓ | ✓ | ✓              | ✓  | ✓  | ✓ |
| NO OIL           |              |   |   |   |                  |   |   |   | ✓              |    |    |   |

PAVEMENT H F 36405 sq. m by 15 cmPATTIES/TARBALLS 1 BAGSNEAR 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 | BELOW |    | OIL / FILM COLOR |   |   |   | PIT ZONE |    |    |   | A N A | 20-30 cm | Y | SURFACE SUBSURFACE SEDIMENTS |
|---------|----------------|--------------------------|----|----|----|----|----------------|-------|----|------------------|---|---|---|----------|----|----|---|-------|----------|---|------------------------------|
|         |                | OP                       | OR | OL | OP | NO |                | SW    | SE | 1                | 2 | 3 | 4 | SW       | SE | NE | U |       |          |   |                              |
| 1       | 15             |                          |    |    |    | ✓  | 5-25           | ✓     |    | ✓                | ✓ | ✓ | ✓ | ✓        |    |    |   | Y     | ✓        | ✓ | CA, 10/6450                  |
| 2       | 25             |                          | ✓  |    |    |    | 5-25           | ✓     |    | ✓                | ✓ | ✓ | ✓ | ✓        |    |    |   | Y     | ✓        | ✓ | PA, 10/30, 10/6450           |
| 3       | 30             |                          | ✓  |    |    |    | 5-30           | ✓     |    | ✓                | ✓ | ✓ | ✓ | ✓        |    |    |   | Y     | ✓        | ✓ | PA, 10/30, 10/6450           |
| 4       | 30             |                          | ✓  |    |    |    | 5-8            | ✓     |    | ✓                | ✓ | ✓ | ✓ | ✓        |    |    |   | N     | ✓        | ✓ | PA, 10/30, 10/6450           |
| 5       | 15             |                          |    |    |    | ✓  | -              |       |    |                  |   |   |   | ✓        |    |    |   | Y     | ✓        | ✓ | PA, 10/30, 10/6450           |
| 6       | 14             |                          |    |    |    | ✓  | -              |       |    |                  |   |   |   | ✓        |    |    |   | N     | ✓        | ✓ | PA, 10/30, 10/6450           |

COMMENTS SUBSTRAT HOLDING OIL - MOSTLY IN UPPER MID TIDAL ZONE  
 VERY MOBILE IN SMALL COARSE-SEDIMENT MAKING UP MUCH  
 OF THE SUBSTRAT.

REVIEWED fwDATE 4-26-90

disagree  
 w/ OP  
 should be OP

... with city councils of Whittier and Homer regarding acceptance of oil gravel for composting with Borsing Process (CASH) and used for road repair, maintenance and construction, rather than shipping to Oregon. Perhaps arrangements to haul to Whittier by landing craft or barge for use there.

Some of the state funded cleanup crews are already shipping their oiled gravels to Whittier.

Contact People     Ken Miller/Linda Hyce     472-2345 Whittier  
Homer Planning Dept.     235-3106

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03. CAL LARSON  
 SEGMENT STI KANSAS

# SKETCH MAP

STREAM 226-A-10976

DATE 4/24/90

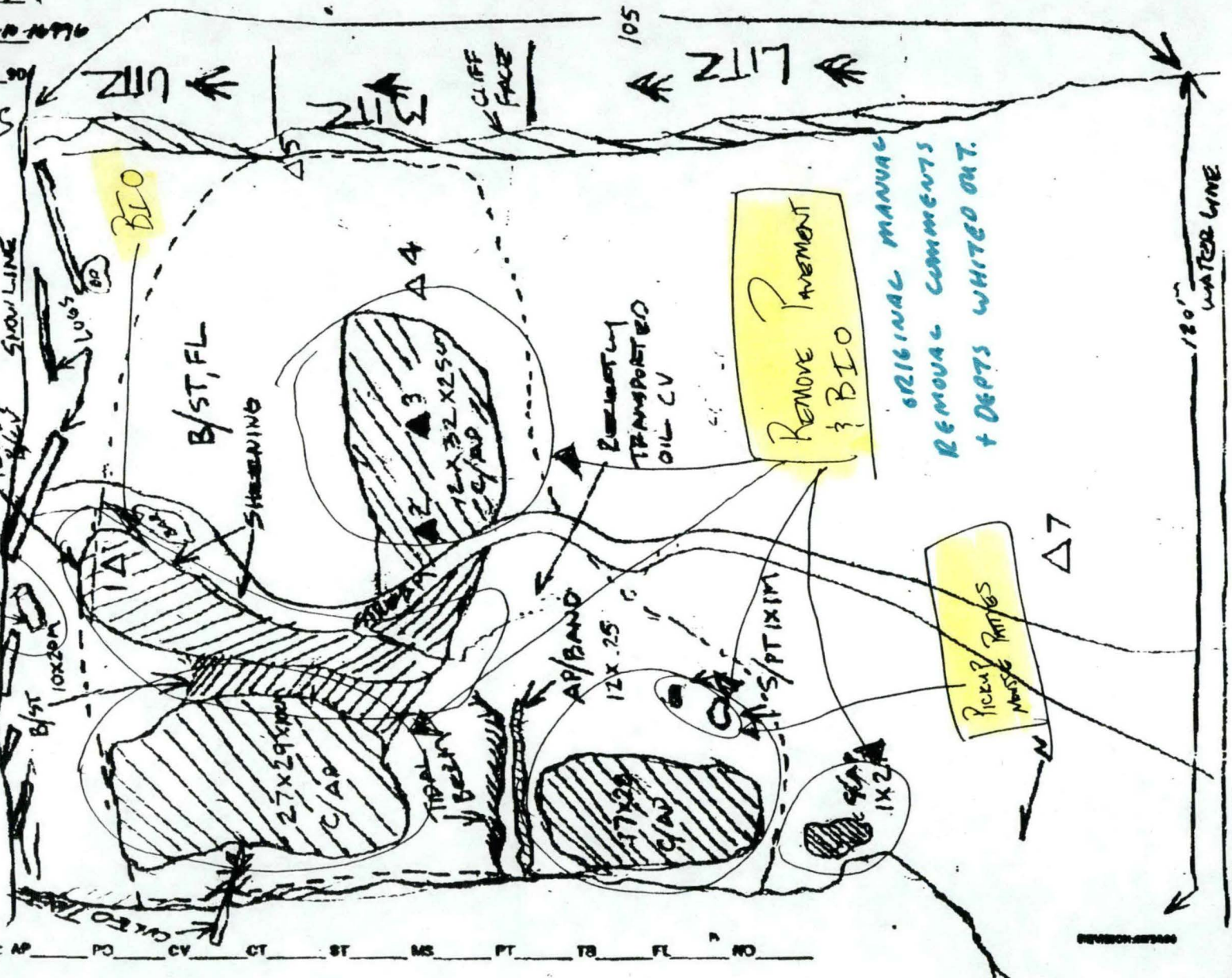
## CHECKLIST

- ☐ H Area
- ☐ Approx. Scale
- ☐ Background Study
- ☐ Ch. Dist.
- ☐ Width
- ☐ Length
- ☐ % Cover
- ☐ Substrate Character
- ☐ Est. HAP/LA/VL
- ☐ SBL
- ☐ Profile Location(s)
- ☐ Profile(s)
- ☐ P/L Location(s)
- ☐ Photo Location(s)

## LEGEND

- ☐ Pt. - No Substrate
- ☐ Pt. - Substrate
- ☐ CT/E
- ☐ CT/B
- ☐ Broken Distribution
- ☐ CT/P
- ☐ Patchy Distribution
- ☐ CT/S
- ☐ Spotted Distribution
- ☐ Other Vegetation
- ☐ Photo location, direction, and number

Ch Character Length (ft): AP PO CV CT ST MS PT TB FL NO



REN MILLER  
LINO HVCF

MAR

16

Hanna Cove.  
Sound Venture

ADJUT 3366 SET 3916 4  
TOOBY

HOW CLOSE CAN THEY WORK TO SALM?  
THEY ARE VERY FEELABLE.

ADFG MULTI-ASSESSMENT DATA FORM

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

2 REGION: PWS KP, CI K, AP

METHOD: Aerial Ground Boat

3 DATE: 4-24-90

16 HIGH TIDE TIMES: 1

21 TEAM RECORDER: R. Gustin

4 START TIME: 0807

18 HIGH TIDE HTS: 1

22 OBSERVERS: A. Wasserman

5 STOP TIME: 0942

17 LOW TIDE TIMES: 1

23 AGENCY: ADFG

6 SEGMENT #: KN-500 B

19 LOW TIDE HTS: 1

24 PHOTOS TAKEN: Y 0

7 STATION #:

10 TIDE HT AT SURVEY:

Roll #: Frame:

8 K-UNIT:

Ebb Slack Flood Slack

25 VIDEO TAKEN: 0 N TAPE:

9 STAT AREA:

20 USCC QUAD: S-B-3

Start: 076 End: 0209

10 LAT:

11 LONG:

26 SAMPLES TAKEN: Y 0 Number

12 SOURCE: Map Loran

13 LOCATION: NW side Knight I

14 DESCRIPTION: West Coast Knight outside Herring Bay

Oil

Sediment

Biological

Water

EXTENT OF OIL

27 SURFACE COVERAGE

28 SURFACE THICKNESS

29 PENETRATION

30 OVERALL OIL IMPACT: N VL L M H

31 OIL TYPE: Pooled House Tar Asphalt Sticky Stain

32 OILED DEBRIS: 0 N

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

34 WAVE EXPOSURE: High Moderate Low

35 SUBSTRATE TYPE: Bedrock Boulder 5% Cobble 70  
Gravel 20 Sand 5 Mud/silt

36 CATALOGED ANAD. FISH STREAM? Y N

37 CATALOG #: 226-10-16996

38 STREAM NAME:

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:

43 ANADROMOUS FISH PRESENT? Y N

44 ANADROMOUS FISH OBSERVATION

Species Aerial Ground

|  |  |  |
|--|--|--|
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

REMARKS: Oil heavily in North side spots (upper LIT) mid 773

center of cove near stream upper ITZ oil matts oil along stream

South side of cove upper ITZ large tar matts / light oil on boulder.

mid ITZ south side tar matt (210 feet 2/3 length of stream channel  
oiled down to water) Tide - 1.?

FRAME(S)

DESCRIPTION

|        |           |                            |
|--------|-----------|----------------------------|
| pit #1 | 20cm deep | no visible oil             |
| pit #2 | 15cm      | seen in water at bottom    |
| pit #3 | 32cm      | 10cm oil deep surface down |
| pit #4 | 25cm      | no oil                     |

## 46 OIL DISTRIBUTION DIAGRAM



Sample taken  
Photo frame # and  
shot direction.

Seg. ID: KN-5008 Subdiv: 226-10-16996

Survey Date: 4/24/90

Comments by: Ken Critchlow

Extensive portions of the UITZ, MITZ and LITZ were significantly oiled to either side of the stream; asphalt pavement was present along the banks in the UITZ and MITZ. Sheen was observed along edges of the stream and particularly in a side channel in the MITZ. Pits in the MITZ indicate significant amounts of and penetration by oil.

An ADEC cleanup crew was on-site to remove coated oil on bedrock walls of the pocket beach. The team leader, Ken Miller (Whittier), indicated plans to remove surface asphalt layer on the beach. Oiled debris is to be removed.

The lower MITZ and extensive LITZ are characterized by dense mussel beds that appear to be healthy. This bed would be adversely affected by foot traffic during cleanup efforts.

Asphalt pavement can be removed by shovel, as can patties. Subsurface oil will be difficult to remove by any method. I suggest that UITZ and MITZ sediments be "filled" by hand tools and Inipol applied. This may be necessary

---

PC 072 24  
KN-500S/48  
226-10-16996  
4/24/90

more than once (ie, tilling again and bio-remediation) to enhance exposure of sub-surface oil to weathering and bacterial activity. The cove should be boomed-off and pom poms placed in strategic locations across the intertidal to minimize escape of sheen from this site. Work would have to be accomplished within a time frame approved by ADFG.

ECOLOGICAL MAP

1A, 1B  
5T(2)  
GY

SEWARD (B-3) QUADRANGLE

ALASKA

1:63 360 SERIES (TOPOGRAPHIC)

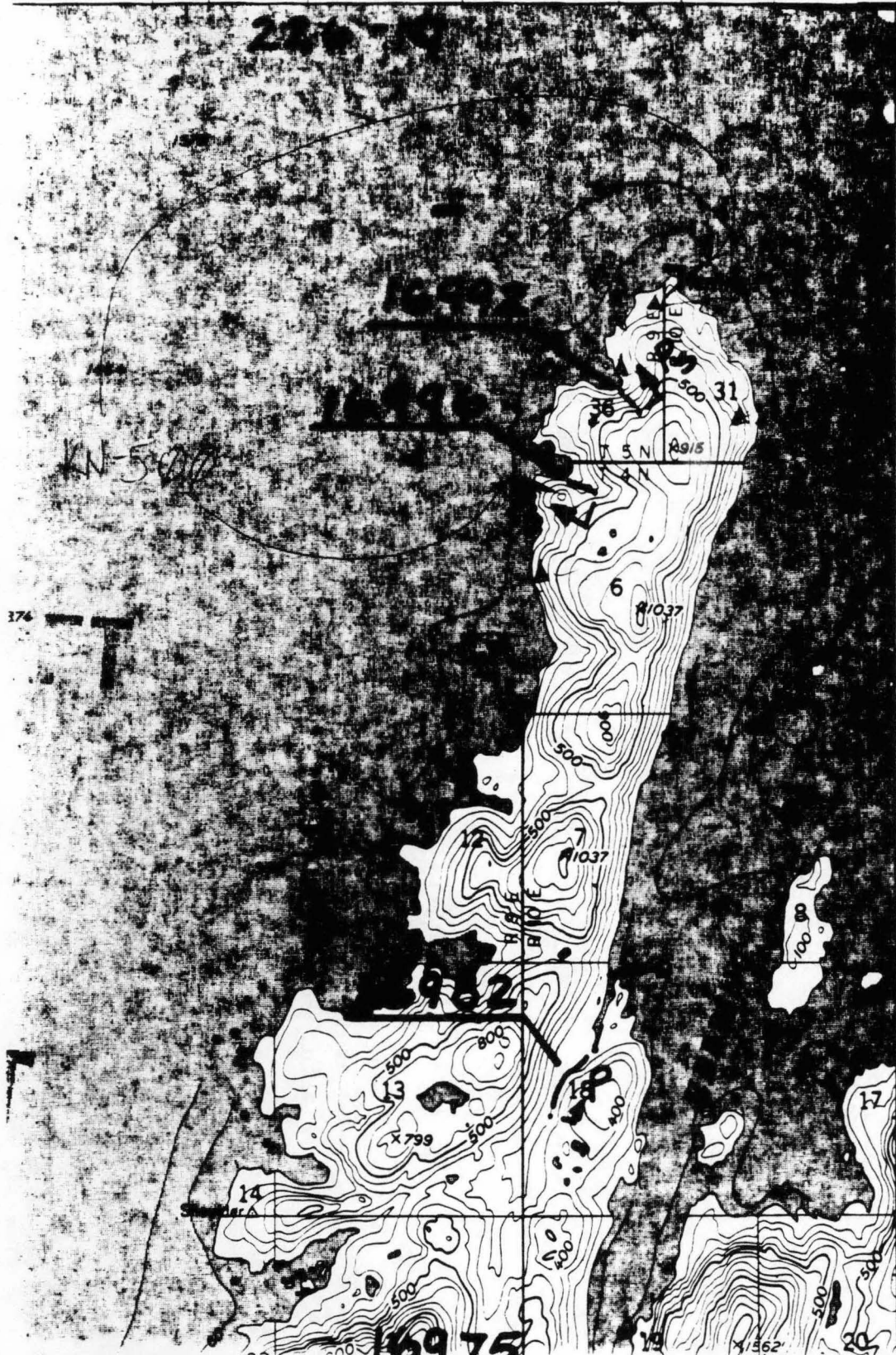
(SEWARD C-2)

50'

180 000 FEET

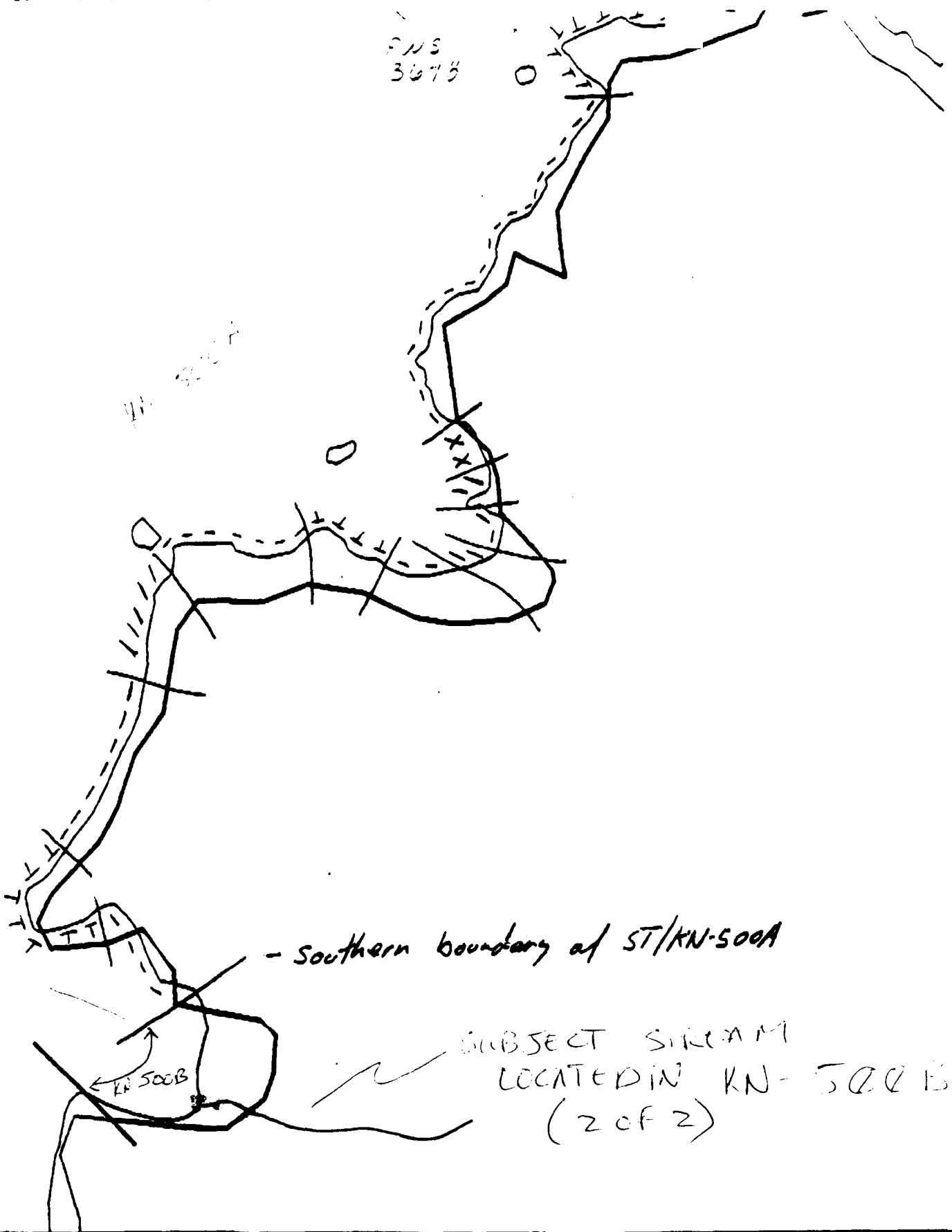
147°45'

60°30'



2 370 000  
FEET

PWS  
367b



XXXX Wide

//// Medium

---- Narrow

TTTT Very Light

0000 No Oil

KN-500A

ADEC Segment Length: 2554m



Map Key: PWS-367a

Name: Sawyer

Date: Apr. 8, 1990

Data Entered:

STREAM 226-10-16996

DATE 1 / 90

CHECKLIST

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

LEGEND

1  $\Delta$   
PII - No Subsurface Oil

2  $\Delta$   
PII - Subsurface Oil

$\boxed{CT/C}$   
Continuous Distribution

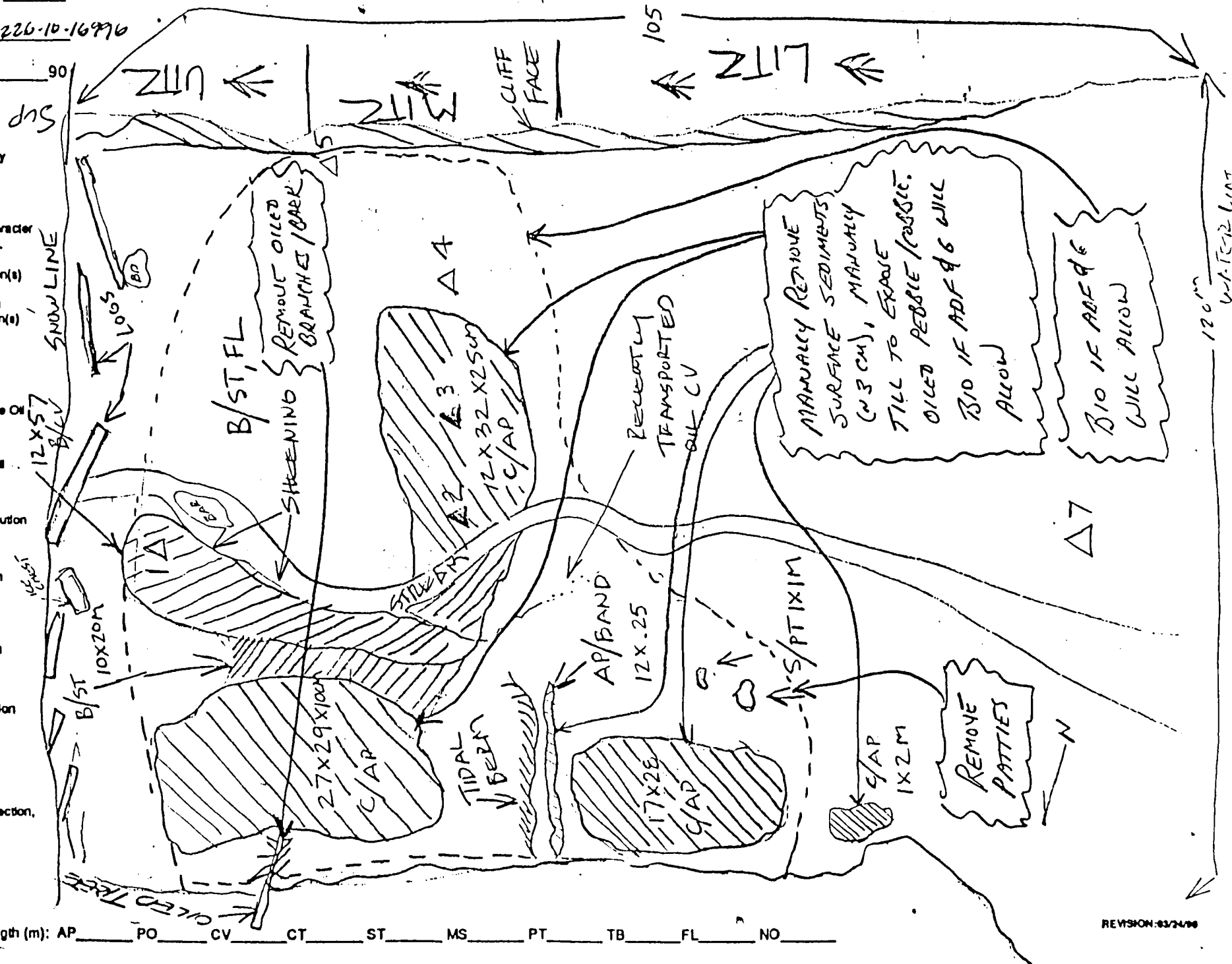
$\boxed{CT/B}$   
Broken Distribution

$\boxed{CT/P}$   
Patchy Distribution

$\boxed{CT/S}$   
Splashed Distribution

$\lll$   
Oiled Vegetation

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



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



ANADROMOUS FISH STREAM EVALUATION

SEGMENT ST/ KN-500 B STREAM NO: 226-10-16996 DATE 4/24/90

**SEGMENT ENVIRONMENTAL SENSITIVITIES AND TIME CONSTRAINTS:**

Subject stream and 226-10-16992 (Ps, 2/90)

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

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

5T-2 All bald eagle nests (3/1 to 6/1)-Active eagle nests (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 unoiled biota and substrate. Subject stream is located within Subdivision B (2 of 2).

**ARCHAEOLOGICAL CONSTRAINTS:**

If cultural resources are uncovered during shoreline treatment, stop work in the vicinity, mark the location of the find and contact a member of Exxon's Cultural Resource Program immediately (564-3657; 564-3658 or 564-3276).

SHPO SIGNATURE: [Signature] DATE: 5/10/90

Subsurface Oil Observed: Yes X No        Maximum Depth 30+ cm

**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>  X*  </u> Other (see comments)              |

COMMENTS: Recommended treatment includes 1) manual removal of tarmats, 2) manual pickup of mousse patties and oiled debris, 3) manual tilling of area with subsurface oil, and 4) bioremediation of areas shown on attached sketch map. Work should be conducted between 5/1 and 7/10 based on salmon constraints with approval of ADF&G regarding tilling and bioremediation of stream banks.

TAG COMMENTS: MANUAL TILLING TAKING ADJACENT TO + WITHIN THE STREAM BED AS INDICATED ON THE SKETCH.

TAG APPROVAL DATE: 5/10/90  
ADEC ART WEINER  
EXXON ANDY TEN  
NOAA Buel Wescott  
USCG D.D. ROME

FOSC: [Signature] DATE: 5-15-90

# ADF&G WINTER STREAM SURVEY FORM

Shoreline Segment No: R-700 Stream Catalog No: NO 101000  
Geographic Location: SOUTHERN BANK OF RIVER

Date: 1-2-68 Start Time: 1145 End Time: 1230  
Observers: DM FW JK DMR

Low Tide: (time and height) 10:00 AM  
High Tide: 7:00 PM

## SHORELINE DIMENSIONS AT STREAM SITE

Intertidal Zone: 25 M - 11

Area to Right of Stream: 40 METERS

Area to Left of Stream: 70 (101500)

Wave Exposure: HIGH MEDIUM LOW

## SHORELINE TYPE

Steep Bedrock \_\_\_\_\_ Low Angle Bedrock \_\_\_\_\_ Gravel (0.1 to 2 inch  
dia) ✓ Cobble (2 to 10 inch) \_\_\_\_\_ Boulder(>10 inches) \_\_\_\_\_  
Other \_\_\_\_\_

## STREAM CHARACTERISTICS

Length through Intertidal Zone: 1000 meters

Average Width: 0.25

Channel/Bed Configuration:

| Single Channel $\times$ | Multiple Channels | Number |
|-------------------------|-------------------|--------|
|                         |                   |        |

Note: (see diagram attached)

## BIOLOGICAL OBSERVATIONS

6 DEER SPOOTTED ON THIS REACH WITH MANY TRACKS

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1000

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# CHARACTERISTICS OF OIL DEPOSITS

## DEPOSIT A

Distance from Stream LEAST  
 Surface Area \_\_\_\_\_  
 Thickness 1/2" TO 24"  
 Penetration Depth 1/2" TO 24"  
 Tar X Asphalt \_\_\_\_\_  
 Mousse \_\_\_\_\_ Stain \_\_\_\_\_  
 % Coverage of Deposit 100%  
 Tidal Zone TOTAL INTERTIDAL ZONE  
 Comments: WILL BE TESTED IN INTERTIDAL ZONE

## DEPOSIT B

SNOW  
 Distance from Stream \_\_\_\_\_  
 Surface Area \_\_\_\_\_  
 Thickness \_\_\_\_\_  
 Penetration Depth \_\_\_\_\_  
 Tar \_\_\_\_\_ Asphalt \_\_\_\_\_  
 Mousse \_\_\_\_\_ Stain \_\_\_\_\_  
 % Coverage of Deposit \_\_\_\_\_  
 Tidal Zone \_\_\_\_\_  
 Comments: SNOW COVERED  
UNABLE TO OBTAIN OIL CONTAMINATION

## DEPOSIT C

Distance from Stream \_\_\_\_\_  
 Surface Area \_\_\_\_\_  
 Thickness \_\_\_\_\_  
 Penetration Depth \_\_\_\_\_  
 Tar \_\_\_\_\_ Asphalt \_\_\_\_\_  
 Mousse \_\_\_\_\_ Stain \_\_\_\_\_  
 % Coverage of Deposit \_\_\_\_\_  
 Tidal Zone \_\_\_\_\_  
 Comments: \_\_\_\_\_

## DEPOSIT D

Distance from Stream \_\_\_\_\_  
 Surface Area \_\_\_\_\_  
 Thickness \_\_\_\_\_  
 Penetration Depth \_\_\_\_\_  
 Tar \_\_\_\_\_ Asphalt \_\_\_\_\_  
 Mousse \_\_\_\_\_ Stain \_\_\_\_\_  
 % Coverage of Deposit \_\_\_\_\_  
 Tidal Zone \_\_\_\_\_  
 Comments: \_\_\_\_\_

## DEPOSIT E

Distance from Stream \_\_\_\_\_  
 Surface Area \_\_\_\_\_  
 Thickness \_\_\_\_\_  
 Penetration Depth \_\_\_\_\_  
 Tar \_\_\_\_\_ Asphalt \_\_\_\_\_  
 Mousse \_\_\_\_\_ Stain \_\_\_\_\_  
 % Coverage of Deposit \_\_\_\_\_  
 Tidal Zone \_\_\_\_\_  
 Comments: \_\_\_\_\_

## DEPOSIT F

Distance from Stream \_\_\_\_\_  
 Surface Area \_\_\_\_\_  
 Thickness \_\_\_\_\_  
 Penetration Depth \_\_\_\_\_  
 Tar \_\_\_\_\_ Asphalt \_\_\_\_\_  
 Mousse \_\_\_\_\_ Stain \_\_\_\_\_  
 % Coverage of Deposit \_\_\_\_\_  
 Tidal Zone \_\_\_\_\_  
 Comments: \_\_\_\_\_

## PHOTOGRAPHIC EVIDENCE

### VIDEO

Cassette No. WTC0145  
 Beginning Footage 0

Photographer TON CROWE  
 Ending Footage 330

### 35 MM

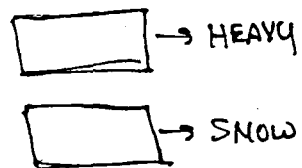
Roll Number \_\_\_\_\_  
 Frame Numbers \_\_\_\_\_

Photographer \_\_\_\_\_

### Polaroid

Number of Prints \_\_\_\_\_

Photographer \_\_\_\_\_



TAPE # WTCOIVHS  
FRAME 0358

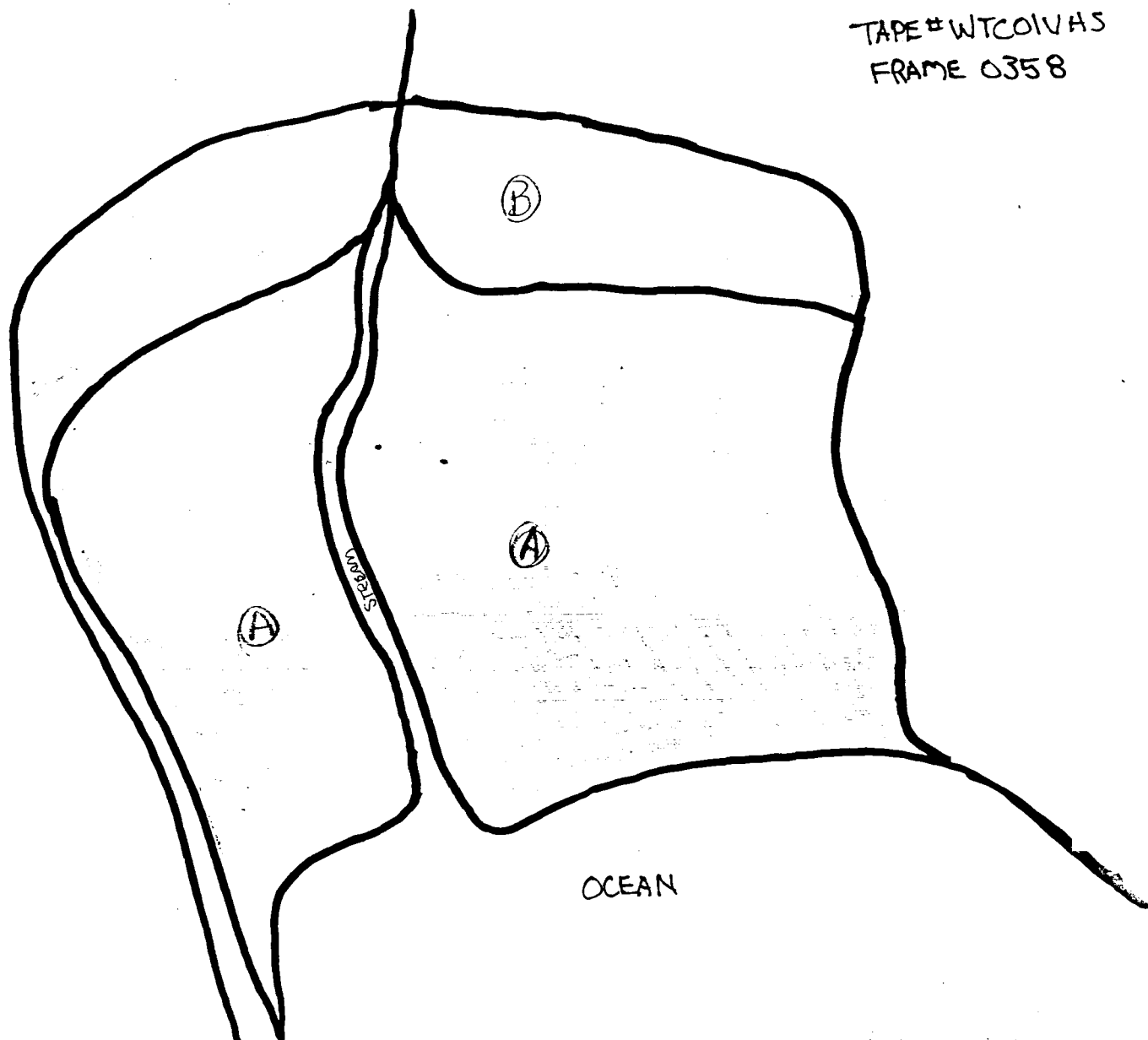
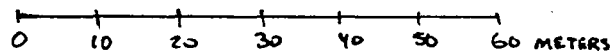
HERRING BAY

KN-500

NO ASC #

1-4-90

SCALE



ADF&G OIL SPILL RESPONSE MONITORING

ASC# 226-10-16996

Date: 8/26/91

Stream Name: \_\_\_\_\_

Observer: Aimee Weseman

Segment-Sub Unit KN500B

Location: NW Knight I

Anad. Stream Permit Issued? ☒ Y ☐ N

Date: Gen Permit in effect

Work Order Issued: Y ☒ N

Date: \_\_\_\_\_

Demob Date: \_\_\_\_\_

Oil Characteristics (circle appropriate ones)

Surface: AP, MS, TB, SOR, ☒ CV, ☒ CT, ST, FL, DB, None  
 Subsurface: OP, ☒ HOR, ☒ MOR, ☒ LOR, OF, TR, None

Treatment Techniques:

Manual Removal  
 Manual Raking/tilling X  
 Spot Wash  
 Other

Bioremediation & Type  
 Mechanical Tilling  
 Header Flood (Hot/Cold)

Crew Size: 5

Lbs. or Bags of Oil/Sediment Removed 0

Other Agency Reps, and Names: Dennis McGuire & Ivan Nanc-USCG  
John Baer ADEC & Mike Barker-EXXON

Photos Y ☒ N

Roll #

Frames

Video ☒ N Tape #

Start End

Sediment/Oil Samples (Y-N) ☒ N Collection Number

Purpose of Trip \* TAG visit to determine further treatment

\* Form designed primarily for cleanup inspection trips, but should be used for any field trips, i.e., to check on bird rookeries, seal haulouts, special habitat areas, etc.

Describe extent of remaining oil (any comments on expected completion of cleanup).

After receiving 2 tillings in '91, this site still contains significant subsurface oiling. Area C along the streambank is newly discovered & is a potential threat to the stream should <sup>the stream</sup> migrate through it. Oil in area D is heavy & mobile enough to cause chronic sheening in the area. Stream should be re-assessed in '92

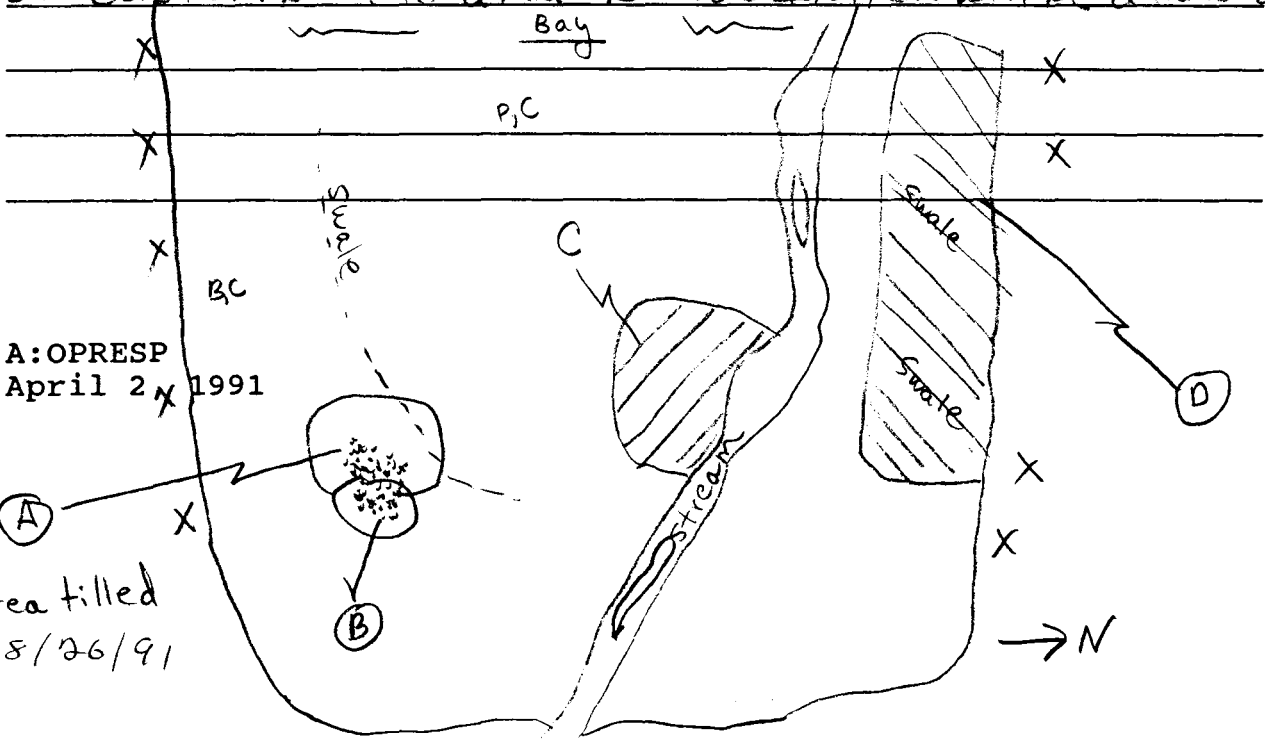
Comments: (Are work order procedures being followed?, etc.)

TAG decided in favor of further treatment to stream site this year. Recommended treatment will include; manual tilling with the tide and recovery of oil from area (D) (Post-treatment assessment '91 map).

Area of HOR/MOR along stream bank (C) will be pulled back 3 meters from stream & relocated.

While on site, we manually tilled parts of Areas A & B on south side of stream. Tilling was without the tide and no attempt was made at oil recovery.

Further treatment will also include the application of custom blots to area D - No IMPOR will be allowed.



- 1) SURVEY TYPE: BS SS 2) REGION: PWS KP, CI K, AP  
3) METHOD: Aerial Ground Boat KN500B  
4) DATE: 8/1/91 16) HIGH TIDE TIME: \_\_\_\_\_ 22) TEAM RECORDER: M. Fink  
5) START TIME: 10:40 17) HIGH TIDE HTS: \_\_\_\_\_ 23) OBSERVERS: Kuwada, Middleton,  
6) STOP TIME: 11:35 18) LOW TIDE TIMES: \_\_\_\_\_ 24) AGENCY: F46 Weseman  
7) SEGMENT #: KN500B 19) LOW TIDE HTS: \_\_\_\_\_ 25) PHOTOS TAKEN: Y (N)  
8) K-UNIT: \_\_\_\_\_ 20) TIDE HT AT SURVEY: +1 to +0.5 ft ROLL #: \_\_\_\_\_ FRAMES: \_\_\_\_\_  
9) LAT: \_\_\_\_\_ Ebb Slack Flood Slack 26) VIDEO TAKEN: Y (N)  
10) LONG: \_\_\_\_\_ 21) USCG QUAD: \_\_\_\_\_ TAPE # \_\_\_\_\_  
11) ASC #: 226-10-16996 START: \_\_\_\_\_ STOP: \_\_\_\_\_  
12) STREAM NAME: \_\_\_\_\_ 27) SAMPLES TAKEN? Y (N)  
13) LOCATION: \_\_\_\_\_ 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 1A | 10       | 7       | 70  | — | —        | —      | LOR      |
| SITE 2B | 8        | 5       | 40  | — | —        | —      | M to HUR |
| SITE 3C | 8        | 10      | 80  | — | —        | —      | H to MOR |
| SITE 4D | 13       | 46      | 598 | — | —        | —      | H to MOR |
| SITE 5  |          |         |     |   |          |        |          |

## 29) OVERALL OIL IMPACT:

H = >6m band with  $\geq 50\%$  oil coverageM = >6m band with  $\leq 50\%$  oil coverage or  $\geq 3\text{m}$  to  $\leq 6\text{m}$  with  $\geq 10\%$  oil coverageL = <3m band with  $> 10\%$  oil coverageVL =  $\leq 10\%$  oil coverage regardless of band width

N = No oil observed

33) ANADROMOUS FISH PRESENT: Y (N)30) OIL IN STREAMBED: (Y) N31) OIL ON BEACH ADJACENT TO MOUTH: (Y) N

## 32) SUBSTRATE TYPE (PERCENT):

Bedrock \_\_\_\_\_ Boulder \_\_\_\_\_ Gravel ✓ Sand ✓ Cobble ✓ Mud/Silt \_\_\_\_\_

## 34) WILDLIFE OBSERVATION

Species \_\_\_\_\_ Number \_\_\_\_\_

35) COMMENTS: mechanically tilled areas (C&D) still with oil (no oil  
lense in pits due to mixing). Exposed HUR, sheering, black beading when  
disturbed. No surface oil to speak of other than coats or stains  
on bedrock. New tar mat possibly to be formed from oil exposed  
from tilling. Needs to be reassessed in spring of 1992.

No pinker observed. \* Survey focused on documented oiling treated in 1991.

36) PHOTOLOG

FRAME(S)

DESCRIPTION

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

A.S.C. NO. 226-10-16996

Team Recorder: FINK

SEGMENT KN 500

Observers: Weseman, Kuwada, Middleton

SUBDIVISION B

DATE 8 / 1 / 91

TIME 10 : 40 to 11 : 35

TIDE LEVEL +1.0 ft. to +0.5 ft.

ENERGY LEVEL: ☐ H ☒ M ☐ L

SURVEYED FROM: ☒ FOOT ☐ BOAT ☐ HELO

WEATHER: ☐ SUN ☒ CLOUDS ☐ FOG ☒ RAIN ☐ SNOW

**TOTAL LENGTH SHORELINE SURVEYED: \_\_\_\_\_ m**

NEAR SHORE SHEEN: ☐ BR ☐ RB ☐ SL ☒ NONE

EST. OIL CATEGORY LENGTH: W\_\_\_\_\_m M\_\_\_\_\_m N\_\_\_\_\_m VL\_\_\_\_\_m NO\_\_\_\_\_m US\_\_\_\_\_m

**DISTRIBUTION: C = 91-100%; B = 51-90%; P = 11-50%; S = 1-10%; T = <1%**

**SLOPE: V = VERTICAL: H = HIGH ANGLE: M = MEDIUM ANGLE: L = LOW ANGLE**

**PHOTO ROLL #**

## FRAMES

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

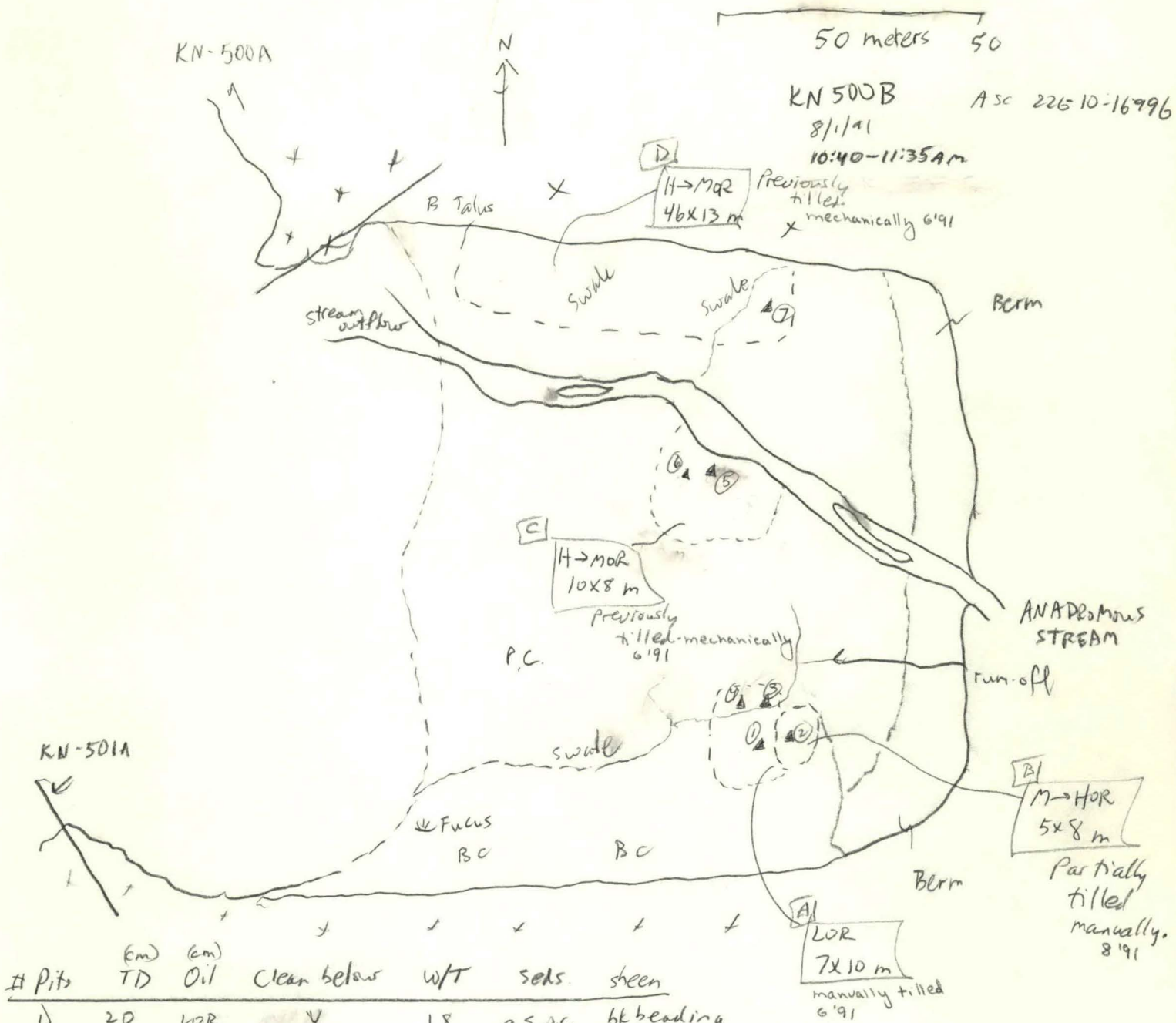
**OG COMMENTS:**

**OG COMMENTS:**  
Mechanically filled areas still with oil (no oiled zone in pits due to mixing).  
Exposed H<sub>2</sub>O<sub>2</sub>, sheening when disturbed. No surface oil to speak of other  
than coats or stain on bedrock. New format possibly to be formed  
from oil exposed from filling. Area D with exposed HOR in filled area.

Recommend reassessment in 1992.

\* Survey focused on documented oiling treated in 1991.

We identified a 15x40m area of OP in KN500A.



| # Pits | (cm) TD | (cm) Oil         | Clean below | W/T | seeds   | seen                   |
|--------|---------|------------------|-------------|-----|---------|------------------------|
| 1)     | 20      | LOR              | Y           | 18  | g.s.p.c | bk beading             |
| 2)     | 13      | sheening         | -           | 13  | g.s.p.c | bk beading             |
| 3)     | 24      | rainbow sheening | -           | 19  | g.s.p.c |                        |
| 4)     | 40      | 20-25 LOR        | Y           | 35  | g.s.p   |                        |
| 5)     | 40      | HOR              | -           | 35  | g.s.p.c | black beading          |
| 6)     | 60      | 52-57 HOR        | Y           | 58  | g.s.p.c | black beading          |
| 7)     | 20      | 12-17 HOR        | -           | 15  | s.g.p   | black beading, rainbow |

# ADF&G OIL SPILL RESPONSE MONITORING

ASC# 226-10-16996

Date: 6/25/91

Stream Name: \_\_\_\_\_

Observer: Mark Fink

Segment-Sub Unit KUSOOR

Mark Kuwada  
Times Wescman

Location: Old Knight ID, south of Herring Pt.

Anad. Stream Permit Issued? ☒ Y ☐ N

Date: 6/5/91

Work Order Issued: ☒ Y ☐ N

Date: 5/14/91

Demob Date: 6/7/91

## Oil Characteristics (circle appropriate ones)

Surface: AP, MS, TB, SOR, CV, CT, ST, FL, DB, None  
Subsurface: OP, ☒ HOR, ☒ MOR, ☒ LOR, OF, TR, None

## Treatment Techniques:

Manual Removal  
Manual Raking  
Spot Wash  
Other

Bioremediation & Type  
Mechanical Tilling  
Header Flood (Hot/Cold)

Crew Size: \_\_\_\_\_

Lbs. or Bags of Oil/Sediment Removed \_\_\_\_\_

Other Agency Reps, and Names: Deborah Walters, DEC  
\_\_\_\_\_  
\_\_\_\_\_

Photos

Y ☒ N

Roll #

Frames

\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Video

N Tape #

Start

End

\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Sediment/Oil Samples (Y ☒ N)

Collection Number

\_\_\_\_\_  
\_\_\_\_\_

Purpose of Trip \* Assess treatment

\* Form designed primarily for cleanup inspection trips, but should be used for any field trips, i.e., to check on bird rookeries, seal haulouts, special habitat areas. etc.

Describe extent of remaining oil (any comments on expected completion of cleanup).

LOR → MOR 9m x 4m area south side stream bank, MITZ (produced sheening in stream). 30m x 10m H → MOR area north side of cove had been manually filled. SATI needs work, some of lens is under swatch berm. 10x15m area south of stream that was manually filled looks good → LOR.

Comments: (Are work order procedures being followed?, etc.)

Ainee stated that the clean-up went well, according to the work order but the LOR → MOR in area adjacent to the stream needed to be worked. Mechanical filling was suggested for the H → MOR area at the north side of the cove. We did walk around the point, north into the pocket beach in KV588A. There was a lot of oil, H → MOR in a 10m x 40m area behind the rock outcrop/boulder field. It had not been treated.

ADF&G OIL SPILL RESPONSE MONITORING

ASC# 226-10-16996

Date: 6/7/91

Stream Name: \_\_\_\_\_

Observer: A. Weseman

Segment-Sub Unit KN500B

Location: NW Knight I - south of Herring Point

Anad. Stream Permit Issued? ☒ Y ☐ N

Date: 6/5/91

Work Order Issued: ☒ Y ☐ N

Date: 5/14/91

Demob Date: 6/7/91

Oil Characteristics (circle appropriate ones)

Surface: AP, MS, TB, ☒ SOR, ☒ CV, CT, ST, FL, DB, None  
 Subsurface: OP, ☒ HOR, ☒ MOR, ☒ LOR, ☒ OF, TR, None

Treatment Techniques:

Manual Removal ☒ X  
 Manual Raking/tilling ☒ X  
 Spot Wash  
 Other

Bioremediation & Type custom blend 180lbs  
 Mechanical Tilling  
 Header Flood (Hot/Cold)

Crew Size: 11 agency reps

Lbs. or Bags of Oil/Sediment Removed 1/4 super sack

Other Agency Reps, and Names: Chris Katsimpalis - Exxon  
Tim Mooney - USCG, Doug Riemer - Exxon OG, Doug Stine - USFW  
Peter Montesano - ADF&G

|               |                                      |               |               |
|---------------|--------------------------------------|---------------|---------------|
| <u>Photos</u> | Y <input checked="" type="radio"/> N | <u>Roll #</u> | <u>Frames</u> |
|               |                                      | _____         | _____         |
|               |                                      | _____         | _____         |

|              |               |              |            |
|--------------|---------------|--------------|------------|
| <u>Video</u> | <u>Tape #</u> | <u>Start</u> | <u>End</u> |
|              | <u>N</u>      | _____        | _____      |
|              | _____         | _____        | _____      |

|                             |                                        |                          |
|-----------------------------|----------------------------------------|--------------------------|
| <u>Sediment/Oil Samples</u> | (Y <input checked="" type="radio"/> N) | <u>Collection Number</u> |
|                             |                                        | _____                    |
|                             |                                        | _____                    |

Purpose of Trip \* Treatment

\* Form designed primarily for cleanup inspection trips, but should be used for any field trips, i.e., to check on bird rookeries, seal haulouts, special habitat areas, etc.

Describe extent of remaining oil (any comments on expected completion of cleanup).

Areas of subsurface oil, ~~HOET~~ MOR, addressed in work order were hopefully degraded to LOR ~~some~~ MOR. Other areas of LOR not addressed by work order remain. Area of concern is LOR in streambank on south side. Stream could wander through these oiled gravels.

Site should be re-evaluated for further work after several tidal cycles of flushing of recently tilled areas

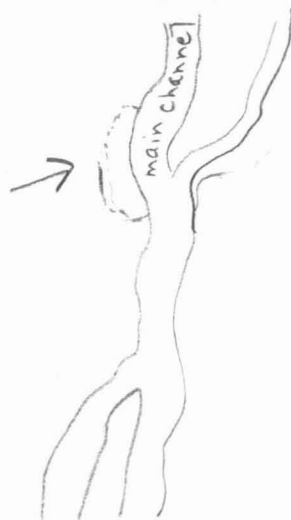
Comments: (Are work order procedures being followed?, etc.)

Work order was satisfactorily completed. This was a very cooperative & conscientious crew. The areas to be worked were identified & turned over  
with a shovel at low tide. Several rows of shore boom encircled them  
and customblend tilled in. As the tide came in & covered them, the  
areas were retilled, & agitated to release oil. Several people with pom-poms  
combed the area, recovering floating oil. A 1m wide x 10m patch of AP/SOR  
not identified on sketch was removed (4 supersack) near pits 9, 10 & 11.

The crew worked from 1400-1845. Five supersacks oily shore-boom  
were generated.

I personally tilled & flushed some of the LOR on south stream bank - see sketch  
I diverted stream waters through the area & black beads & sheen were released.  
I never reached the end of the lense & the area is of concern to me. Since it  
wasn't identified on the Work order I didn't press the issue, but it should  
be considered in the re-assessment. It is located directly adjacent to  
lower mid-stream gravel bar

A: OPRESP  
April 2, 1991





1991 MAYSAP EVALUATION

SEGMENT: KN 0500 SUB: B REGION: PWS SURVEY DATE: 4/30/91

ENVIRONMENTAL SENSITIVITIES:

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

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

Consultation and inspection with an Exxon archaeologist is required prior to treatment. Specific on-site monitoring requirements will be determined at that time. PHONE 564-3276; 564-3657; (Anchorage) or 229-1514 (24 hrs.).

SHPO Signature: [Signature]

Date: 5/10/91

RECOMMENDATIONS:

INITIAL

TAG

FOSC

TREATMENT REQUIRED (Y or N)

Y

Y

Manual Pickup (Check as Req.)

\_\_\_\_\_

X

Spot Washing

\_\_\_\_\_

\_\_\_\_\_

Bio-Customblen Only

\_\_\_\_\_

\_\_\_\_\_

Bio-Inipol/Customblen

X

X

Other Manual rake & till

X

X

Other

\_\_\_\_\_

\_\_\_\_\_

COMMENTS:

INITIAL: Manual rake & till, apply Customblen and Inipol to

20m x 5m HOR & MOR at pits 5 & 6. 1

TAG: MANUALLY TILL AT SITE A (PITS 5, 6 + 7) PLUS AREA  
OF ATS 10 + 11. WORK WITH RISING TIDE, RECOVER AVAILABLE  
OIL. FOLLOWED BY BIO. MANUAL PICK UP OF HSOR IN AREA  
C.

FOSC: \_\_\_\_\_

TAG APPROVAL DATE: MAY 10 1991 FOSC APPROVAL DATE: 5/14/91

ADEC: [Signature]

FOSC: [Signature]

EXXON: [Signature]

E. E. PAGE, CDR, USCG  
CHIEF OF STAFF, FOSC

USCG: [Signature]

NOAA: [Signature]

EXXON Valdez Oilspill Cleanup

Anadromous Fish Stream Authorization

Date 6-5-91

EXXON Authorized Representative CHRIS M. KNTSHIPALIS

Shoreline Segment KN 500 B

Anadromous Fish Stream Number(s) ASC 226-10-16996

Approved Cleanup Techniques MANUAL TILLING WITH OIL RECOVERY,  
MANUAL PICK UP AND REMOVAL OF OILED SEDIMENTS.

Approved Cleanup Period MAY 15, 1991 TO JULY 10, 1991

Alaska Department of Fish and Game

Pom Crowe  
Authorized Officer

Chris M. Kntshipalis  
Permittee's Signature

EXXON Valdez Oilspill Cleanup

Anadromous Fish Stream Authorization

Date 6-5-91

EXXON Authorized Representative CHRIS M. KATSIKIS

Shoreline Segment KN 500 B

Anadromous Fish Stream Number(s) ASC 226-10-16996

Approved Cleanup Techniques MANUAL TILLING WITH OIL RECOVERY,  
MANUAL PICK UP AND REMOVAL OF OILED SEDIMENTS.

Approved Cleanup Period MAY 15, 1991 TO JULY 10, 1991

Alaska Department of Fish and Game

Pom Crow  
Authorized Officer

Chris M. Katsikis  
Permittee's Signature

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: 4/30/91 16) HIGH TIDE TIME: \_\_\_\_\_ 22) TEAM RECORDER: TOM CROVE
- 5) START TIME: 0817 17) HIGH TIDE HTS: \_\_\_\_\_ 23) OBSERVERS: AIMEE WESEMAN
- 6) STOP TIME: 1010 18) LOW TIDE TIMES: 0900 24) AGENCY: ADF&G
- 7) SEGMENT #: KN500B 19) LOW TIDE HTS: -2 25) PHOTOS TAKEN: Y N
- 8) K-UNIT: \_\_\_\_\_ 20) TIDE HT AT SURVEY: -2 tot. 2 ROLL #: \_\_\_\_\_ FRAMES: \_\_\_\_\_
- 9) LAT: \_\_\_\_\_ Ebb Slack Flood Slack 26) VIDEO TAKEN: Y N
- 10) LONG: \_\_\_\_\_ 21) USCG QUAD: \_\_\_\_\_ TAPE # \_\_\_\_\_
- 11) ASC #: 226-10-16996 START: \_\_\_\_\_ STOP: \_\_\_\_\_
- 12) STREAM NAME: \_\_\_\_\_ 27) SAMPLES TAKEN? Y N
- 13) LOCATION: KNIGHT ISLAND 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 |          |         |    |   |          |        |          |
| SITE 2 |          |         |    |   |          |        |          |
| 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

30) OIL IN STREAMBED: Y N

31) OIL ON BEACH ADJACENT TO MOUTH: Y N

32) SUBSTRATE TYPE (PERCENT):

Bedrock \_\_\_\_\_ Boulder \_\_\_\_\_ Gravel 95% Sand \_\_\_\_\_ Cobble \_\_\_\_\_ Mud/Silt \_\_\_\_\_

35) COMMENTS: \_\_\_\_\_

33) ANADROMOUS FISH PRESENT: Y N

34) WILDLIFE OBSERVATION

Species \_\_\_\_\_ Number \_\_\_\_\_

HARLEQUIN DUCKS 30+

Rock Blennies 25+

# 36) PHOTOLOG

FRAME(S)

DESCRIPTION

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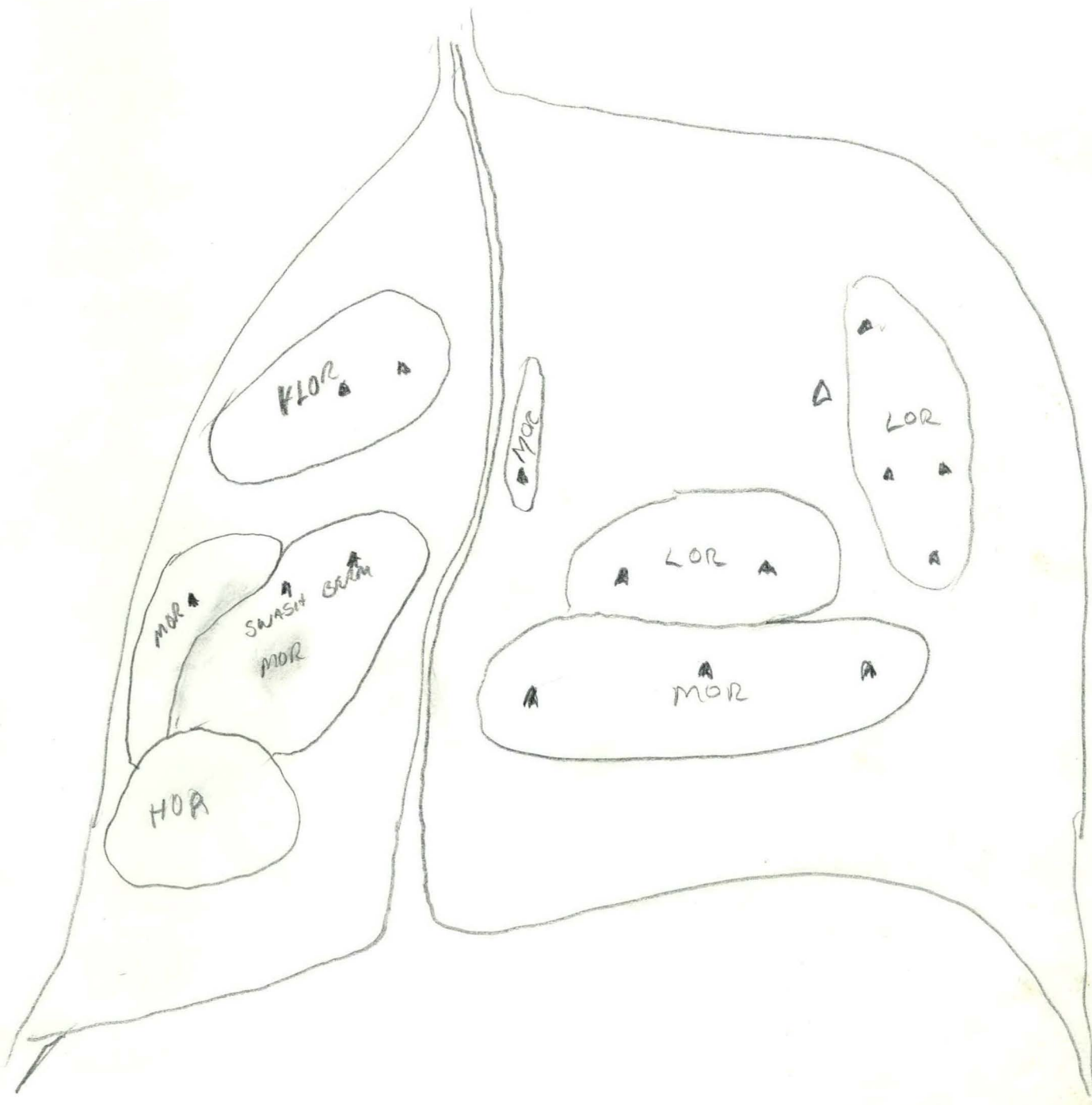
Sample Taken  
 Photo Frame # and  
 Shot Direction

A:EDDATFO  
 April 3, 1991

4/30/91

KN 5003

ASA 226-10-16996



PAGE 1 OF 2

[cont'd.]

## MAYSAP SHORELINE OILING SUMMARY (cont.)

PAGE 2 OF 2

TEAM NO. 6

SEGMENT KNL500

SUBDIVISION B

DATE 04/30/91

[illegible]

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

**OG COMMENTS:**

cont'd .

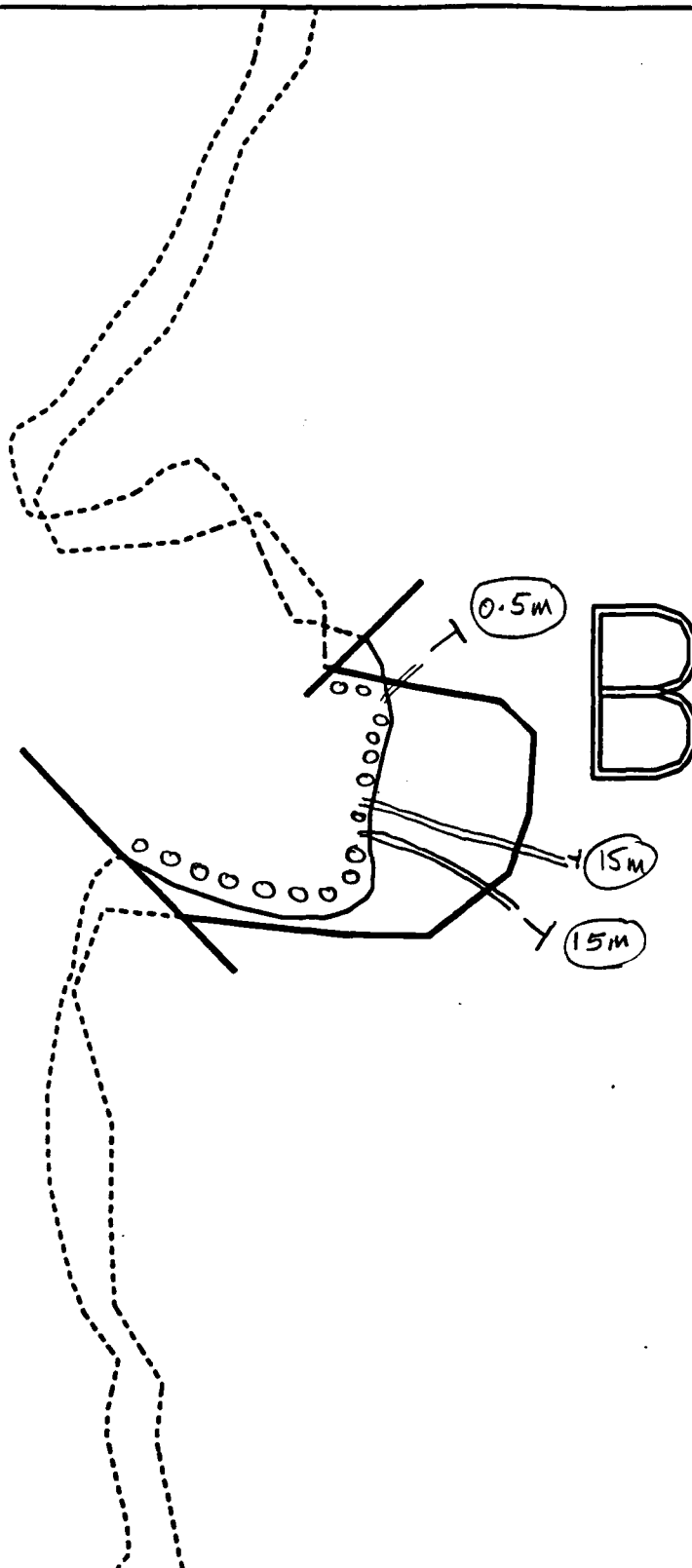
cont'd. was restricted to the Northwest corner of the UTZ - close to the (shifted) stream outflow. No oil was found in the UTZ / SUTZ or at the southern quarter of the beach / cliff walls.

④



KN5LLB

| # PITS | TD | OIL           | clean blow | H <sub>2</sub> O | Seds | sheen |
|--------|----|---------------|------------|------------------|------|-------|
| (19)   | 30 | (L)OR         | Y          | 25               | pgs  | R     |
| (20)   | 30 | NO            | Y          | 25               | "    | N     |
| (21)   | 30 | NO            | Y          | 25               | "    | N     |
| (22)   | 25 | OF            | Y          | 15               | "    | R     |
| (23)   | 30 | (L)OR<br>0-15 | Y          | 25               | "    | R     |



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

**KN0500 B**  
 ADEC Subsegment Length: 379m  
 METERS

0 100 200  
 AK State Plane Zone 4  
 kn0500b



Subdivision Field Map  
 Map Key: KNKN0500B  
 Name: D.I. LITTLE  
 Date: 04/30/91  
 Date Entered:

## MAYSAP BIOLOGICAL SUMMARY FORM

TEAM # 6 DATE 4/30/91  
 SEGMENT # KN-500 TIDAL HEIGHT (Range) -1 1/2 ft  
 SUBDIVISION B BIOLOGIST T.R. Schroeder  
 SEA STATE 1-2 foot seas with chop WIND SPEED/DIRECTION NE 15-20  
 PHOTOGRAPHS: ROLL # FRAME #

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

(A) = (H) SOR located adjacent to mussel bed. LITZ below extremely rich with starfish, hermit crab, limpets, Littorina snails and rock blennies. Fucus help sea urchins and other brown/red algae plentiful. Birds are thriving in spite of presence of oil.

(B, & B, & C) = SOR and (H) SOR located in fairly non-productive portion of beach. Immediately below these sites are very dense regrowth of fucus and mussels. Littorina snails, limpets and barnacles least abundant in bladder/cable patch along southern shore of section.

Subsurface = Subsurface oil is located throughout section and most are in close proximity to healthy communities of fucus, mussels, snails, etc. Any use of mechanized equipment for treatment or removal would be extremely intrusive.

This small bay is an extremely rich and productive area. Communities of fucus, eelgrass, Littorina, snails etc. are thriving in spite of the presence of surface and subsurface oil. Fish (rock blennies) were present throughout the LITZ area. Any additional treatment would be extremely detrimental to the thriving and lush biological community.

## WILDLIFE OBSERVATIONS

TO BE COMPLETED IN ALL SUBDIVISIONS

| BIRDS            | # OF SPECIES | TOTAL BIRDS | FISH OBSERVED<br>SPECIES PRESENT                       |
|------------------|--------------|-------------|--------------------------------------------------------|
| Eagles           |              |             | Many rock blennies under literally every rock in LITZ. |
| Seabirds         |              |             |                                                        |
| Waterfowl        |              |             |                                                        |
| Gulls/Kittiwakes |              |             |                                                        |
| Shorebirds       |              |             |                                                        |
| Corvids          |              |             |                                                        |
| Other Birds      |              |             |                                                        |

## LAND MAMMALS

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

Shoreline subdivision map showing important biological features attached.

0 25 50  
meters

N  
↑

KN-500-B 4/30/91  
Bio. Map T.R. Schroeder  
0830-0910

- X = rocks
- W = eel grass
- III = oil
- = fucus or mussels
- △ = pit no oil
- ▲ = pit w/ oil

Knight Island  
Passage

Fucus kelp and  
sporlings. Barnacle  
spat, Littorine snails  
and mussels abundant

Bull  
Kelp  
Bed

Eel  
Grass

Boulder/Cobble Patch

Mussel Bed

(H)SOR 10%  
0542

mussel regrowth  
on rock face  
excellent

Swash  
Berm

(B)SOR  
48.11  
1590

(B)SOR 16  
5X15

(H)SOR  
10X15  
570

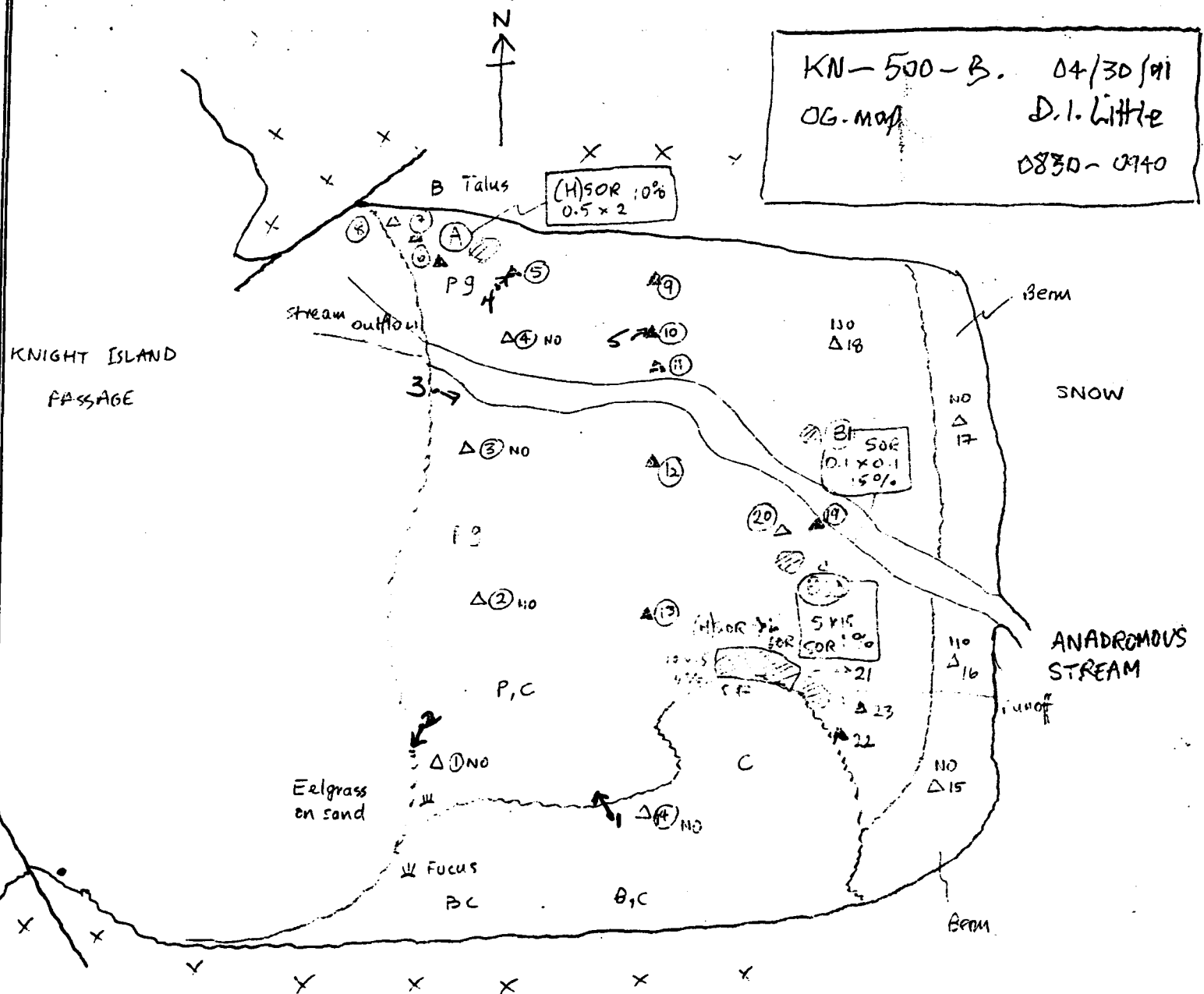
ANADROMOUS  
Stream

Berm

Sea sac algae, laminaria  
fucus and other brown/red  
algae thriving in LITZ.  
Littorine snails and egg  
masses, limpets and rock  
blennies numerous. Extremely  
rich and abundant intertidal  
area.

(9)

# Photo locations

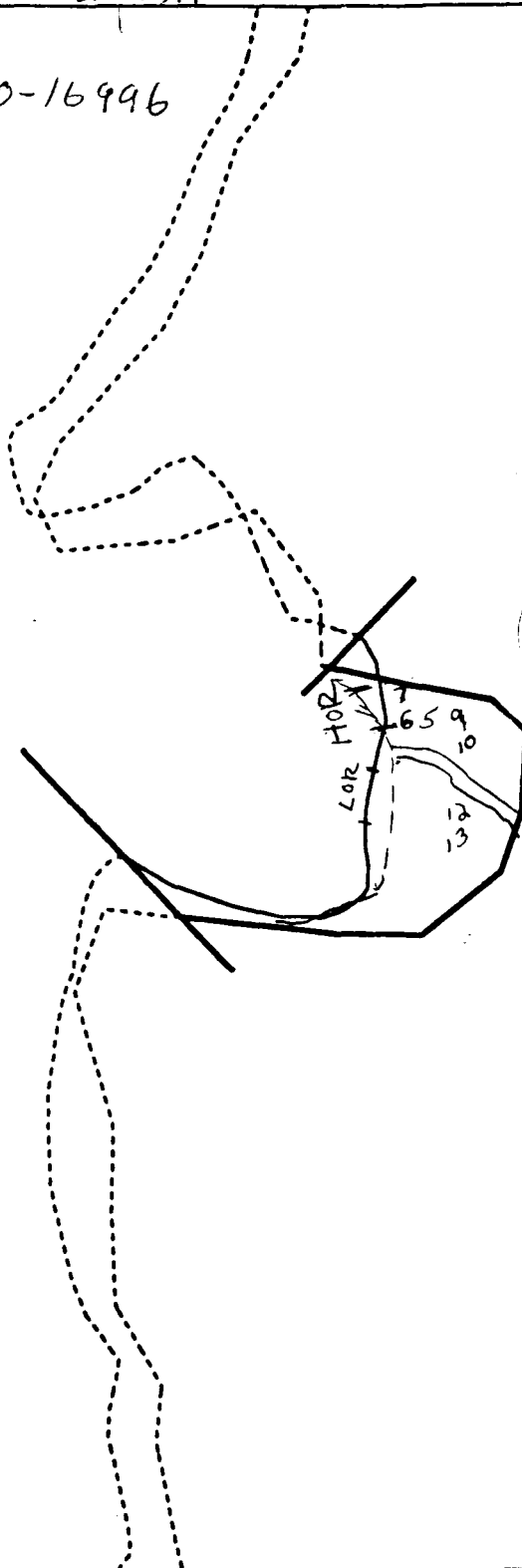


| # PITS | TD | OIL              | clean below | H <sub>2</sub> O | sed:             |
|--------|----|------------------|-------------|------------------|------------------|
| ①      | 15 | NO               | Y           | 10               | fine sand        |
| ②      | 30 | NO               | Y           | 10               | Pg-P C g s       |
| ③      | 30 | NO               | Y           | 28               | Pg-P g s         |
| ④      | 25 | NO               | Y           | 5                | gp-sg P          |
| ⑤      | 20 | Y 0-20<br>(H) OR | N           | 5                | sg p Brown sheen |
| ⑥      | 15 | Y 3-8<br>(M) OR  | Y           | 5                | Sg BS            |
| ⑦      | 15 | NO               | Y           | 5                | sg -             |

| # PITS | TD | OIL              | clean below | H <sub>2</sub> O | sed:     |
|--------|----|------------------|-------------|------------------|----------|
| ⑧      | 30 | NO               | Y           | 25               | g p c    |
| ⑨      | 25 | (L) OR<br>5-15   | Y peak      | 3                | p g BS   |
| ⑩      | 30 | (M) OR<br>5-30   | N           | 25               | g s BS   |
| ⑪      | 35 | (L) OR<br>5-35   | N           | 25               | g p s BS |
| ⑫      | 30 | (L) OR<br>0-13   | Y           | -                | g p s -  |
| ⑬      | 15 | (L) OR<br>5-7 cm | Y           | 15               | g p s FL |
| ⑭ - ⑮  | 35 | NO               | Y           | -                | g p s -  |

⑩

ASC# 226-10-16996



B



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

KN0500 B

ADEC Subsegment Length: 379m  
 METERS

0 100 200  
 AK State Plane Zone 4  
 4405006



Subdivision Field Map

Map Key: KNKN0500B

Name: Aimee Weseman

Date: 4/30/91

Date Entered:

# MAYSAP FIELD SHORELINE COMMENT SHEET

TEAM NO. 6 SEGMENT KN-500 SUBDIVISION B DATE 04/30/91

## ADEC & USFS

NAME Aimee Weseman SIGNATURE Aimee Weseman

☐ NTR ☒ Treatment Recommended, Anad Fish stream, Commercial Fishing & Recreation Area

Due to the significant amount of subsurface oil present across the mid-Intertidal Zone of this wandering stream, mechanical tilling of this area is recommended.

## EXXON

NAME Scott A. Nauman SIGNATURE Scott A. Nauman

☒ NTR

This site has improved dramatically since last year's ASAP. Surface coverage has been reduced from a continuous SOR to very small patches. Based on this change, I believe the remaining surface remnants will quickly weather naturally. Subsurface oil is non-existent to low residual across most of the beach. The concentrated pocket to the northwest is adjacent to healthy mussel beds. To dig up or till this pocket would undoubtedly disturb these beds, as well as the lush life growth.

## LANDMANAGER

NAME TOM CROWE OF ADFTG SIGNATURE Tom Crowe

☐ NTR ☒ TREATMENT RECOMMENDED

THIS ANADROMOUS STREAM APPEARS TO STILL BE OVERSOWN ON BOTH SIDES WITH OILED SEDIMENTS. MECHANICAL TILLING OF THESE SEDIMENTS WITH A SMALL CAT WITH RAKER BARS SUCH AS THE WORK DONE AT THIS SITE LAST SUMMER IS RECOMMENDED.

## USCG/NOAA

NAME CWO R. SPURR / Rebecca Hoff SIGNATURE R. Spurr / Rebecca Hoff

☐ NTR

This segment shows the impacts of tilling done in previous years. The entire area south of the stream should not be treated since remaining surface oil is not extensive & is weathering fine. Also, this area has rich lower intertidal habitat including eelgrass beds that should not be disturbed. Areas to the north of the stream with some subsurface residue could be turned manually to help weathering. Mechanical tilling is not recommended as it is too intrusive. Any manual treatments should be limited in scope & restricted to the mid & upper zones.

1991 MAYS

SEGMENT: KN-500 SUB: BENVIRONMENTAL SENSITIVITIES:Work Window(s) RESTRICTED 3/1 - 9/15

Post-It™ brand fax transmittal memo 7671

# of pages &gt;

|                       |                         |
|-----------------------|-------------------------|
| To <u>Mark Kuwada</u> | From <u>John Bauer</u>  |
| Co. <u>F&amp;G</u>    | Co. <u>ADEC</u>         |
| Dept.                 | Phone # <u>563-1126</u> |
| Fax # <u>319-1723</u> | Fax # <u>563-3541</u>   |

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

Consultation and inspection with an Exxon archaeologist is required prior to treatment. Specific on-site monitoring requirements will be determined at that time. PHONE 564-3276; 564-3657; (Anchorage) or 229-1514 (24 hrs.).

SHPO Signature: \_\_\_\_\_ Date: \_\_\_\_\_

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

COMMENTS:

INITIAL: \_\_\_\_\_

TAG: Manually till at both sites. Work with rising tide, follow by Bio (Customblen only). Relocate oiled sediments located within 3 meters of stream.

Site 1 - north side of beach next to bedrock cliff: Manually till with rising tide followed by Customblen only. Site 2 - adjacent to south side of stream bank: FOSC: Relocate oiled sediments within 3 meters of stream to south and west of oiled stream bank. No fertilizers at site 2. John Bauer 8-28-91

TAG APPROVAL DATE: 28 AUG 91

FOSC APPROVAL DATE: \_\_\_\_\_

ADEC

John Bauer

FOSC

EXXON

D. Michael Bal

→ See comments above.

USCG

Don Nance, LTJG, USCGA

NOAA

LN

1991 MAYS

SEGMENT: KN-500 SUB: BENVIRONMENTAL SENSITIVITIES:Work Window(s) RESTRICTED 3/1 - 9/15

Post-It™ brand fax transmittal memo 7871

# of pages &gt;

|       |                    |         |                   |
|-------|--------------------|---------|-------------------|
| To    | <u>Mark Kuwada</u> | From    | <u>John Bauer</u> |
| Co.   | <u>EFG</u>         | Co.     | <u>ADEC</u>       |
| Dept. |                    | Phone # | <u>563-1126</u>   |
| Fax # | <u>319-1723</u>    | Fax #   | <u>563-3541</u>   |

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

Consultation and inspection with an Exxon archaeologist is required prior to treatment. Specific on-site monitoring requirements will be determined at that time. PHONE 564-3276; 564-3657; (Anchorage) or 229-1514 (24 hrs.).

SHPO Signature: \_\_\_\_\_ Date: \_\_\_\_\_

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

COMMENTS:

INITIAL: \_\_\_\_\_

TAG: Manually till at both sites. Work with rising tide, follow by Bio

(Customblen only). Relocate oiled sediments located within 3 meters of stream.

Site 1 - north side of beach next to bedrock cliff: Manually till with rising tide followed by Customblen only. Site 2 - adjacent to south side of stream bank: FOSC: Relocate oiled sediments within 3 meters of stream to south and west of oiled stream bank. No Fertilizer at site 2. John Bauer 8-28-91

TAG APPROVAL DATE: 28 AUG 91

FOSC APPROVAL DATE: \_\_\_\_\_

ADEC

John Bauer

FOSC

EXXON

D. Michael Bal

USCG

Les Neusel, LTJG, USCGA

NOAA

LN

→ See comments above.

ADF&G MULTI-ASSESSMENT FORM  
1991 GENERAL ENTRY CHECKLIST

STREAM#: 2261016996  
SEGMENT: KN500

PAGE 3

DATE PRINTED: 08/26/91

LOCATION: KNIGHT ISLAND, NORTHWEST SIDE

SURVEY TYPE: 91 POST TREATMENT - SS

METHOD: GROUND

DATE: 08/01/91

TEAM RECORDER: FINK

START TIME: 1040

OBSERVERS: KUWADA MIDDLETON WESEMAN

END TIME: 1135 *1.0 to 0.5*

TIDES: 1-0.5 *+1 to +0.5, 0.5/stock*

AGENCY: FG

OG/HAB DISCREPANCIES: -

PHOTOS TAKEN: N

STATION: 2261016996

ROLL#: -0-

FRAME: -0-

VIDEO TAKEN: N

TAPE#: -0-

START: -0-

END: -0-

SAMPLES TAKEN: N

SAMPLE NUMBERS: -0-

-0-

-0-

-0-

-0-

-0-

OIL IN STREAM BED: Y

OVERALL OIL IMPACT: -0-

OIL ON BEACH BY MOUTH: Y

WAVE EXPOSURE: MOD

SHORELINE TYPE: BEACH COVE

SUBSTRATE TYPE: BEDROCK -0- BOULDER -0- COBBLE Y VEGETAT -0-

GRAVEL Y SAND Y MUD/SILT -0- GRANULE -0-

ANADROMOUS FISH PRESENT: N

SPECIES: -0-

COUNT: -0-

-0-

-0-

-0-

-0-

-0-

-0-

-0-

-0-

ADF&G MULTI-ASSESSMENT FORM  
1991 OILING ENTRY CHECKLIST

PAGE 4

DATE PRINTED: 08/26/91

STREAM# : 2261016996  
SEGMENT#: KN500

SURVEY TYPE : 91 POST TREATMENT - SS LOCATION: KNIGHT ISLAND, NORTHWEST  
DATE: 08/01/91  
TIMES: 1040 - 1135  
SIDE  
TEAM RECORDER: FINK

-- OILING EXTENT --

| SITE# | SITE<br>TYPE | DEPTH<br>(cm) | LENGTH<br>(m) | WIDTH<br>(m) | AREA<br>(m) | %   | THICK<br>(cm) | PEN<br>(cm) | OIL TYPE<br>CODES |
|-------|--------------|---------------|---------------|--------------|-------------|-----|---------------|-------------|-------------------|
| A     | SUBS         | -0-           | 10            | 7            | 70          | -0- | -0-           | -0-         | LOR               |
| B     | SUBS         | -0-           | 8             | 5            | 40          | -0- | -0-           | -0-         | MOR HOR           |
| C     | SUBS         | -0-           | 8             | 10           | 80          | -0- | -0-           | -0-         | HOR MOR           |
| D     | SUBS         | -0-           | 13            | 46           | 598         | -0- | -0-           | -0-         | HOR MOR           |

ADF&G MULTI-ASSESSMENT FORM  
1991 OILING ENTRY CHECKLIST

PAGE 5

DATE PRINTED: 08/26/91

COMMENTS:  
MECHANICALLY TILLED AREAS C AND D, STILL WITH OIL (NO OIL LENSE IN PITS DUE TO MIXING). EXPOSED HOR TO MOR, SHEENING, BLACK BEADING WHEN DISTURBED. NO SURFACE OIL TO SPEAK OF OTHER THAN COATS OR STAINS ON BEDROCK. NEW TARMAT POSSIBLY TO BE FORMED FROM OIL EXPOSED FROM TILLING. NEEDS TO BE REASSESSED IN SPRING OF 1992. NO PINKS OBSERVED. \*SURVEY FOCUSED ON DOCUMENTED OILING TREATED IN 1991.

ADF&G MULTI-ASSESSMENT FORM  
1991 POST TREATMENT PIT INFO

PAGE 3

DATE PRINTED: 08/26/91

STREAM# : 2261016996  
SEGMENT#: KN500

SURVEY TYPE : 91 POST TREATMENT - SS LOCATION: KNIGHT ISLAND, NORTHWEST SIDE  
DATE:  
TIMES: 1040 - 1135  
TEAM RECORDER: -0-

-- PIT DETAILS ---

| SITE# | SITE TYPE | TOT DP (cm) | OIL DP (cm) | CLEAN BELOW | SHEEN          | W/T (cm) | SEDIM CODES | TIDE ZONE | OIL TYPE CODES | PIT-SPECIFIC COMMENTS |
|-------|-----------|-------------|-------------|-------------|----------------|----------|-------------|-----------|----------------|-----------------------|
| A1    | PIT       | 20          | -0-         | Y           | BLACK BEADS    | 18       | GSPC        | -0-       | LOR            | -0-                   |
| A3    | PIT       | 24          | -0-         | -           | RAINBOW        | 19       | GSPC        | -0-       | SHEEN<br>TR    | -0-                   |
| A4    | PIT       | 40          | 20-25       | Y           | -0-            | 35       | GSP         | -0-       | LOR            | -0-                   |
| B2    | PIT       | 13          | -0-         | -           | BLACK BEADS    | 13       | GSPC        | -0-       | SHEEN<br>TR    | -0-                   |
| C5    | PIT       | 40          | -0-         | -           | BLACK BEADS    | 35       | GSPC        | -0-       | HOR            | -0-                   |
| C6    | PIT       | 60          | 52-57       | -           | BLCK BEAD RNBW | 58       | GSPC        | -0-       | HOR            | -0-                   |
| D7    | PIT       | 20          | 12-17       | -           | BLCK BEAD RNBW | 15       | SGP         | -0-       | HOR            | -0-                   |



Segment KN500 Subdivision B  
Location KNIGHT ISLAND  
Photographer REBECCA HOFF  
Roll No MAYSAP-6-03 Date 4/30/91  
Control No 824 (Office Use Only)  
Log Frame No 4 Negative No 3  
Comments PIT 5

AUG-18-1991 10:25 FROM DON BOLLINGER

ALASKA DEPT. OF FISH & GAME  
563-3541# P.01

AUG 19 1991

REGION II  
HABITAT DIVISION

|                                          |             |              |
|------------------------------------------|-------------|--------------|
| Post-It™ brand fax transmittal memo 7871 |             | # of pages > |
| To                                       | MARK KUWADA | From         |
| Co.                                      | ADPTG       | Co.          |
| Dept.                                    | HABITAT     | Phone #      |
| Fax #                                    | 349-1723    | Fax #        |
|                                          |             | 563-3541     |

TO: JOHN BAUER

FROM: JEFF GIVALIAS

\$

DATE: August 16, 1991

RE: Don Bollinger survey of KN-SOD B.

A SURVEY CREW FROM THE DON BOLLINGER (ADEC J. GIVALIAS, USCG JERRY SCHULTZ, EXRON FRANK BOE, OG GRAHAM MACDONALD) SURVEYED THE ANADROMOUS STREAM AREA OF THIS SEGMENT ON THE ABOVE DATE, FROM 13:50 TO 14:20. THE FOLLOWING ARE MY OBSERVATIONS AND RECOMMENDATIONS, WITH AN ACCOMPANYING MAP. I WILL SKIP GEOLOGICAL COMPOSITION, ETC., AS I ASSUME MOST PARTIES ARE FAMILIAR WITH THE SEGMENT.

I OBSERVED TREATABLE OIL AT THREE SITES (Ks 1, 2, 3 ON MAP). SITE 1 IS NEAR/AGAINST THE NORTH BEDROCK WALL, APPROXIMATELY 70 METERS FROM THE STREAM. IT IS NEAR THE MITZ-UTZ, ABOUT 8M X 10M, AND APPEARS TO BE OVER A LAYER OF PENT. THERE IS STAIN/COAT ON THE NEARBY BEDROCK WALL. THE OIL IS AN UNDISTINGUISHABLE LENS, BUT READILY SHOWS GREY WHEN DISTURBED, AND IS TACKY WHEN FELT. BUT FOR THE PRESENCE OF AN ANADROMOUS STREAM, SIMILAR OILING CONDITIONS ENCOUNTERED BY THE BOLLINGER SQUAD WOULD ENTAIL PREP (RAKING/AGITATION) AND COMBINATION LUMP/CUSTOMER APPLICATION. MANUAL RAKING ALONE MAY PROVIDE SOME BENEFIT. I AM HESITANT TO RECOMMEND MANUAL REMOVAL AS I DID NOT OBSERVE DEFINABLE RECOVERABLE OIL (PAVEMENT, TARMAT, OR LENS).

SITE 2 WAS HIGHER UP THE BEACH, ABOUT 30 METERS FROM THE STREAM, JUST SOUTH OF A LOW WATER-FILLED DEPRESSION IN THE BEACH. SCATTERED WEATHERED MID SOR WAS OBSERVED IN A 5M X 5M SPORADIC AREA. RANDOM HANDFULS OCCASIONALLY SHOWED WHEN DEPOSITED IN THE WATER, CONFIRMING

AUG-18-1991 10:26 FROM DON BOLLINGER

TO 25301#0019075633541# P.02

J. BAUER

PAGE 2 OF 2

KN-500 B

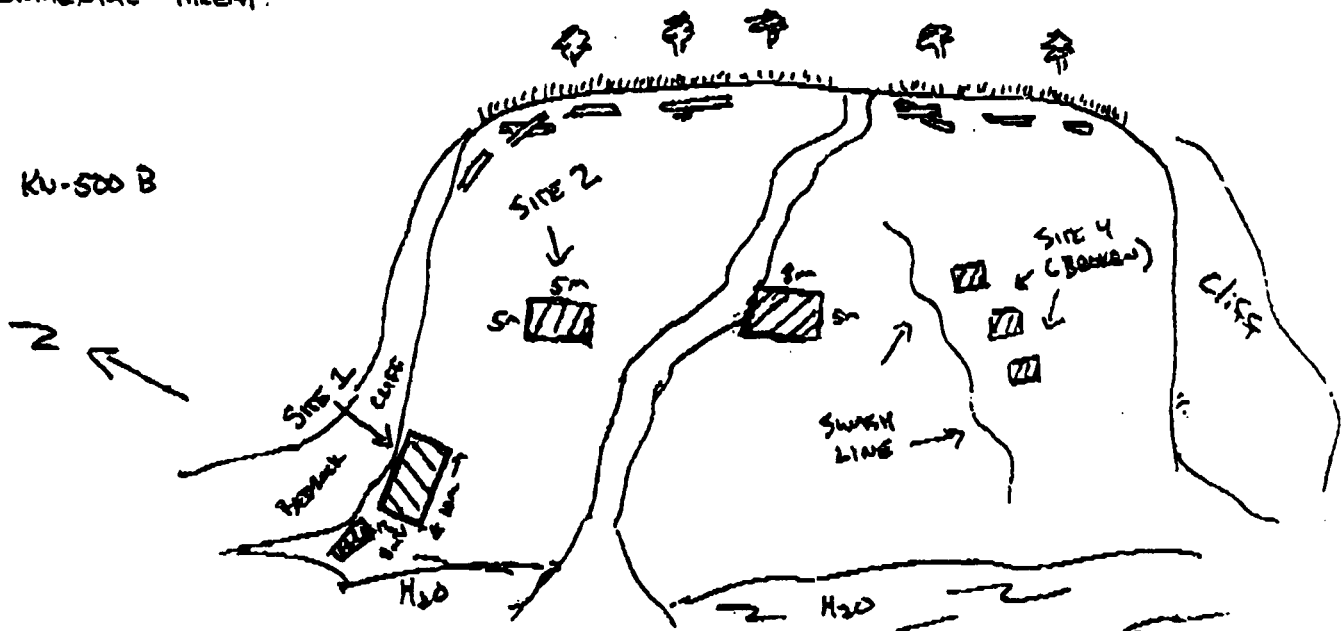
Aug 16, 1991

THE OILING WAS SPORADIC. SUGGESTED TREATMENT IS MANUAL TILLING/RAKING AND INPOL/CUSTOMLEN (EXCEPT FOR ANOMALOUS STREAM PRESENCE. AGAIN, AN INSUFFICIENT DEFINABLE LENS MAKES MANUAL REMOVAL A QUESTIONABLE TREATMENT OPTION.

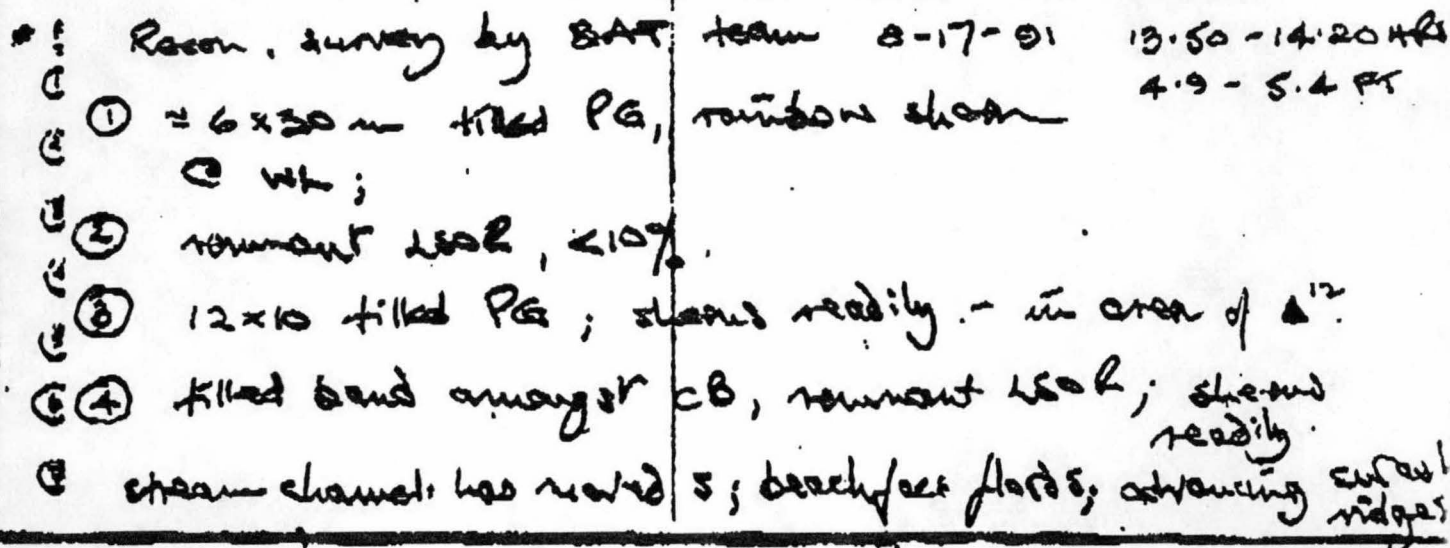
SITE THREE IS HORIZONTALLY PARALLEL TO SITE 2, AND CONSISTS OF A 5M X 8M BAND ALONG THE SOUTH SIDE OF THE STREAM. IT IS RADIALLY VISIBLE. WHEN DISTURBED, THE AREA PROMPTLY BLEDS A GRAY TO RAINBOW STAIN INTO THE STREAM, WHICH COULD BE FOLLOWED TO THE MOUTH (30 METERS AT OUR TIDE). THE SAME TREATMENT PROBLEM PERSISTS AT SITE 3. ALTHOUGH VISIBLE, A DISTINCT, RETRIEVABLE LENS OR PAVEMENT IS NOT PRESENT. MANUAL RAKING MAY BE EFFECTIVE IN EXPOSING AND FREEING THE REMAINING OIL. CUSTOMLEN MAY ACCELERATE BIO-DEGRADATION.. INPOL MIGHT BE APPROPRIATE, BUT FOR THE PROXIMITY TO THE STREAM.

I DO NOT BELIEVE THE LENS EXTENDS FAR ENOUGH OR IS CONCENTRATED ENOUGH FOR MECHANICAL TILLING. HOWEVER, IF THIS OPTION IS CONSIDERED, THE BLOT ON THE BEACH APPEARS RELATIVELY SPARSE.

A FOURTH SITE, ABOUT ONE HUNDRED METERS SOUTH OF THE STREAM, JUST BEYOND THE SWASH LINE OF RUTUMBED COBBLES, SHOWS TRACES OF WEATHERED, TRIANGLE LOW SOL. ADEQUATE TREATMENT COULD CONSIST OF BREAKUP BY RAKING. THE DISTANCE FROM THE STREAM AND MINIMAL REMAINING OIL SEEMS TO POSE A MINOR CONTINUING ENVIRONMENTAL THREAT.



P.04/08



Ex:

1. Evangelical

ADF&G OIL SPILL RESPONSE MONITORING

ASC# 226-10-16996

Date: 7/11/91

Stream Name: \_\_\_\_\_

Observer: Doug Hill

Segment-Sub Unit KN-SOOR

Location: Knight Island/NW shore

Anad. Stream Permit Issued? ☒ N

Date: 7/11/91

Work Order Issued: ☒ N

Date: \_\_\_\_\_

Demob Date: \_\_\_\_\_

Oil Characteristics (circle appropriate ones)

Surface: AP, MS, TB, (SOR), CV, CT, ST, FL, DB, None  
 Subsurface: (OB), (HOB), (MOR), (LOB), (OF), TR, None

Treatment Techniques:

Manual Removal  
 Manual Raking  
 Spot Wash  
 Other

Bioremediation & Type  
Mechanical Tilling  
 Header Flood (Hot/Cold)

Crew Size: 6

Lbs. or Bags of Oil/Sediment Removed

2 1/2 Super Suck of pump poms and sorbent towels

Other Agency Reps, and Names:

Vince Mulligan (USCG), Dale Gardner (AOEC), Ray Setelo (Exxon)

|                                        |                                      |               |               |
|----------------------------------------|--------------------------------------|---------------|---------------|
| <u>Photos</u>                          | Y <input checked="" type="radio"/> N | <u>Roll #</u> | <u>Frames</u> |
| <u>DALE GARDNER (AOEC) has photos.</u> |                                      | _____         | _____         |
|                                        |                                      | _____         | _____         |

|              |               |              |            |
|--------------|---------------|--------------|------------|
| <u>Video</u> | <u>Tape #</u> | <u>Start</u> | <u>End</u> |
|              | _____         | _____        | _____      |
|              | _____         | _____        | _____      |

Sediment/Oil Samples (Y-☒) Collection Number

\_\_\_\_\_  
 \_\_\_\_\_

Purpose of Trip \* BA Cleanup monitoring, State Work Modification

\* Form designed primarily for cleanup inspection trips, but should be used for any field trips, i.e., to check on bird rookeries, seal haulouts, special habitat areas, etc.

Describe extent of remaining oil (any comments on expected completion of cleanup).

Two Areas Tilled 1) North Side of creek  $\approx 70' \times 150'$  Area  
2) South Side of Creek  $\Rightarrow 15' \times 30'$  tilled Area  
Stream bank-pulled back, tilled & spread 20' x 40' Area of spread.

Black layer of oil (below brown OR/OP) at 4-8" depth observed along rock wall at LITZ & Lower METZ ( $\approx 3"$  thick, 20' x 30')

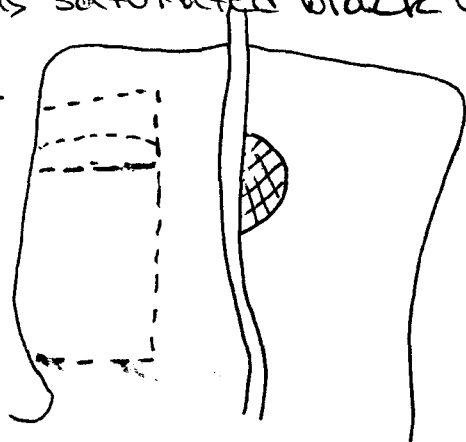
Comments: (Are work order procedures being followed?, etc.)

Backhoe peeled the oiled Sediment (LOR  $\rightarrow$  HOR, OP) back away from the stream channel and spread it out to increase the surface area available for degradation. Oil observed to 18". The only way to do a good job along the stream would be to remove the oiled sediment and replace it with clean - as the meandering stream channel has a high probability of cutting further into the oiled portion that abuts the creek.

The larger ~~area~~ <sup>WAS</sup> filled with the incoming tide. Portions of this area contained black oil at 4-8" depth which had not been touched by the 1990 tilling operation (tines not long enough & tiller could not operate among boulders & bedrock like the backhoe). A significant quantity of oil will continue to be present on KN-500B.

Snare boom with pump poms draped on it was set in place. Additional boom was deployed beyond the primary area because sheen and black oil was ~~etc~~ escaping the boom area --- portion of the boom was saturated black with oil.

A:OPRESP  
April 2, 1991



Not tilled with  
incoming tide



## ADF&amp;G OIL SPILL RESPONSE MONITORING

ASC# 226-10-16996Date: 7/11/91

Stream Name: \_\_\_\_\_

Observer: Doug HillSegment-Sub Unit KN-SOORLocation: Knight Island/NW shoreAnad. Stream Permit Issued? ☒ NDate: 7/11/91Work Order Issued: ☐ N

Date: \_\_\_\_\_

Demob Date: \_\_\_\_\_

## Oil Characteristics (circle appropriate ones)

Surface: AP, MS, TB, SOR, CV, CT, ST, FL, DB, None  
Subsurface: OP, HOB, MOR, LOB, OF, TR, None

## Treatment Techniques:

Manual Removal  
Manual Raking  
Spot Wash  
OtherBioremediation & Type  
Mechanical Tilling  
Header Flood (Hot/Cold)Crew Size: 6

Lbs. or Bags of Oil/Sediment Removed

1 1/2 Super Sack of pom poms  
and sorbent towels *comments*

Other Agency Reps, and Names:

Vince Mulligan (USCG), Dale Gardner (AOEC), RAY Setelo (EXXON)Photos Y ☒ N

Roll #

Frames

DALE GARDNER (AOEC) has photos.

Video

Tape #

Start

End

Sediment/Oil Samples (Y-☒)

Collection Number

Purpose of Trip \* BA Cleanup monitoring, State Work Modification

\* Form designed primarily for cleanup inspection trips, but should be used for any field trips, i.e., to check on bird rookeries, seal haulouts, special habitat areas, etc.



Describe extent of remaining oil (any comments on expected completion of cleanup).

Two Areas tilled 1) North Side of creek  $\approx 70' \times 150'$  Area  
 2) South Side of Creek  $\Rightarrow 15' \times 30'$  tilled Area  
 Stream bank-pulled back, tilled & spread 20' x 40' Area of spread.

Black layer of oil (below brown OR/OP) at 4-8" depth observed along rock wall at LITZ & Lower MITZ ( $\leq 3"$  thick, 20' x 30')

Comments: (Are work order procedures being followed?, etc.)

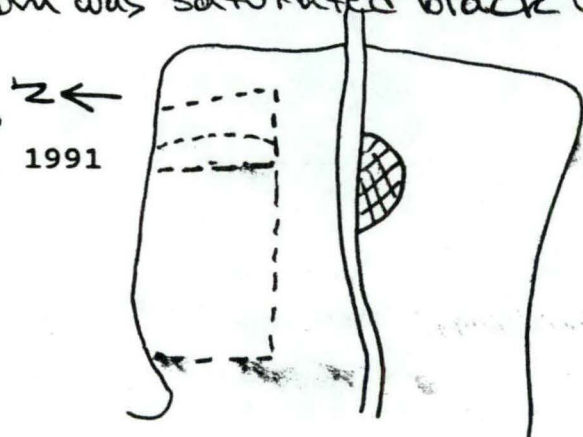
Not tilled with incoming tide

Backhoe peeled the oiled Sediment (LOR  $\rightarrow$  HOR, OP) back away from the stream channel and spread it out to increase the surface area available for degradation. Oil observed to 18". The only way to do a good job along the stream would be to remove the oiled sediment and replace it with clean - as the meandering stream channel has a high probability of cutting further into the oiled portion that abuts the creek.

The larger <sup>WAS</sup> area filled with the incoming tide. Portions of this area contained black oil at 4-8" depth which had not been touched by the 1990 tilling operation (tines not long enough & tiller could not operate among boulders & bedrock like the backhoe). A significant quantity of oil will continue to be present on KN-500B.

Snare boom with pom poms draped on it was set in place. Additional boom was deployed beyond the primary area because sheen and black oil was ~~etc~~ escaping the boom area --- portion of the boom was saturated black with oil.

A:OPRESP  
 April 2, 1991





ADF&G OIL SPILL RESPONSE MONITORING

ASC# 226-10-16996

Date: 6/25/91

Stream Name: \_\_\_\_\_

Observer: Mark Fink

Segment-Sub Unit KN500B

Mark Kuwada

Aimee Weseman

Location: Old Knight Is, south of Herring Pt.

Anad. Stream Permit Issued? ☒ Y ☐ N

Date: 6/5/91

Work Order Issued: ☒ Y ☐ N

Date: 5/14/91

Demob Date: 6/7/91

Oil Characteristics (circle appropriate ones)

Surface: AP, MS, TB, SOR, CV, CT, ST, FL, DB, None

Subsurface: OP, ☒ HOR, ☒ MOR, ☒ LOR, OF, TR, None

Treatment Techniques:

Manual Removal  
Manual Raking  
Spot Wash  
Other

Bioremediation & Type  
Mechanical Tilling  
Header Flood (Hot/Cold)

Crew Size: \_\_\_\_\_

Lbs. or Bags of Oil/Sediment Removed \_\_\_\_\_

Other Agency Reps, and Names: Deborah Walters, DEC

Photos

Y

☒ N

Roll #

Frames

\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Video

//

Tape #

Start

End

\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Sediment/Oil Samples (Y-N)

Collection Number

\_\_\_\_\_  
\_\_\_\_\_

Purpose of Trip \* Assess treatment

\* Form designed primarily for cleanup inspection trips, but should be used for any field trips, i.e., to check on bird rookeries, seal haulouts, special habitat areas, etc.

★

Describe extent of remaining oil (any comments on expected completion of cleanup).

LOR → MOR 9m x 4m area south side stream bank, MITZ (produced sheening in stream). 30m x 10m H → MOR area north side of cove had been manually tilled. SATI needs work, some of lens is under swatch berm. 10x15m area south of stream that was manually tilled looks good → LOR.

Comments: (Are work order procedures being followed?, etc.)

Anice stated that the clean-up went well, according to the work order but the LOR → MOR is area adjacent to the stream needed to be worked. Mechanical tilling was suggested for the H → MOR area at the north side of the cove. We did walk around the point, north into the pocket beach in KV588A. There was a lot of oil, H → MOR in a 10m x 40m area behind the rock outcrop/boulder field. It had not been treated.

## 1991 MAYSAP EVALUATION

SEGMENT: KN500 SUB: 6 REGION: PWS SURVEY DATE: JULY 8 -TAGENVIRONMENTAL SENSITIVITIES:Work Window(s) SAMEEcological/Constraints (see page two for details) SAMEFISH + GAME MONITOR / APPROVAL REQUIRED AFTER JULY 10ARCHAEOLOGICAL CONSTRAINTS:

Consultation and inspection with an Exxon archaeologist is required prior to treatment. Specific on-site monitoring requirements will be determined at that time. PHONE 564-3276; 564-3657; (Anchorage) or 229-1514 (24 hrs.).

*Timothy C. Smith for SHPD 7/9/91*

RECOMMENDATIONS:

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

COMMENTS:

INITIAL: \_\_\_\_\_

TAG: MECHANICALLY TILL WITH THE TIDE 40 X 15 yrd AREA  
ON THE NORTH SIDE OF THE BEACH AT KN500B. (SEE SKETCH)  
MECHANICALLY PULL BACK AWAY FROM THE STREAM AND  
TILL THE SMALL PATCH IN CENTRE OF BEACH (SEE SKETCH)

FOSC: \_\_\_\_\_

TAG APPROVAL DATE: July 9 1991

FOSC APPROVAL DATE: \_\_\_\_\_

ADEC P. Smith

FOSC \_\_\_\_\_

EXXON BealUSCG T.M. Murphy LT

NOAA \_\_\_\_\_



EXXON Valdez Oilspill Cleanup  
Anadromous Fish Stream Authorization

Date 7/11/91

EXXON Authorized Representative Ray Sotelo

Shoreline Segment KN 500-B

Anadromous Fish Stream Number(s) 226-10-16996

Approved Cleanup Techniques Mechanically till with tide 40x15  
yd area on the North side of beach at KN 500-B. Mechanically  
pull back away from the stream and till patch of oil  
in center of beach (south bank of stream).

Approved Cleanup Period 7/11/91

Alaska Department of Fish and Game

Ralph D. Hill  
Authorized Officer

Ray Sotelo  
Permittee's Signature

ADF&G OIL SPILL RESPONSE MONITORING



ASC# 226-10-16996

Date: 6/2/91

Stream Name: \_\_\_\_\_

Observer: A. Weseman

Segment-Sub Unit KN500B

Location: NW Knight I - south of Herring Point

Anad. Stream Permit Issued? ☒ Y ☐ N

Date: 6/5/91

Work Order Issued: ☒ Y ☐ N

Date: 5/14/91

Demob Date: 6/2/91

Oil Characteristics (circle appropriate ones)

Surface: AP, MS, TB, ☒ SOR, ☒ CV, CT, ST, FL, DB, None  
 Subsurface: OP, ☒ HOR, ☒ MOR, ☒ LOR, ☒ OF, TR, None

Treatment Techniques:

Manual Removal ☒ X  
 Manual Raking/tilling ☒ X  
 Spot Wash  
 Other

Bioremediation & Type custom blend. 180lbs  
 Mechanical Tilling  
 Header Flood (Hot/Cold)

Crew Size: 1/4 agency reps

Lbs. or Bags of Oil/Sediment Removed 1/4 super sack

Other Agency Reps, and Names: Chris Katsimpalis - Exxon  
Tim Mooney - USCG, Doug Kierner - Exxon OG, Doug Stine - USFW  
Peter Montesano - ADF&G

Photos

Y ☒ N

Roll #

Frames

\_\_\_\_\_  
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\_\_\_\_\_  
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Video

Tape #

Start

End

N  
 \_\_\_\_\_  
 \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Sediment/Oil Samples (Y ☒ N)

Collection Number

\_\_\_\_\_  
 \_\_\_\_\_

Purpose of Trip \* Treatment

\* Form designed primarily for cleanup inspection trips, but should be used for any field trips, i.e., to check on bird rookeries, seal haulouts, special habitat areas, etc.

Describe extent of remaining oil (any comments on expected completion of cleanup).

Areas of subsurface oil, ~~HOR~~ MOR, addressed in work order were hopefully degraded to ~~LOR~~ some MOR. Other areas of LOR not addressed by work order remain. Area of concern is LOR in streambank on south side. Stream could wander through these oiled gravels.

Site should be re-evaluated for further work after several tidal cycles of flushing of recently tilled areas

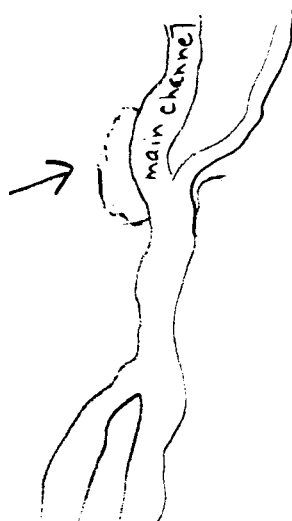
Comments: (Are work order procedures being followed?, etc.)

Work order was satisfactorily completed. This was a very cooperative & conscientious crew. The areas to be worked were identified & turned over with a shovel at low tide. Several rows of shore boom encircled them, and customblend tilled in. As the tide came in & covered them, the areas were retilled, & agitated to release oil. Several people with pom-poms combed the area, recovering floating oil. A 1m wide x 10m patch of AP/SOR not identified on sketch was removed (4 supersack) near p. ts 9, 10 & 11.

The crew worked from 1400-1845. Five supersacks oily shore-boom were generated.

I personally tilled & flushed some of the LOR on south stream bank - see sketch. I diverted stream waters through the area & black beads & sheen were released. I never reached the end of the lense & the area is of concern to me. Since it wasn't identified on the work order I didn't press the issue, but it should be considered in the re-assessment. It is located directly adjacent to lower mid-stream gravel bar

A: OPRESP  
April 2, 1991





1991 MAYSAP EVALUATION

SEGMENT: KN 0500 SUB: B REGION: PWS SURVEY DATE: 4/30/91

**ENVIRONMENTAL SENSITIVITIES:**

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

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

Consultation and inspection with an Exxon archaeologist is required prior to treatment. Specific on-site monitoring requirements will be determined at that time. PHONE 564-3276; 564-3657; (Anchorage) or 229-1514 (24 hrs.).

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

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

**COMMENTS:**

INITIAL: Manual rake & till, apply Customblen and Inipol to 20m x 5m HOR & MOR at pits 5 & 6. 1

TAG: MANUALLY TILL AT SITE A (PITS 5, 6 + 7) PLUS AREA OF ATS 10 + 11. WORK WITH RUBING TIDE, RECOVER AVAILABLE OIL. FOLLOWED BY BIO. MANUAL PICK UP OF HSOR IN AREA C.

FOSC: \_\_\_\_\_

TAG APPROVAL DATE: MAY 10 1991 FOSC APPROVAL DATE: 5/14/91

ADEC: [Signature] FOSC: [Signature]

EXXON: [Signature] E. E. PAGE, CDR, USCG  
CHIEF OF STAFF, FOSC

USCG: [Signature]

NOAA: [Signature]

EXXON Valdez Oilspill Cleanup

Anadromous Fish Stream Authorization

Date 6-5-91

EXXON Authorized Representative (HRL in KNEELING)

Shoreline Segment KN 500 B

Anadromous Fish Stream Number(s) ASC 226-10-16996

Approved Cleanup Techniques MANUAL TILLING WITH OIL RECOVERY,  
MANUAL PICK UP AND REMOVAL OF OILED SEDIMENTS.

Approved Cleanup Period MAY 15, 1991 TO JULY 10, 1991

Alaska Department of Fish and Game

Pom Crow  
Authorized Officer

Chitatsu-jeli  
Permittee's Signature

MAYSAP  
Stream

226-10-16996

ANADCAT #



1991 MAYSAP EVALUATION

KN500

SEGMENT: KN 0500 SUB: B REGION: PWS SURVEY DATE: 04/30/91

ENVIRONMENTAL SENSITIVITIES:

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

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

Consultation and inspection with an Exxon archaeologist is required prior to treatment. Specific on-site monitoring requirements will be determined at that time. PHONE 564-3276; 564-3657; (Anchorage) or 229-1514 (24 hrs.).

SHPO Signature: Charles Z. Holmes Date: 5/10/91

RECOMMENDATIONS:

INITIAL

TAG

FOSC

TREATMENT REQUIRED (Y or N)

Y

Y

Manual Pickup (Check as Req.)

\_\_\_\_\_

X

Spot Washing

\_\_\_\_\_

\_\_\_\_\_

Bio-Customblen Only

\_\_\_\_\_

\_\_\_\_\_

Bio-Inipol/Customblen

X

X

Other Manual rake & till

X

X

Other \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

COMMENTS:

INITIAL: Manual rake & till, apply Customblen and Inipol to

20m x 5m HOR & MOR at pits 5 & 6. 1

TAG: MANUALLY TILL AT SITE A (PITS 5, 6 + 7) PLUS AREA  
OF PITS 10 + 11. WORK WITH RISING TIDE, RECOVER AVAILABLE  
OIL. FOLLOWED BY BIO. MANUAL PICK UP OF HSOR IN AREA  
C.

FOSC: Approved.

TAG APPROVAL DATE: MAY 10 1991 FOSC APPROVAL DATE: 5/14/91

ADEC

FOSC

EXXON

E. E. PAGE, CDR, USCG  
CHIEF OF STAFF, FOSC

USCG

NOAA

# 1991 MAYSAP EVALUATION

SEGMENT: KN 0500 SUB: B REGION: PWS SURVEY DATE: 4/30/91

## 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: \_\_\_\_\_

## RECOMMENDATIONS:

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

## COMMENTS:

INITIAL: Manual rake & till, apply Customblen and Inipol to 20m x 50m HOR & MOR at pits 5 & 6. Much till area  
A remove 50K Area C

TAG: \_\_\_\_\_

FOSC: \_\_\_\_\_

TAG APPROVAL DATE: \_\_\_\_\_ FOSC APPROVAL DATE: \_\_\_\_\_

ADEC \_\_\_\_\_ FOSC \_\_\_\_\_

EXXON \_\_\_\_\_

USCG \_\_\_\_\_

NOAA \_\_\_\_\_

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

**PRINCE WILLIAM SOUND**

**SEGMENT:** KN0500      **SUBDIVISION:** B  
anadromous fish stream, recreation site

**SITE:**

---

**RECOMMENDED TREATMENT:**

In area A and pits 9, 10, and 11:

- Mechanically till to depth of oil during an incoming tide.
- Deploy snares/sorbents to collect sheens.
- Repeat tilling until free oil is removed.

In area C:

- Manually remove SOR.

---

**ENVIRONMENTAL SENSITIVITIES:**

Open only after eagle nest is cleared.  
Anadromous fish stream.

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**WORK WINDOW:** 05/15/91      -      07/10/91

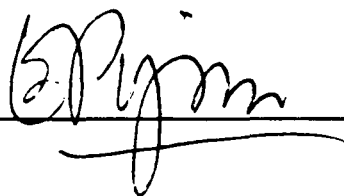
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**CLEANUP PLAN AND COST ESTIMATE DUE:**

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**DATE SUBMITTED:** 05/13/91

**STATE ON SCENE COORDINATOR:**



**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.



## ADEC DAILY SHORELINE ASSESSMENT (rvsd 4-15-91)

LOCATION ~~SE~~ SW HERRING POINT SEGMENT KN 500 SUBSEG B

DATE 8-26-91 TIME: Begin 0945 End 1130 SITE

WEATHER: Cloudy Rain Fog Snow Sunny Other

MONITOR(S) JOHN BAUER

ENVIRONMENTAL CONSTRAINTS Anachanous Stream, eagle nest

## DESCRIPTION OF TREATMENT SITE:

## SHORE COMPOSITION

Surface sediments: R % B % C 5 % P 90 % G 5 % S %

Subsurface sdmnts: R % B % C 5 % P 90 % G 5 % S %

Wave Exposure: Low Moderate High

## OIL CHARACTERISTICS Before Treatment

Surface: Mousse Tarball/Patty Pavement Cover Coat Stain

Subsurface: OP HOR MOR IOR OF Depth: Thickness:

Across Tidal Zone: Low Mid Upper Supra

## TREATMENT PERFORMED:

MANUAL REMOVAL Type: done OP OR OF

MANUAL RAKING MECHANICAL TILLING - WITH/ WITHOUT TIDAL FLUSH

BERM RELOCATION BIOREMEDIATION granular lbs Inipol gal

OTHER MANUAL TILLING

EQUIPMENT USED

WORKERS ON SITE: # ORTS OTHER PPS Members.

OTHER REPRESENTATIVES: EXXON

USCG

OTHER

METHOD TO CONTAIN/COLLECT OIL NONE

NUMBER OF BAGS COLLECTED: Oiled Sediments 6 Oiled Debris 6

Oiled Vegetation 0 Unoiled Debris 0 Oiled Logs Present 6

**ADEC DAILY SHORELINE ASSESSMENT** (rvsd 4-15-91)

LOCATION ~~SE~~ SW HERRING POINT SEGMENT KN 500 SUBSEG B

DATE 8-26-91 TIME: Begin 0945 End 1130 SITE \_\_\_\_\_

WEATHER: Cloudy Rain Fog Snow Sunny Other \_\_\_\_\_

MONITOR(S) JOHN BAUER

ENVIRONMENTAL CONSTRAINTS Anachronous Stream, eagle nest

DESCRIPTION OF TREATMENT SITE:

SHORE COMPOSITION

Surface sediments: R \_\_\_\_\_ % B \_\_\_\_\_ % C 5 % P 90 % G 5 % S \_\_\_\_\_ %

Subsurface sdmnts: R \_\_\_\_\_ % B \_\_\_\_\_ % C 5 % P 90 % G 5 % S \_\_\_\_\_ %

Wave Exposure: Low Moderate High

OIL CHARACTERISTICS Before Treatment

Surface: Mousse Tarball/Patty Pavement Cover Coat Stain

Subsurface: OP HOR MOR LOB OF Depth: \_\_\_\_\_ Thickness: \_\_\_\_\_

Across Tidal Zone: Low Mid Upper Supra

TREATMENT PERFORMED:

MANUAL REMOVAL Type: MS TB AP SOR OP OR OF

MANUAL RAKING MECHANICAL TILLING - WITH/WITHOUT TIDAL FLUSH

BERM RELOCATION BIOREMEDIATION granular \_\_\_\_\_ lbs Inipol \_\_\_\_\_ gal

OTHER MANUAL TILLING

EQUIPMENT USED \_\_\_\_\_

WORKERS ON SITE: # ORTS \_\_\_\_\_ OTHER TAG Members

OTHER REPRESENTATIVES: EXXON \_\_\_\_\_

USCG \_\_\_\_\_

OTHER \_\_\_\_\_

METHOD TO CONTAIN/COLLECT OIL NONE

NUMBER OF BAGS COLLECTED: Oiled Sediments 5 Oiled Debris 5  
Oiled Vegetation 0 Unooled Debris 0 Oiled Logs Present 0

SEGMENT KN500B MONITOR JOHN BAUER DATE 8-26-91

PHOTOGRAPHS: Roll # \_\_\_\_\_ Frames \_\_\_\_\_ Reason \_\_\_\_\_

VIDEO: TAPE # \_\_\_\_\_ Reason \_\_\_\_\_

COMMENTS: (Observations, problems & efforts made to correct, etc.)

TAG members inspected the site in response  
to ADF+G Survey dated 8-1-91. TAG  
members manually tilled, exposed, relocated  
area on south side of beach. Egan  
agreed to treat remaining 2 areas with  
Don Bollinger bio crew.

OIL CHARACTERISTICS After Treatment

Surface: Mousse Tarball/Patty Pavement Cover Coat Stain

Subsurface: OP HOR MOR LOR OF Depth: 0 Thickness: 10

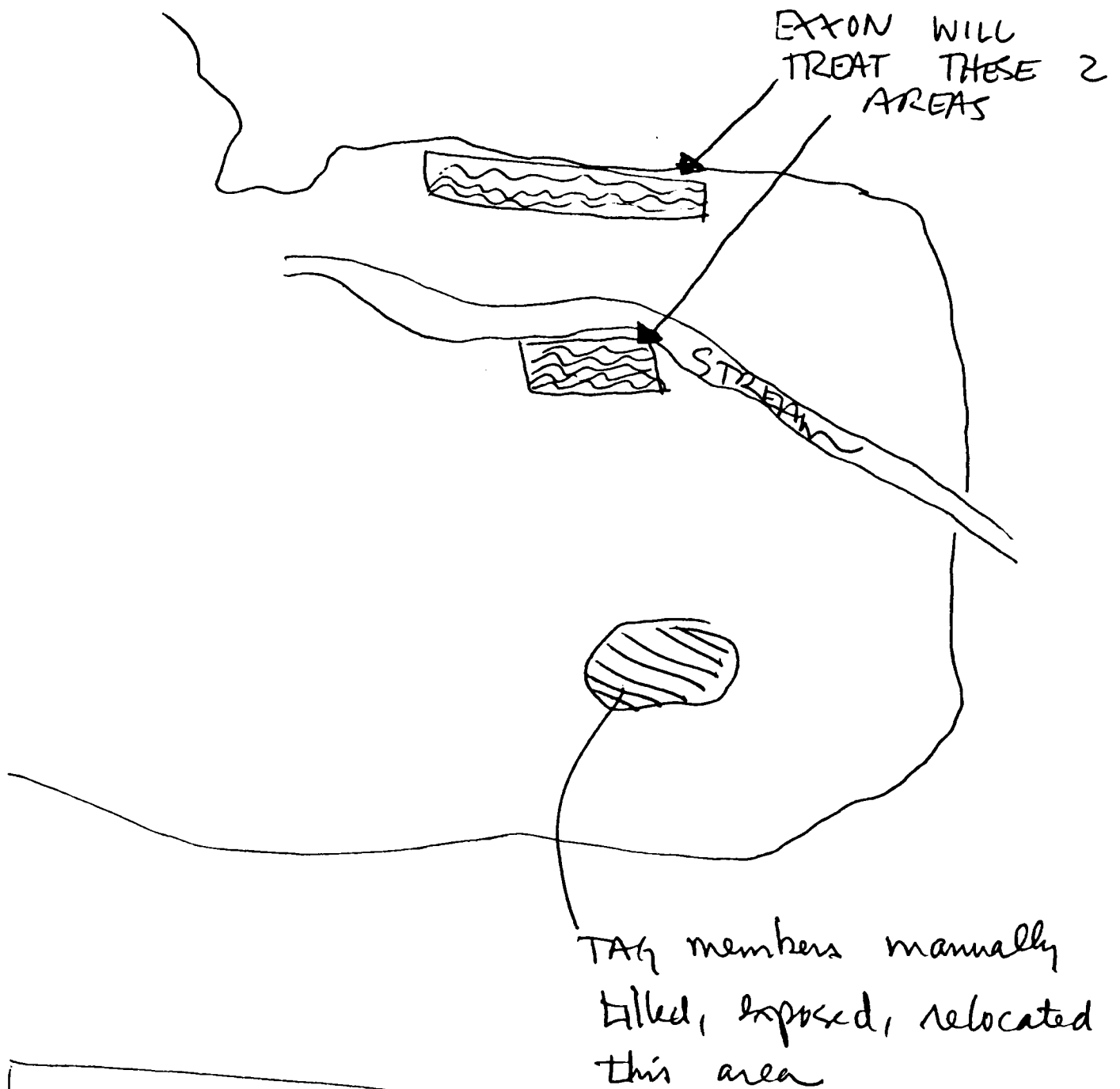
TAG WORK ORDER COMPLETED? NO YES COMMENTS FOSC work  
order to follow.

WORK ORDER MODIFICATION REQUESTED? NO YES DATE \_\_\_\_\_

RECOMMEND FOR FUTURE REASSESSMENT? NO YES (include map  
identifying treatment performed and oil remaining)

SIGNATURE \_\_\_\_\_

John Bauer



Sketch map from ADF+G Survey 8-1-91

KN 5006

8-26-91

John Bauer

**ADEC DAILY SHORELINE ASSESSMENT** (rvsd 4-15-91)

LOCATION KNIGHT ISLAND, PWS SEGMENT KN-500 SUBSEG B

DATE 8-29-91 TIME: Begin 6:20 End 8:45 SITE \_\_\_\_\_  
 WEATHER: Cloudy Rain Fog Snow Sunny Other \_\_\_\_\_

MONITOR(S) \_\_\_\_\_

ENVIRONMENTAL CONSTRAINTS None known STREAM  
# 226-10-16-356

**DESCRIPTION OF TREATMENT SITE:**

**SHORE COMPOSITION**

Surface sediments: R 0 % B 0 % C 10 % P 60 % G 20 % S 10 %

Subsurface sdmnts: R 0 % B 0 % C 20 % P 50 % G 20 % S 10 %

Wave Exposure: Low Moderate High

**OIL CHARACTERISTICS Before Treatment**

Surface: Mousse Tarball/Patty Pavement Cover Coat Stain

Subsurface: OP HOR MOR LOR OF Depth: 2cm Thickness: 2cm

Across Tidal Zone: Low Mid Upper Supra

**TREATMENT PERFORMED:**

MANUAL REMOVAL Type: MS TB AP SOR OP OR OF

MANUAL RAKING MECHANICAL TILLING - WITH/WITHOUT TIDAL FLUSH

BERM RELOCATION BIOREMEDIATION granular 40 lbs Inipol      gal

OTHER \_\_\_\_\_

EQUIPMENT USED RAKES & SHOVELS

WORKERS ON SITE: # ORTS 3 OTHER \_\_\_\_\_

OTHER REPRESENTATIVES: EXXON FRANK BOX

USCG JERRY SCHULTZ

OTHER OG DUNCAN FITZGERALD

METHOD TO CONTAIN/COLLECT OIL Pom POMS, SNARE BOOM

NUMBER OF BAGS COLLECTED: Oiled Sediments      Oiled Debris       
 Oiled Vegetation      Unoiled Debris      Oiled Logs Present

SEGMENT KN-SDB MONITOR J. Gualinas DATE 8-29-01

PHOTOGRAPH Roll # — Frames — Reason —

VIDEO: TAPE # — Reason —

COMMENTS: (Observations, problems & efforts made to correct, etc.)

MANUALLY TILLED SITES 1 (NORTH END BY BEDROCK WALL) & SITE 2  
(SOUTH STREAM BANK). SITE 1 BEGAN W/ HIGH TIDE AND TILLED H<sub>2</sub>O  
AREA, CHASING SHEEN DOWN TO BOOM. EFFECTIVE BROWN SHEEN; TURNED  
TO RAINBOW. AFTER AWHILE, SHEEN BECAME TOO LIGHT FOR BOOM/  
POM POMS TO TRAP. STILL A WIDE AREA OF SHEEN, THOUGH. AREA  
TREATED 40m x 15m. STOPPED NEAR MUSSEL AREA. AT SITE 2,  
RELOCATED ABOUT A 12-15 M LENGTH OF SEDIMENT ALONG STREAM  
BED. BOOMED OFF STREAM. AREA SHEENED HEAVILY, MORE SO THAN  
SITE 1. BROWN SHEEN TO RAINBOW. MOSTLY RAINBOW WHEN COMPLETE.  
SOME DISTURBANCE OF STREAM BEDS OCCURRED FROM RELOCATION.  
MORE OIL STILL IN SEDIMENTS, BUT IT APPEARED WE REACHED A POINT  
OF DIMINISHING RETURNS. CUSTOMBIEN APPLIED AT SITE 1 ONLY.  
SOME COAT/STAIN ON BEDROCK AT SITE 1.

**OIL CHARACTERISTICS After Treatment**

Surface: Mousse Tarball/Patty Pavement Cover Coat Stain

Subsurface: OP HOR MOR LOR OF Depth: 2cm Thickness: 8cm

TAG WORK ORDER COMPLETED? NO YES COMMENTS —

WORK ORDER MODIFICATION REQUESTED? NO YES DATE —

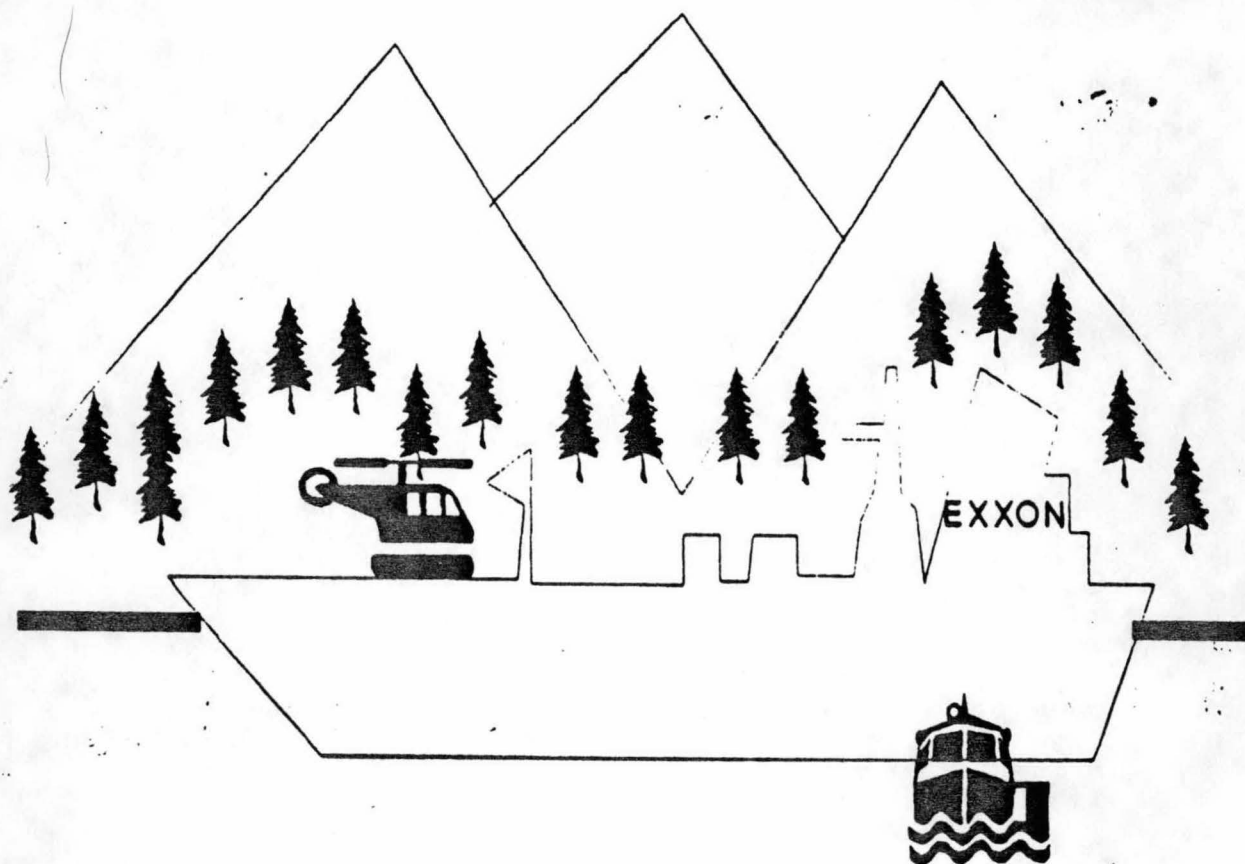
RECOMMEND FOR FUTURE REASSESSMENT? NO YES (include map  
identifying treatment performed and oil remaining)

SIGNATURE [Signature]

# BIOREMEDIATION REPORT 1991

SEGMENT: KN-500 B

SITES: 142 DATE: 29 Aug 1991



BAT TEAM 1  
DON BOLLINGER



# INIPOL/CUSTOMBLEN APPLICATION REPORT

Segment: KN-500 Subdivision: B Site 1 of 1

OG: D.M. FITZGERALD Date: 29 Aug 1991

Exxon: F. Box Time: 8:30 to 900 Tide: 2.89 to 1.93 feet

type of oil treated (e.g. HSOR/P, OP): LOK-MON

zone treated: SUTZ      UITZ ✓ MITZ ✓ LITZ     

asphalt/oiled sediments removed? YES (NO) raked/tilled? (YES) NO SURFACE SEDIMENT RAKED

other treatment (e.g. sediment relocation)? YES (NO) type of treatment:

NONE

area treated with Inipol:      m X      m X      % =      sq.m. treated

gallons of Inipol applied:      calculated Inipol dosage      gals/sq m

area treated with Customblen: 10 m X 20 m X 100 % = 20 sq.m. treated

pounds of Customblen applied: 40 lb calculated Customblen dosage .2 lbs/sq m

comments: MAYSAP LOCATION #A [SEE SKETCH MAP #1]

The <sup>SITE</sup> SURFACE 15-20 cm of this <sup>was</sup> filled with shovels and RAKES while 30-50 cm of water (tide) covered the site. While the tilling operation proceeded silver and rainbow sheens rose to the surface. The sheens were trapped and absorbed by a series of booms dragged through the water. After the tide receded, Customblen was RAKED into the sediment.

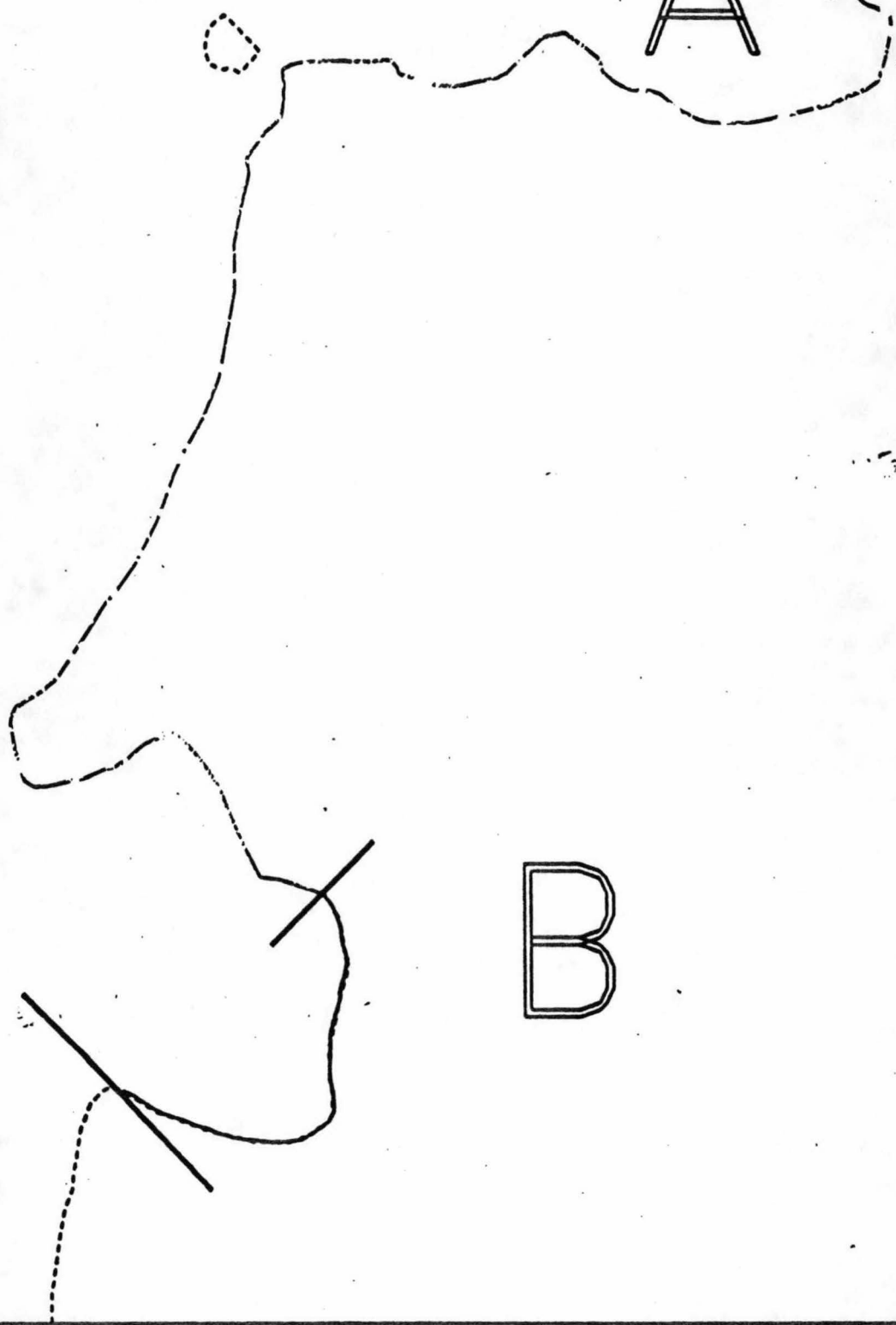
Roll:

PHOTOS: BAT-D-20

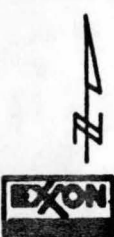
FRAME: #1-4



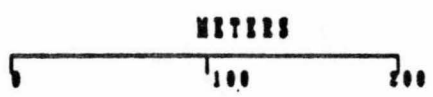
A



B



KN0500 B



AK State Plane Zone 4  
68050000

Subdivision Field Map  
Map Key: KN1KN0500Aa  
Name: D.M. Fitzgerald  
Date: 29 August 1991

ADF&G OIL SPILL RESPONSE MONITORING

ASC# 226-10-16996

Date: 8/26/91

Stream Name: \_\_\_\_\_

Observer: Aimee Weseman

Segment-Sub Unit KN500B

Location: NW Knight I

Anad. Stream Permit Issued? ☒ Y ☐ N

Date: Gen Permit in effect

Work Order Issued: Y ☒ N

Date: \_\_\_\_\_

Demob Date: \_\_\_\_\_

Oil Characteristics (circle appropriate ones)

Surface: AP, MS, TB, SOR, ☒ CV, ☒ CT, ST, FL, DB, None  
 Subsurface: OP, ☒ HOR, ☒ MOR, ☒ LOR, OF, TR, None

Treatment Techniques:

Manual Removal  
 Manual Raking/tilling *X*  
 Spot Wash  
 Other

Bioremediation & Type  
 Mechanical Tilling  
 Header Flood (Hot/Cold)

Crew Size: 5

Lbs. or Bags of Oil/Sediment Removed 0

Other Agency Reps, and Names: Dennis McGuire & Ivan Nanc-USCG  
John Baxer-ADEC & Mike Barker-Exxon

Photos Y ☒ N

Roll #

Frames

\_\_\_\_\_  
 \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_

Video ☒ N Tape #

Start \_\_\_\_\_ End \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_

Sediment/Oil Samples (Y-N) ☒ Y ☐ N

Collection Number

\_\_\_\_\_  
 \_\_\_\_\_

Purpose of Trip \* TAG visit to determine further treatment

\* Form designed primarily for cleanup inspection trips, but should be used for any field trips, i.e., to check on bird rookeries, seal haulouts, special habitat areas, etc.

Describe extent of remaining oil (any comments on expected completion of cleanup).

After receiving 2 fillings in '91, this site still contains significant subsurface oiling. Area C along the streambank is newly discovered & is a potential threat to the stream should <sup>the stream</sup> migrate through it. Oil in area D is heavy & mobile enough to cause chronic sheening in the area. Stream should be re-assessed in '92

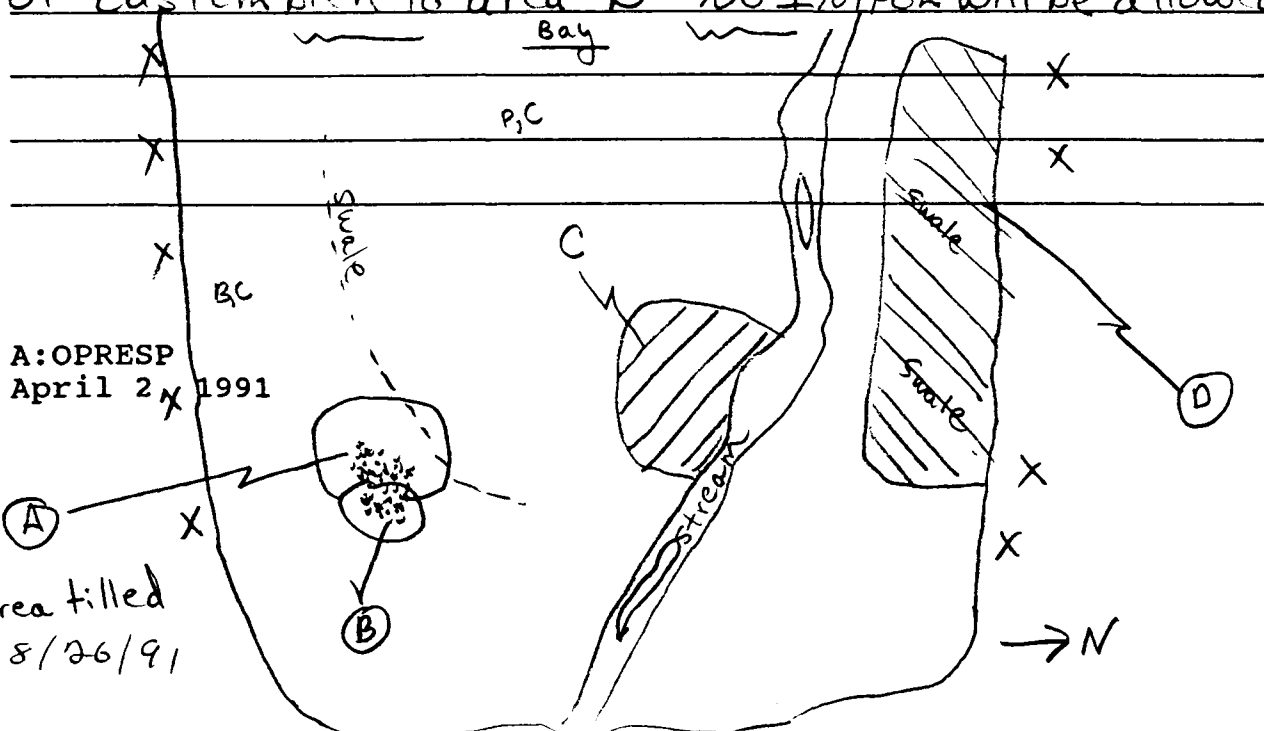
Comments: (Are work order procedures being followed?, etc.)

TAG decided in favor of further treatment to stream site this year. Recommended treatment will include; manual tilling with the tide and recovery of oil from area (D) (Post-treatment assessment '91 map).

Area of HOR/MOR along stream bank (C) will be pulled back 3 meters from stream & relocated.

While on site, we manually tilled parts of Areas A & B on south side of stream. Tilling was without the tide and no attempt was made at oil recovery.

Further treatment will also include the application of custablen to area D - NO IN/POH will be allowed.



## ADF&amp;G MULTI-ASSESSMENT DATA FORM

- 1) SURVEY TYPE: BS SS 2) REGION: PWS KP, CI K, AP
- 3) METHOD: Aerial Ground Boat
- 4) DATE: 4/30/91 16) HIGH TIDE TIME: \_\_\_\_\_ 22) TEAM RECORDER: TAM CROWE
- 5) START TIME: 0917 17) HIGH TIDE HTS: \_\_\_\_\_ 23) OBSERVERS: AMES WESEMAN
- 6) STOP TIME: 1010 18) LOW TIDE TIMES: 0900 24) AGENCY: ADF&G
- 7) SEGMENT #: KN500B 19) LOW TIDE HTS: -2 25) PHOTOS TAKEN: Y N
- 8) K-UNIT: \_\_\_\_\_ 20) TIDE HT AT SURVEY: -2 to +2 ROLL #: \_\_\_\_\_ FRAMES: \_\_\_\_\_
- 9) LAT: \_\_\_\_\_ Ebb Slack Flood Slack 26) VIDEO TAKEN: Y N
- 10) LONG: \_\_\_\_\_ 21) USCG QUAD: \_\_\_\_\_ TAPE #: \_\_\_\_\_
- 11) ASC #: 226-10-16996 START: \_\_\_\_\_ STOP: \_\_\_\_\_
- 12) STREAM NAME: \_\_\_\_\_ 27) SAMPLES TAKEN? Y N
- 13) LOCATION: KNIGHT ISLAND 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 |          |         |    |   |          |        |          |
| SITE 2 |          |         |    |   |          |        |          |
| SITE 3 |          |         |    |   |          |        |          |
| SITE 4 |          |         |    |   |          |        |          |
| SITE 5 |          |         |    |   |          |        |          |

## 29) OVERALL OIL IMPACT:

H = >6m band with  $\geq 50\%$  oil coverageM = >6m band with  $\leq 50\%$  oil coverage or  $\geq 3m$  to  $\leq 6m$  with  $\geq 10\%$  oil coverage

L = &lt;3m band with &gt;10% oil coverage

VL =  $\leq 10\%$  oil coverage regardless of band width

N = No oil observed

33) ANADROMOUS FISH PRESENT: Y N

## 34) WILDLIFE OBSERVATION

Species Number

HELMED DUCKS 34Rock Blennies 25+30) OIL IN STREAMBED: Y N31) OIL ON BEACH ADJACENT TO MOUTH: Y N

## 32) SUBSTRATE TYPE (PERCENT):

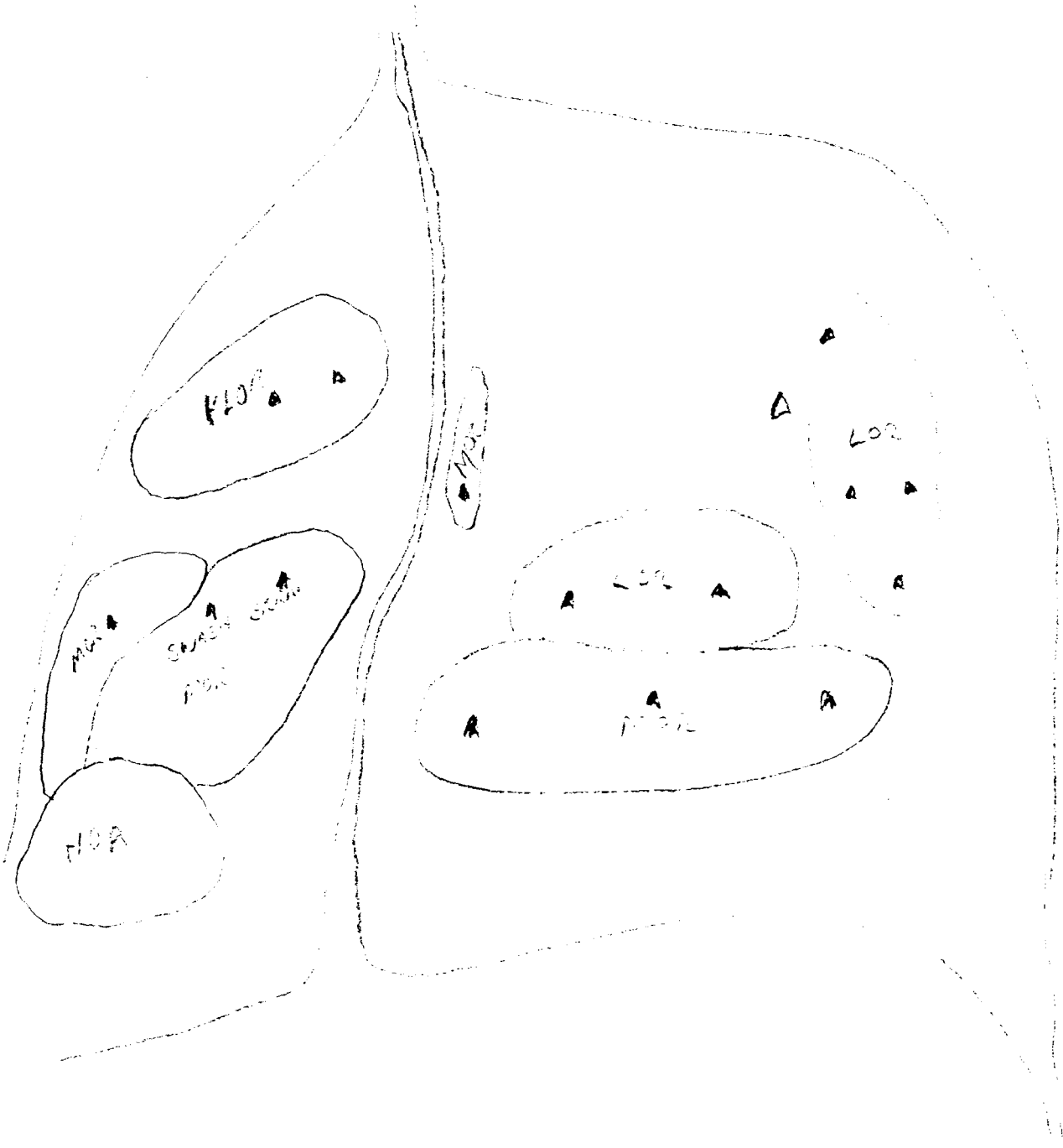
Bedrock \_\_\_\_\_ Boulder \_\_\_\_\_ Gravel 95% Sand \_\_\_\_\_ Cobble \_\_\_\_\_ Mud/Silt \_\_\_\_\_

## 35) COMMENTS:

4/30/91

KA 500

454 226 - 10 - 16496



PAGE 1 OF 2

Subsurface oil was widespread, extending over a sinuous, 15-25 m band of about 130 m length, primarily in the MITZ. However, this was (L)OR. Heavy  $\rightarrow$  Med OR

Revised: 5/4/91 MC

PAGE 1 OF 2

SEGMENT KN-500

SUBDIVISION B

DATE 04 / 30 / 91

ENERGY LEVEL: ☐ H ☒ M ☐ L

WEATHER: ☐ SUN ☐ CLOUDS ☐ FOG ☒ RAIN ☐ SNOW

NEAR SHORE SHEEN: ☐ BR ☐ RB ☐ SL ☒ NONE

EST. OIL CATEGORY LENGTH: W    m M    m N    m VL 30 m NO 350 m US    m

DISTRIBUTION: C = 91-100%; B = 51-90%; P = 11-50%; S = 1-10%; T = <1%

**SLOPE: V = VERTICAL; H = HIGH ANGLE; M = MEDIUM ANGLE; L = LOW ANGLE    PHOTO ROLL # MAYSAP-\_\_\_\_\_ - \_\_\_\_\_ FRAMES**

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

Surface oil was restricted to a total of about 30 m, with most of this oiled skoveline length occurring between the main ANAD. stream and freshwater runoff just to the south. These patches were in the upper MITZ and produced sheen or disturbance. One SOR(H) patch was also found in the LITZ near the stream mouth. (3)

Subsurface oil was widespread, extending over a sinuous, 15-25 m band of about 130 m length, primarily in the MITZ. However, this was (L)OR. Heavy  $\rightarrow$  Mod. OR

PAGE 2 OF 2

DATE 04 / 30 / 91

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

cont'd .

low d. was restricted to the Northwest corner of the Uitz close to the (shifted) stream outflow. No oil was found in the Uitz / Sutz or at the southern quarter of the beach / cliff walls.

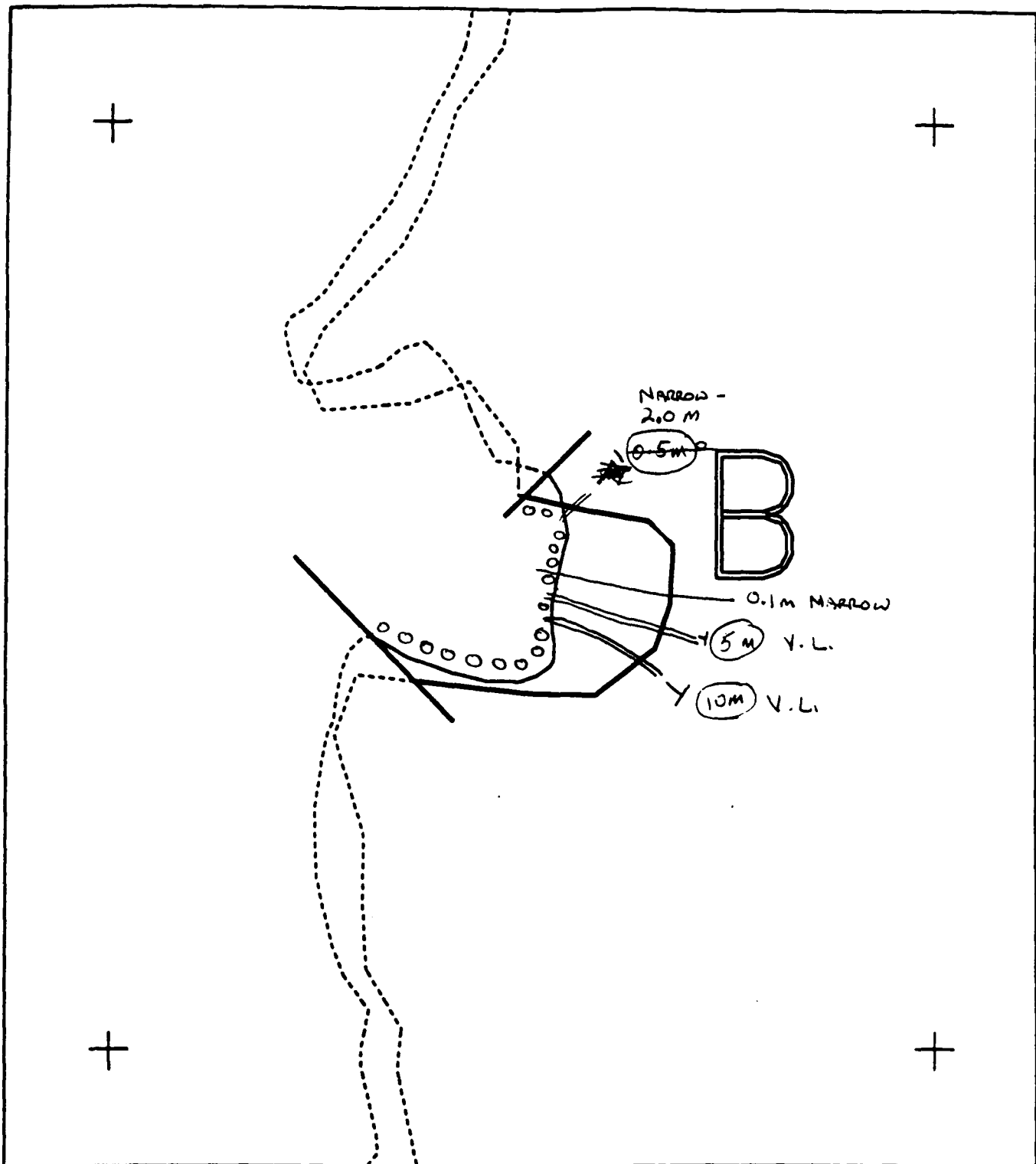
④





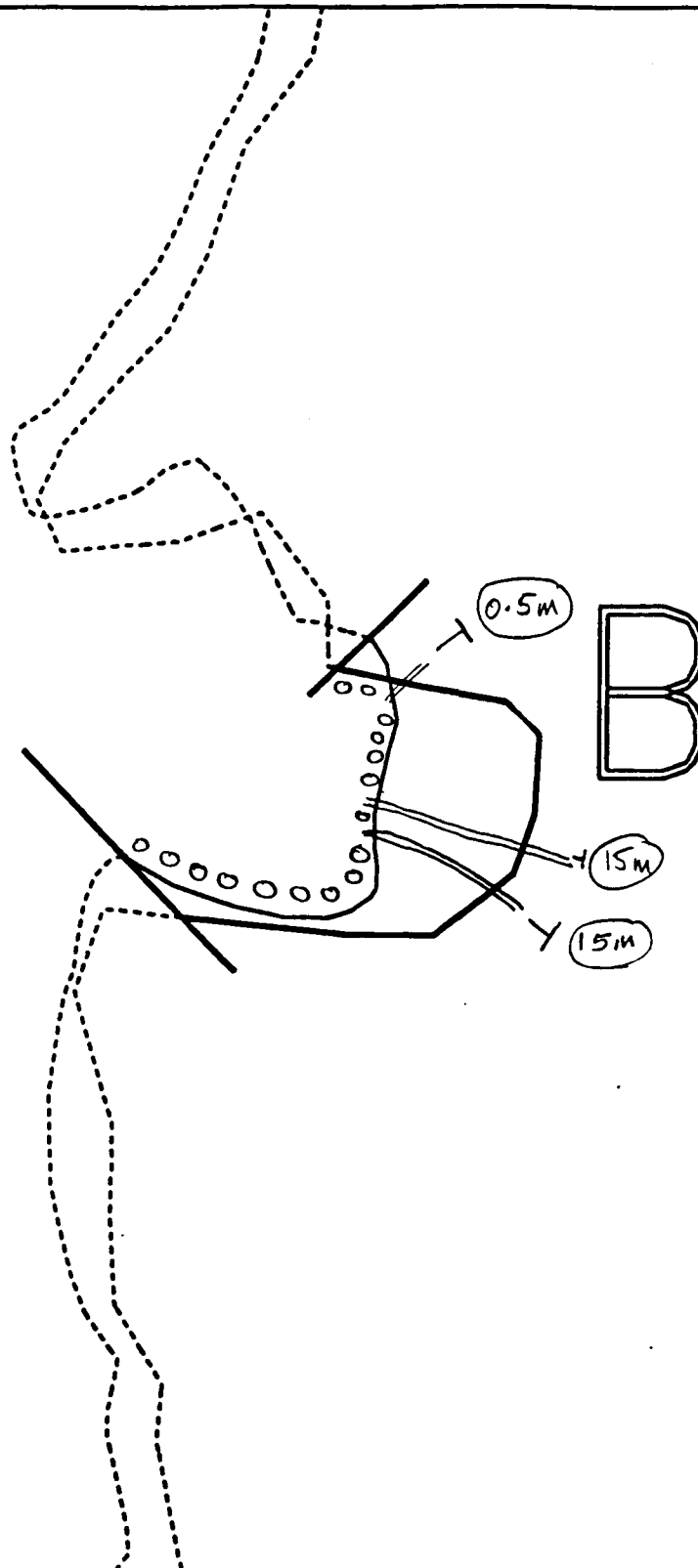
KN5LCE

| # PITS | TD | OIL            | clean blow | H <sub>2</sub> O | Sed: | sheen |
|--------|----|----------------|------------|------------------|------|-------|
| (19)   | 30 | (L) OR         | Y          | 25               | pgs  | R     |
| (20)   | 30 | NO             | Y          | 25               | "    | N     |
| (21)   | 30 | NO             | Y          | 25               | "    | N     |
| (22)   | 25 | OF             | Y          | 15               | "    | R     |
| (23)   | 30 | (L) OR<br>0-15 | Y          | 25               | "    | R     |



|      |            |                                                                                                            |                                                                                                                   |
|------|------------|------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| XXXX | Wide       | <b>KN0500 B</b><br>ADEC Subsegment Length: 379m<br>METERS<br>0 100 200<br>AK State Plane Zone 4<br>KN0500b | Subdivision Field Map<br>Map Key: KNKN0500B<br>Name: <u>D.I. LITTLE</u><br>Date: <u>04/30/91</u><br>Date Entered: |
| //// | Medium     |                                                                                                            |                                                                                                                   |
| ---- | Narrow     |                                                                                                            |                                                                                                                   |
| TTTT | Very Light |                                                                                                            |                                                                                                                   |
| 0000 | No Oil     |                                                                                                            |                                                                                                                   |

revised 5/2/91  
 REMARKS: 5/4/91 MC



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

**KN0500 B**  
 ADEC Subsegment Length: 379m  
 METERS

0 100 200  
 AK State Plane Zone 4  
 660500b



Subdivision Field Map  
 Map Key: KNIK0500B  
 Name: D.I. LITTLE  
 Date: 04/30/91  
 Date Entered:

## MAYSAP BIOLOGICAL SUMMARY FORM

TEAM # 6

DATE 4/30/91

SEGMENT # KN-500

TIDAL HEIGHT(Range) -1 1/2 ft

SUBDIVISION B

BIOLOGIST T.R. Schroeder

SEA STATE 1-2 foot sea with chop

WIND SPEED/DIRECTION NE 15-20

PHOTOGRAPHS: ROLL #

FRAME #

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

(A) = (H) SOR located adjacent to mussel bed. LITZ below extremely rich with starfish, hermit crab, limpets, littorine snails and rock blennies. Fucus bry. sea urchins and other brown/red algae plentiful. Birds are thriving in spite of presence of oil.

(B, & C, & D) = SOR and (H) SOR located in fairly non-productive portion of beach. Immediately below these sites are very dense deposits of fucus and mussels. Littorine snails, limpets, and hermit crab abundant in boulder/cobble patch along southern shore of section.

Subsurface = Subsurface oil is located throughout section and most are in close proximity to healthy communities of fucus, mussels, snails, etc. Any use of mechanized equipment for treatment or removal would be extremely intrusive.

This small bay is an extremely rich and productive area. Communities of fucus, eelgrass, littorine, snails etc. are thriving in spite of the presence of surface and subsurface oil. Fish (rock blennies) were present throughout the LITZ area. Any additional treatment would be extremely detrimental to the thriving and lush biological community.

## WILDLIFE OBSERVATIONS

TO BE COMPLETED IN ALL SUBDIVISIONS

| BIRDS            | # OF SPECIES | TOTAL BIRDS | FISH OBSERVED<br>SPECIES PRESENT                       |
|------------------|--------------|-------------|--------------------------------------------------------|
| Eagles           |              |             | Many rock blennies under littoral, every rock in LITZ. |
| Seabirds         |              |             |                                                        |
| Waterfowl        |              |             |                                                        |
| Gulls/Kittiwakes | 1            | 1           |                                                        |
| Shorebirds       |              |             |                                                        |
| Corvids          |              |             |                                                        |
| Other Birds      |              |             |                                                        |

| MARINE MAMMALS     | # OBSERVED | LAND MAMMALS<br>SPECIES | # OBSERVED |
|--------------------|------------|-------------------------|------------|
| Sea Otters         |            |                         |            |
| Pinnipeds(specify) |            |                         |            |
| Whales(specify)    |            |                         |            |
|                    |            |                         |            |

Shoreline subdivision map showing important biological features attached.

REVIEWED: MC 5/4/91

## MAYSAP BIOLOGICAL SUMMARY FORM

TEAM # 6 DATE 4/30/91  
 SEGMENT # KN-500 TIDAL HEIGHT (Range) -1 1/2 ft  
 SUBDIVISION B BIOLOGIST T.R. Schroeder  
 SEA STATE 1-2 foot seas with chop WIND SPEED/DIRECTION NE 15-20  
 PHOTOGRAPHS: ROLL # FRAME #

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

(A) = (H) SOR located adjacent to mussel bed. LITZ below extremely rich with starfish, hermit crabs, limpets, Littorina snails and rock blennies. Fucus bkg sea urchins and other brown/red algae plentiful. Birds are thriving in spite of presence of oil.

(B, & B<sub>2</sub> & C) = SOR and (H) SOR located in fairly non-productive portion of beach. Immediately below these sites are very dense aggregations of boulders and mussels. Littorina snails, limpets and barnacles least abundant in boulder/cobble patch along southern shore of section.

Subsurface = Subsurface oil is located throughout section and most are in close proximity to healthy communities of fucus, mussels, snails, etc. Any use of mechanized equipment for treatment or removal would be extremely intrusive.

This small bay is an extremely rich and productive area. Communities of fucus, eel grass, Littorina snails etc. are thriving in spite of the presence of surface and subsurface oil. Fish (rock blennies) were present throughout the LITZ area. Any additional treatment would be extremely detrimental to the thriving and lush biological community.

## WILDLIFE OBSERVATIONS

TO BE COMPLETED IN ALL SUBDIVISIONS

## FISH OBSERVED

## SPECIES PRESENT

| BIRDS            | # OF SPECIES | TOTAL BIRDS |  |
|------------------|--------------|-------------|--|
| Eagles           |              |             |  |
| Seabirds         |              |             |  |
| Waterfowl        |              |             |  |
| Gulls/Kittiwakes | 1            | 1           |  |
| Shorebirds       |              |             |  |
| Corvids          |              |             |  |
| Other Birds      |              |             |  |

Many rock blennies under literally every rock in LITZ.

## LAND MAMMALS

## SPECIES

## # OBSERVED

| MARINE MAMMALS      | # OBSERVED |  |  |
|---------------------|------------|--|--|
| Sea Otters          |            |  |  |
| Pinnipeds (specify) |            |  |  |
| Whales (specify)    |            |  |  |

Shoreline subdivision map showing important biological features attached.

0 25 50  
meters

KN-500-B 4/30/91  
Bio. Map T.R. Schroeder  
0830-0940

- X = rocks
- W = eel grass
- III = oil
- = fucus & mussels
- △ = pit no oil
- ▲ = pit w/ oil

Knight Island  
Passage

Mussel Bed

(H) SOR 10%  
0542

mussel regrowth  
on rock face  
excellent

Swash  
Berm

Berm

anadromous  
Stream

Fucus kelp and  
sporlings. Barnacle  
spat, littorine snails  
and mussels abundant

Eel  
Grass

Bull  
Kelp  
Bed

Boulder/Cobble Patch

Berm

Sea urchin algae, laminaria  
fucus and other brown/red  
algae thriving in LITZ.  
Littorine snails and egg  
masses, limpets and rock  
blennies numerous. Extremely  
rich and abundant intertidal  
area.

9



**ADEC & USFS**

NAME Aimee Weseman SIGNATURE Aimee Weseman

☐ NTR ☒ Treatment Recommended. Anad Fish stream, Commercial Fishing & Recreation Area

Due to the significant amount of subsurface oil present across the mid-Intertidal Zone of this wandering stream, mechanical tilling of this area is recommended.

**EXXON**

NAME Scott A. Nauman SIGNATURE Scott A. Nauman

☒ NTR

This site has improved dramatically since last year's ASAP. Surface coverage has been reduced from a continuous SOR to very small patches. Based on this change, I believe the remaining surface remnants will quickly weather naturally. Subsurface oil is non-existent to low residual across most of the beach. The concentrated pocket to the northwest is adjacent to healthy mussel beds. To dig up or till this pocket would undoubtedly disturb these beds, as well as the lush life growth.

**LANDMANAGER**

NAME TOM CROWE OF ADFTG SIGNATURE for Crowe

☐ NTR ☒ TREATMENT RECOMMENDED

THIS ANADROMOUS STREAM APPEARS TO STILL BE SUBSOURCED ON BOTH SIDES WITH OILED SEDIMENTS. MECHANICAL TILLING OF THESE SEDIMENTS WITH A SMALL CAT WITH RAKE BARS SUCH AS THE WORK DONE AT THIS SITE LAST SUMMER IS RECOMMENDED.

**USCG/NOAA**

NAME CWO R. Spurr / Rebecca Hoff SIGNATURE R. Spurr / Rebecca Hoff

☐ NTR

This segment shows the impacts of tilling done in previous years. The entire area south of the stream should not be treated since remaining surface oil is not extensive + is weathering fine. Also, this area has rich lower intertidal habitat including eelgrass beds that should not be disturbed. Areas to the north of the stream with some subsurface residue could be turned manually to help weathering. Mechanical tilling is not recommended as it is too intrusive. Any manual treatments should be limited in scope + restricted to the mid-upper zones.

**RECEIVED**  
MAY 01 1991

**ORIGINAL COPY**

DEPT. OF  
ENVIRONMENTAL CONSERVATION

5/13/91 Discrepancy

KNS00 B

226-10-16996

Review

HAB  
treatment recommended =  
need oiling extent,  
comments

OG  
N/A

## 1991 STREAM FILE LOG HABITAT

STREAM CATALOG # : 226-10-16996  
STREAM NAME : Knight Clodand

LOCATION : P.W.S.  
SEGMENT : KN-500B

[illegible]

ADF&G MULTI ASSESSMENT DATA FORM (1992-A) - Anad Fin

ASC#: 226-10-16996 DATE: 5/19/92 RECORDER: Aimee Weseman  
 SEGMENT#: KN500 SUB#: B TIME: 0800 - 0930 OBSERVERS: Fink, Kuwada  
 LOCATION: N.W. Knight I PWS WAVE EXPOSURE: H ☒ M ☐ L AGENCIES: ADF&G

PHOTOS?: ☒ Y ☐ N ROLL#: P92-MF 001V FRAMES: 1-7 OIL W/I 50M OF STREAM?: ☒ Y ☐ N  
 VIDEOS?: ☒ Y ☐ N TAPE#: V92 AJW-001V METER#: 1 - 337 OIL IN STREAM?: ☒ Y ☐ N  
 SAMPLES?: Y ☒ N ID#: \_\_\_\_\_ ANADROMOUS FISH?: Y ☒ N

SUBSTRATE %: BEDROCK \_\_\_\_\_ BOULDER \_\_\_\_\_ GRAVEL ☒ SAND ☒ COBBLE ☒ MUD/SILT ☒

| SITE# | TYPE    | L (m) | W (m) | DEPTH INT (cm) | % | THICK  | OIL TYPE | SITE COMMENTS                                                                                             |
|-------|---------|-------|-------|----------------|---|--------|----------|-----------------------------------------------------------------------------------------------------------|
| A     | subsurf | 4     | 4     |                |   |        | LOR/OF   | LOR & OF generally thru-out site. Surface water hampered measurement. Black & Rainbow sheen when agitated |
| C     | subsurf | 4     | 6     | 5-22           |   | >10cm  | m/LOR    | oil immediately adjacent to stream - sheens into stream when agitated                                     |
| D     | subsurf | 4     | 6     | 6-17           |   | 2-11cm | m/HOR    | we divided last years site D into 2 smaller sites now labeled D+E                                         |
| E     | subsurf | 4     | 5     | 7-10           |   | 3cm    | m/HOR    | evidence of recent tilling of approximately half of site                                                  |
|       |         |       |       |                |   |        |          |                                                                                                           |
|       |         |       |       |                |   |        |          |                                                                                                           |

COMMENTS: Aggressive treatment in 90&91 (mechanical tilling) appears to have been quite successful in reducing oil contamination to Anad stream and adjacent area. Recommend tilling of area C - along stream and area's D & E to north (30m from stream mouth). Tilling of areas D & E in the LITZ would be most effective when done with a rising tide.

KN 500B

ASC# 226-10-16996

5/19/98 0800-0930

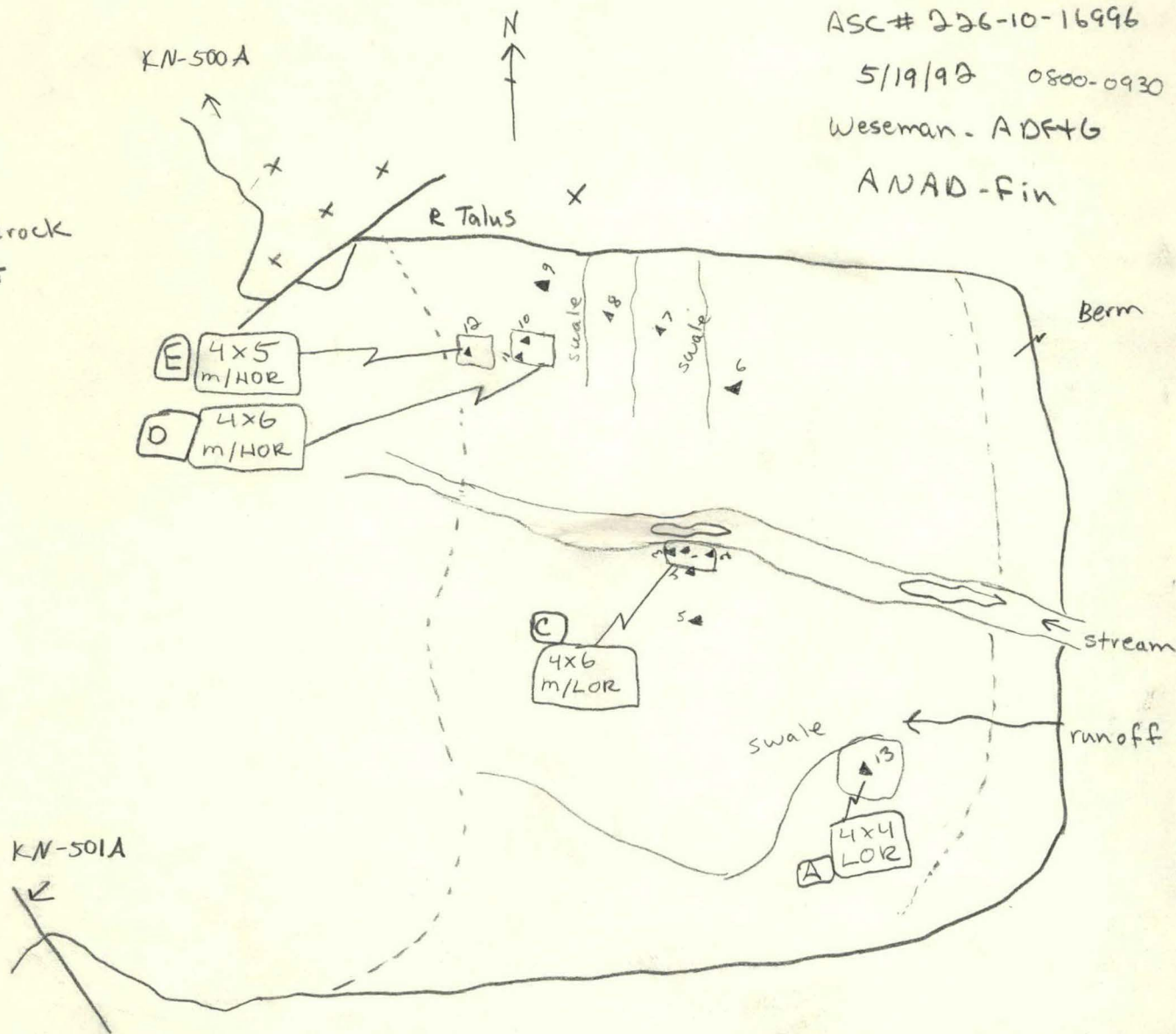
Weseman - ADF+6

ANAD-Fin

SKETCH:

☒ - bedrock

▲ - pit



50 meters 50

| Pit# | TD | Oil <sup>cm</sup> int + type | clean below | WT | sed  | sheen | zone  |
|------|----|------------------------------|-------------|----|------|-------|-------|
| C-1  | 17 | 8-15-mor                     | ?           | 15 | SPG  | B     | MITZ  |
| C-2  | 13 | 5-15 m-LOR                   | ?           | 15 | SPG  | B     | MITZ  |
| C-3  | 22 | 6-14 LOR                     | ?           | 21 | SPG  | S     | MITZ  |
| C-4  | 22 | 10-22 LOR/OF                 | ?           | —  | SPG  | —     | MITZ  |
| 5    | 26 | TR                           | Y           | —  | SPG  | —     | MITZ  |
| 6    | 23 | TR                           | ?           | 6  | SPG  | S     | LUITZ |
| 7    | 30 | NO                           | ?           | 24 | SPG  | —     | MITZ  |
| 8    | 11 | OF                           | ?           | 2  | SPG  | B, RB | LMITZ |
| 9    | 24 | NO                           | ?           | 19 | SPG  | —     | LMITZ |
| D-10 | 19 | 6-8-H/MOR                    | ?           | 10 | SPG  | B     | LITZ  |
| D-11 | 22 | 6-17 H/MOR                   | ?           | 17 | SPG  | B, RB | LITZ  |
| E-12 | 15 | 2-10 m/HOR                   | ?           | 11 | SPG  | B     | LITZ  |
| A-13 | 16 | LOR                          | ?           | 7  | PCGS | B, RB | UITZ  |

ADF&G MULTI ASSESSMENT DATA FORM (1992-A) - Anad Fin

ASC#: 226-10-16996

DATE: 5/19/92

RECORDER: Aimee Weseman

SEGMENT#: KN500 SUB#: B

TIME: 0800 - 0930

OBSERVERS: Fink, Kuwada

LOCATION: N.W. Knight I PWS

WAVE EXPOSURE: H ☒ M ☐ L

AGENCIES: ADF&G

PHOTOS ? : ☒ N ROLL#: P92 MF 001V FRAMES: 1-7

OIL W/I 50M OF STREAM ? : ☒ N

VIDEOS ? : ☒ N TAPE#: V92 AJW-001V METER#: 1 - 337

OIL IN STREAM ? : ☒ N

SAMPLES ? : Y ☒ ID#: \_\_\_\_\_

ANADROMOUS FISH ? : Y ☒ N

SUBSTRATE %: BEDROCK \_\_\_\_\_ BOULDER \_\_\_\_\_ GRAVEL ☒ SAND ☒ COBBLE ☒ MUD/SILT ☒

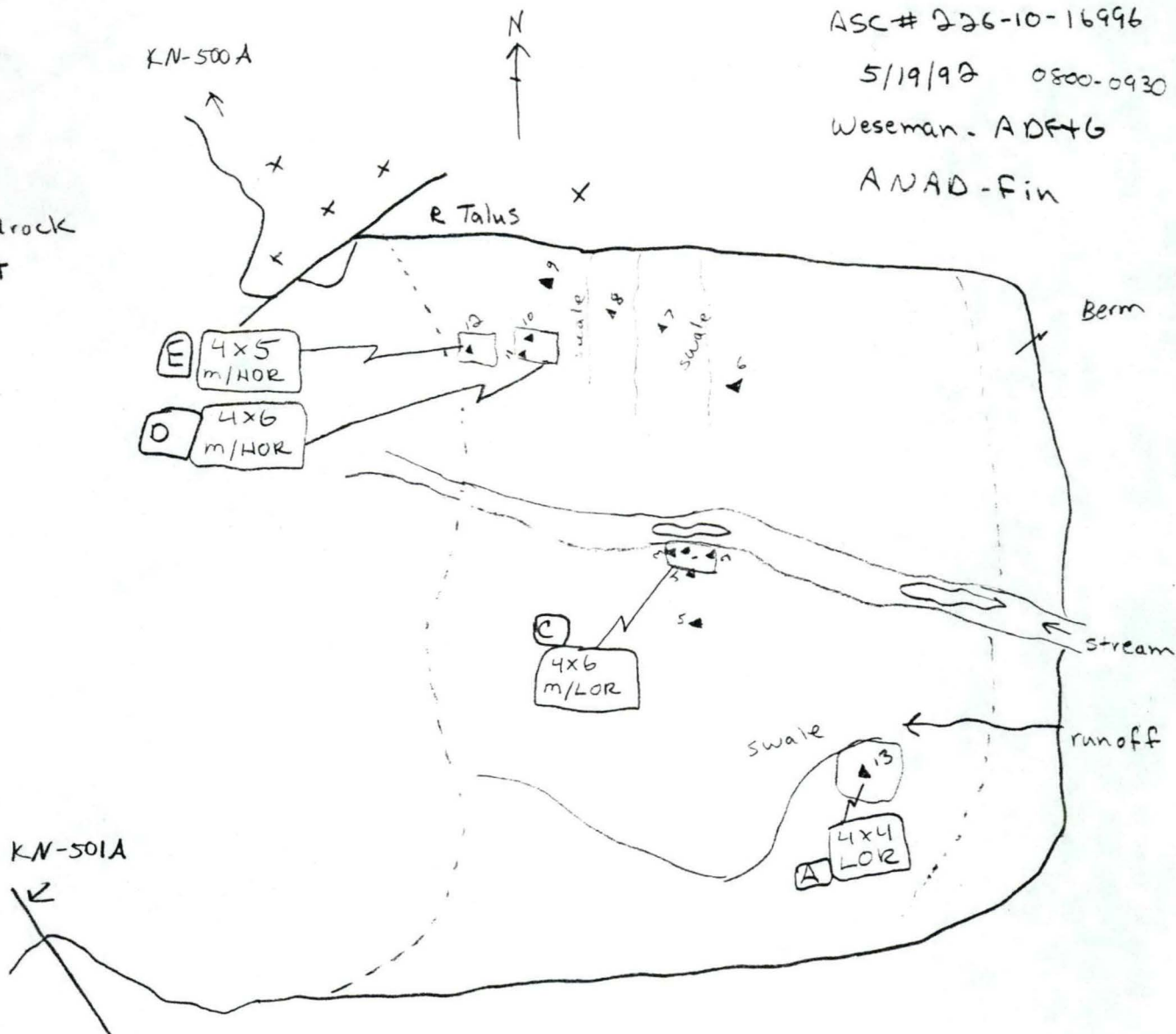
| SITE# | TYPE    | L (m) | W (m) | DEPTH INT (cm) | % | THICK  | OIL TYPE | SITE COMMENTS                                                                                              |
|-------|---------|-------|-------|----------------|---|--------|----------|------------------------------------------------------------------------------------------------------------|
| A     | subsurf | 4     | 4     |                |   |        | LOR/OF   | LOR & OF generally thru-out site. Surface water hampered measurement. Black & Rainbow sheen when agitated. |
| C     | subsurf | 4     | 6     | 5-22           |   | >10cm  | M/LOR    | oil immediately adjacent to stream. sheens into stream when agitated                                       |
| D     | subsurf | 4     | 6     | 6-17           |   | 2-11cm | M/HOR    | We divided last years site D into 2 smaller sites now labeled D+E                                          |
| E     | subsurf | 4     | 5     | 7-10           |   | 3cm    | M/HOR    | evidence of recent tilling of approximately half of site                                                   |
|       |         |       |       |                |   |        |          |                                                                                                            |
|       |         |       |       |                |   |        |          |                                                                                                            |

COMMENTS: Aggressive treatment in 90991 (mechanical tilling) appears to have been quite successful in reducing oil contamination to Anad stream and adjacent area. Recommend tilling of area C - along stream and area's D & E to north (30m from stream mouth). Tilling of areas D & E in the LITZ would be most effective when done with a rising tide.

KN 500B  
 ASC# 226-10-16996  
 5/19/92 0800-0930  
 Weseman - ADF+G  
 ANAD-Fin

SKETCH:

☒ - bedrock  
 ▲ - pit



| P.#  | TD | Oil int+type | clean below | WT | sed  | Shoen | zone  |
|------|----|--------------|-------------|----|------|-------|-------|
| C-1  | 17 | 8-15-mor     | ?           | 15 | SPG  | B     | MITZ  |
| C-2  | 13 | 5-15 m-LOR   | ?           | 15 | SPG  | B     | MITZ  |
| C-3  | 22 | 6-14 LOR     | ?           | 21 | SPG  | S     | MITZ  |
| C-4  | 22 | 10-22 LOR/OF | ?           | —  | SPG  | —     | MITZ  |
| 5    | 26 | TR           | ✓           | —  | SPG  | —     | MITZ  |
| 6    | 23 | TR           | ?           | 6  | SPG  | S     | LUITZ |
| 7    | 30 | NO           | ?           | 24 | SPG  | —     | MITZ  |
| 8    | 11 | OF           | ?           | 2  | SPG  | B, RB | LMITZ |
| 9    | 24 | NO           | ?           | 19 | SPG  | —     | LMITZ |
| D-10 | 19 | 6-8-H/MOR    | ?           | 10 | SPG  | B     | LITZ  |
| D-11 | 22 | 6-17 H/MOR   | ?           | 17 | SPG  | B, RB | LITZ  |
| E-12 | 15 | 2-10 m/HOR   | ?           | 11 | SPG  | B     | LITZ  |
| A-13 | 16 | LOR          | ?           | 7  | PCGS | B, RB | UITZ  |

Ks 5/29/92

2261016996 segment: KN500 B location: KNIGHT ISLAND, NORTHWEST SIDE  
 H89: N/A SCAT 89: M DEC Fall Walk: H  
 H90: H  
 H91: M/H (SUBSURFACE OIL PRESENT)

| 05/19/92 |      | ANADFIN                |                | agency: HAB                 |                                  | WESEMAN                                                                                                          |  | OIL w/i 50m: Y | OIL IN STREAM: Y |
|----------|------|------------------------|----------------|-----------------------------|----------------------------------|------------------------------------------------------------------------------------------------------------------|--|----------------|------------------|
| record#  | SITE | W x L (m)<br>SITE TYPE | PERCENT<br>OIL | THICKNESS &<br>PENETR. (cm) | OIL TYPES,<br>DEPTH INTERVAL(cm) | SITE SPECIFIC COMMENTS                                                                                           |  |                |                  |
| 4038     | 05   | PIT                    |                |                             | TRACE                            |                                                                                                                  |  |                |                  |
| 4039     | 06   | PIT                    |                |                             | TRACE                            |                                                                                                                  |  |                |                  |
| 4040     | 07   | PIT                    |                |                             | NONE                             |                                                                                                                  |  |                |                  |
| 4041     | 08   | PIT                    |                |                             | OF                               |                                                                                                                  |  |                |                  |
| 4042     | 09   | PIT                    |                |                             | NONE                             |                                                                                                                  |  |                |                  |
| 4014     | A    | 4 x4<br>SUBSURF        |                |                             | LOR OF                           | LOR AND OF GENERALLY THROUGHOUT SITE. SURFACE WATER HAMPERED MEASUREMENT. BLACK AND RAINBOW SHEEN WHEN AGITATED. |  |                |                  |
| 4046     | A13  | PIT                    |                |                             | LOR                              |                                                                                                                  |  |                |                  |
| 4015     | C    | 6 x4<br>SUBSURF        |                | >10                         | MOR LOR<br>5-22                  | OIL IMMEDIATELY ADJACENT TO STREAM. SHEENS INTO STREAM WHEN AGITATED.                                            |  |                |                  |
| 4034     | CD1  | PIT                    |                |                             | MOR<br>8-15                      |                                                                                                                  |  |                |                  |
| 4035     | C02  | PIT                    |                |                             | MOR LOR<br>5-15                  |                                                                                                                  |  |                |                  |
| 4036     | C03  | PIT                    |                |                             | LOR<br>6-14                      |                                                                                                                  |  |                |                  |

2261016996

KN500 B

KNIGHT ISLAND, NORTHWEST SIDE

|      |     |                 |  |      |                 |                                                                             |
|------|-----|-----------------|--|------|-----------------|-----------------------------------------------------------------------------|
| 4037 | C04 | PIT             |  |      | LOR OF<br>10-22 |                                                                             |
| 4016 | D   | 6 x4<br>SUBSURF |  | 2-11 | MOR HOR<br>6-17 | WE DIVIDED LAST YEAR'S SITE D INTO TWO SMALLER SITES, NOW LABELLED D AND E. |
| 4043 | D10 | PIT             |  |      | HOR MOR<br>6-8  |                                                                             |
| 4044 | D11 | PIT             |  |      | HOR MOR<br>6-17 |                                                                             |
| 4017 | E   | 5 x4<br>SUBSURF |  | 3    | MOR HOR<br>7-10 | EVIDENCE OF RECENT TILLING OF APPROXIMATELY HALF THE SITE.                  |
| 4045 | E12 | PIT             |  |      | MOR HOR<br>7-10 |                                                                             |

## OG/HAB COMPARISON:

## COMMENTS:

AGGRESSIVE TREATMENT IN 1990 AND 1991 (MECHANICAL TILLING) APPEARS TO HAVE BEEN QUITE SUCCESSFUL IN REDUCING OIL CONTAMINATION TO THE ANAD. STREAM AND ADJACENT AREA. RECOMMEND TILLING OF AREA C ALONG STREAM AND AREAS D AND E TO NORTH (30M FROM STREAM MOUTH). TILLING OF AREAS D AND E IN THE LITZ WOULD BE MOST EFFECTIVE WHEN DONE WITH A RISING TIDE.

2261016996

KN500 B

KNIGHT ISLAND, NORTHWEST SIDE