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Spring/Summer 2005 Shoreline Cleanup Assessment Technique (SCAT) Program

M/V SELENDANG AYU Incident

Prepared for: N. S. Jensen PSC 4/8/05
Unified Command

Approved by:

FOSC: _____ **Date:** 4/8/05

SOSC: Gary B. Folley **Date:** 4/8/05

RPIC: Howard Shile **Date:** 4/8/05

POLARIS APPLIED SCIENCES, INC.

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1. INTRODUCTION

This internal document has been prepared for those involved with the spring/summer 2005 Shoreline Cleanup Assessment Technique (SCAT) program.

2. OBJECTIVES

The SCAT process involves teams of trained observers who survey the affected coastal area to provide an accurate geographic or spatial picture of the shoreline oiling conditions. The purpose of the survey is to provide appropriate information for decisions regarding spring/summer shoreline treatment, cleanup operations and tactics, and end points for cleanup.

3. FIELD SURVEY METHODS

The SCAT process is a flexible approach and the assessment activities are designed to match the individual spill conditions. However, there is a set of basic principles that govern a SCAT survey:

- ***a systematic assessment of all shorelines in the affected area,***
- ***a division of the coast into geographic units or "segments",***
- ***the use of a standard set of terms and definitions for documentation, and***
- ***a team of personnel that represents the interests of the designated leading federal and state agencies, the responsible party, and representatives of applicable land ownership, management, or use interests, as applicable.***

Typically, the SCAT teams survey the shorelines of the affected area on foot, supported by helicopters or small boats, and complete forms and sketches for each segment, as necessary. A standard Shoreline Oiling Summary (SOS) form has been developed for documentation and this basic form is supplemented by a Tar Ball Oiling Summary (TBS) form where appropriate. The terms and definitions used to document the oiling conditions follow those presented in the NOAA and Environment Canada SCAT manuals. The team also completes a Shoreline Treatment Recommendation Transmittal form (Appendix B).

The SCAT teams are expected to provide recommendations or advice regarding appropriate treatment methods and tactics (Appendix J) using the Shoreline Treatment Recommendation Transmittal (STRT) form (Appendix B) and also to define ecological and cultural resource constraints or limitations on the application of treatment techniques (Appendix H), so that the operational activities do not result in additional damage to the shore zone.

For this spill incident the shoreline segments have been created already and a reconnaissance survey has been conducted as part of the winter shoreline survey activities. There exists, therefore, a data base on the shoreline character and on the

oiling conditions as they existed in December 2004 through February 2005 upon which the design for the spring/summer survey program has been based.

At some time during the spring/summer SCAT program the entire area to be surveyed will be flown at a low altitude (<100 feet) in a helicopter using a videotape camera linked to (1) an audio system for a detailed commentary to be provided by Dr. Owens, (2) a real time, moving map display, and (3) a Geographical Positioning System (GPS). The low-altitude survey has not been scheduled at this time. A government representative may assist Dr. Owens on the low altitude video survey.

Four SCAT teams have been mobilized as follows:

- **Team A** – based in Unalaska uses the Bell 105 helicopter, which can carry up to 4 passengers (but typically 3), for surveys in the area between Spray Cape and Brundage Head on Unalaska Island; also collector beaches in Beaver Inlet in the vicinity of Sedanka Island will be spot checked.
- **Team B** – based in Unalaska uses the Bell 212 helicopter, which can carry up to 6 passengers, for surveys in the area between Spray Cape and Makushin Head on Unalaska Island.
- **Team C** – based on a support vessel[1], to initially survey the beaches west of Spray Cape to Umnak Island and east of Brundage Head to Akutan Island, and then those segments not accessible by helicopter and/or not surveyed by Teams A and B.
- **Team D** – based on a support vessel, to work in tandem with Team C for safety reasons, to initially survey the beaches west of Spray Cape to Umnak Island and east of Brundage Head to Akutan Island, and then those segments not accessible by helicopter and/or not surveyed by Teams A and B.

TEAMS A and B:

1st Priority: Nine (9) segments in the Makushin Bay and Skan Bay area with anadromous fish streams and that were identified by the winter surveys as having “Heavy” or “Moderate” Oiling (Appendix L).

2nd Priority: Forty-two (42) segments identified by the winter surveys as having “Heavy” or “Moderate” Oiling but with no anadromous fish streams.

3rd Priority: Ten (10) segments in this area with the remaining anadromous fish streams.

4th Priority: Segments (actual number unknown at this time) identified by the Subsistence Workgroup as important to subsistence users.

Completion of the first and second priority segments is expected to require an estimated 7 to10-day period, without taking into account possible weather constraints.

[1] The teams are supported by two local fishing vessels that have a combined 19 berths for the SCAT members, Operations personnel, and skiff drivers.

Teams A and B will then complete surveys of the helo-accessible segments in the "core area" between Spray Cape and Makushin Head: there are a total of 324 predefined segments in this "core area".

Team B will stand down after completion of this first set of priority segment surveys in the "core area". Team A then will continue to:

- survey the helo-accessible segments in the Unalaska Bay area between Eider Point and Brundage Head and the selected beaches in Beaver Inlet,
- survey the helo-accessible segments between Makushin Head and Eider Point (there are a total of 251 predefined segments in the area between Makushin Head and Brundage Head), and also
- provide support to Operations as necessary.

TEAMS C and D:
These two boat-based teams begin by inspecting all accessible segments from Spray Cape and working to the west. There are 176 predefined segments in this area.

On completion of this area, the teams will remobilize to NE Unalaska and will then survey those segments not accessible by helicopter that were not surveyed by Teams A and B, and those accessible segments east of Brundage Head: there are 43 predefined segments in the area east of Brundage Head.

Completion of these assignments is estimated to require at least 3 to 4 weeks, depending on weather and sea states.

For the areas in which only tar balls or patties were observed in the winter survey, the following boat-based field strategy applies:

- the SCAT team documents any tar balls or patties,
- if practicable, an Operations representative collects the tar during the survey (documentation of all oil removal carried out during the survey will be noted in the Comments box), and
- if the team is of the opinion that the collection meets the end-point criteria pre-established for that segment and that no further treatment actions are required, then a Segment Inspection Report is completed (see Section 9 below and Appendix D). This form is countersigned by all three members on the SCAT team who represent the Unified Command (UC), in consultation with the land owner/manager, to ensure that the recommendation to the UC is unanimous.

All teams will collect tar and/or oil samples on every other segment where oil is observed. One sample will be collected that is representative of the observed oil in that segment, as well as any anomalous deposits.

4. SCAT DATABASE AND SHORELINE TREATMENT RECOMMENDATION TRANSMITTAL (STRT) FORM

The completed field documents (forms and sketches) from the helo-based Teams A and B are inspected at the Command Post for QA/QC the same day to ensure that any necessary revisions are made prior to the surveys of the next day. The completed field documentation (forms and sketches) from the boat-based Teams C and D are inspected by the Oil Geomorphologist (OG) of the other team for QA/QC on the same day as the survey to ensure that any necessary revisions are made prior to the surveys of the next day. In order to facilitate planning, the Team Leader will notify the SCAT Manager on a daily basis if any segments are identified that will require Operations mobilization. The completed field documents from Teams C and D are forwarded to the Command Post as soon as practical, and at least weekly. All data and photos are promptly entered into the existing SCAT database by the SCAT Field Coordinator or the person on Teams C and D who has been assigned responsibility for this activity.

The STRT is routed by the SCAT Field Coordinator/Data Entry Manager for review initially by the Safety Officer for safety concerns and an Operations representative for practicality. The form then is reviewed and approved by the Historic Properties Specialist (HPS), the Environmental Unit Leader for environmental risk and environmental priority assignment, and the Unified Command (FOSC; SOSC; RPIC). Once approved, the form is forwarded to Operations via the EUL.

5. GEOGRAPHIC AREA OF THE SURVEY

The SCAT survey focuses initially on the areas of Makushin Bay and Skan Bay, where most of the oil was observed during the winter survey. This priority is intended to assess oiling conditions following the winter season and to verify or revise initial treatment recommendations for specific segments to Operations.

The full extent of the area to be surveyed is:

- Umnak Island east coastline from Cape Tanak (167° 59’ 11.7”) to Otter Point (167° 50’ 44.1”);
- Shoreline of Unalaska Island from Konets Head on the southwest end to Brundage Head on the eastern end (with spot surveys around Sedanka Island);
- Shorelines of Unalga Island and the Baby Islands; and
- Akutan Island on the west coastline from Open Bight (165° 53’ 37.2” W) to Battery Point (165° 53’ 12.0” W).

Within this geographic area, the teams ARE NOT EXPECTED to walk bedrock cliffs or exposed headlands where it is be unsafe or impractical. These sections are to be flown “low and slow” during the aerial videotape survey by an experienced oil observer.

If recoverable oil is identified during the aerial videotape survey as being from the Selendang Ayu, then the SCAT survey will be extended in these areas as appropriate.

6. SCHEDULE

The spring/summer Operations will begin on or about 22nd April. The SCAT teams traveled to Dutch Harbor on Monday 4th April to train and field calibrate on the 5th and then began the segment surveys on the 8th. This schedule allows for sufficient time to obtain the appropriate information for Operations to commence mobilization to selected segments in Makushin and Skan Bays.

It is anticipated that the full field survey will require approximately 6 weeks to complete.

7. MANAGEMENT AND PARTICIPATION

7.1 Management

Within the Environmental Unit, Dr. Owens of Polaris is the SCAT Program Manager and provides a direct link between the field data collection teams and Planning Section, Environment Unit, and Operations. He is responsible for the overall program. H. Parker-Hall, of Polaris, is the Field Coordinator/Data Entry Manager who manages the field team activities, provides QA/QC on the data, enters the observations into the data base, and coordinates the distribution the Shoreline Treatment Recommendation Transmittal forms in the Command Post.

7.2 Team Participation

Each team has, at a minimum:

- an experienced shoreline oil observer responsible for completing the oiling documentation (Oil Geomorphologist, usually referred to as the "OG")
- a responsible party representative
- a federal representative, and
- a state representative.

One person may be filling two of these roles[2].

The team may have, depending on the segment to be surveyed:

- a land owner or land manager representative, and
- a local community representative.

Again, one person may fill more than one role.

The US Fish and Wildlife – National Wildlife Refuge has requested one position in Team B and one position in either Team C or D.

Alaska DNR has requested the land manager slot in Team B and a position on Team A.

A Cultural Resources (CR) person will be present on the team for segment surveys

[2] For example, Team A benefits from the presence of J. Engles (DEC) who fills two roles (OG and State Representative) and thereby makes room for another representative.

selected by the Historic Properties Specialist (HPS). At present, it is planned to have one CR person available for the Unalaska-based helicopter teams and a single archaeologist will accompany the two boat- based teams (C and D). The Team A-B schedule will be organized so that Team B on the 212 will survey those sites that require review by an archaeologist.

Two Operations person(s) accompany the boat-based SCAT teams to manually recover oil as the segments are surveyed as recommended by the state.

7.3 Team Assignments

Traditionally the OG is the team leader and it is this person's responsibility to assign the following activities to the team members:

- complete of the Shoreline Oiling Form (to be completed by the OG)
- complete Shoreline Treatment Recommendation Transmittal Form (OG)
- prepare sketch(es) of the segment if oil is observed – **no sketch is required if no oil is observed in the segment**
- record GPS coordinates of the segment endpoints and other specific features
- take digital photographs and log date/time/location – **no photos are required if no oil is observed in the segment**, but one alongshore general photograph typically would be taken at the high water level to record the shore-zone character
- dig pits/trenches if subsurface oil is suspected

8. CULTURAL RESOURCES PROGRAM

During SCAT surveys, where necessary, confidential cultural resource data are collected by a qualified archaeologist so that an appropriate cultural resource constraint for response operations can be applied to the applicable segment. After each segment has been surveyed, the SCAT archaeologist proposes constraints for approval by the FOSC's Historic Properties Specialist (HPS) in consultation with landowners, the Qawalangin Tribe, other affected parties, and the State Historic Preservation Officer (SHPO).

Northern Land Use Research, Inc. has the role of the FOSC Historic Properties Specialist, and Chumis Cultural Resource Services has the role of the RP archaeologist, with the assistance of additional SCAT archaeologists as required, as described in the *Programmatic Agreement on Protection of Historic Properties During Emergency Response Under the National Oil and Hazardous Substances Pollution Contingency Plans (PA).*

To protect site confidentiality, the cultural resource constraints are not made publicly available. All response personnel follow the approved Cultural Resource Policy.

9. SHORELINE TREATMENT ENDPOINTS AND INSPECTIONS

All spills have a point at which active cleanup and removal gives way to the natural degradation of the oil. In most cases, this termination point is qualitative, developed as a consensual process and field verified by representatives of the Unified Command, in consultation with the appropriate land manager. In all cases, the endpoint is reached when worker safety would be compromised or the remaining oil presents less of a risk to the community or the resources than the treatment methods available.

After the Operations Division Supervisor or Shoreline Supervisor considers that cleanup in a segment has been completed, the segment is inspected by a SCAT team which is empowered to (a) determine that end point criteria have been met and (b) recommend to the Unified Command that cleanup in that segment be terminated. The team uses the criteria in the "M/V *Selendang Ayu* Shoreline Cleanup Termination Endpoints 2005" (Appendix C) to make this determination.

- If the SCAT team, in consultation with the land manager, determines that no oil is present in the segment or that the cleanup has met the end-point criteria, then the members of the SCAT team who represent the UC sign the Segment Inspection Report form and forward this recommendation to the UC for approval.

Determination that cleanup endpoints have been reached does not indicate that the segment is necessarily recovered or restored under the definition of the NRDA process.

- If a segment fails to meet the cleanup criteria by unanimous agreement among the UC representatives, the team indicates on the Segment Inspection Report where work is required and what should be done to pass inspection and sends the form to the SCAT Field Coordinator/Data Manager who forwards this to Operations via the EUL.

The SCAT process is designed to be an integrated team assessment. If, however, the team members are not unanimous regarding whether or not the end point criteria are met, then a sheet listing the reasons for disagreement is attached to the Segment Inspection Report and forwarded to the UC for resolution.

Appendix A SCAT Shoreline Oiling and Tar Ball Oiling Summary Forms

One and/or both of these forms are completed by the OG.

These forms are available at the Command Post as .xls, .pdf, and .jpg files, as well as hard copy on waterproof paper.

The standard form is the **Shoreline Oiling Summary** (SOS) form.

- If tar balls are observed the **Tar Ball Oiling Summary** (TBS) form is used.
- If both oil deposits and tar balls are observed in a segment, then both the SOS and TBS forms are completed. However, Boxes 2 through 5 are the same for both forms and so would be completed ONLY on the SOS form. Remember to complete Box 1 on the TBS form !!!
- If no surface or subsurface oil is observed in a segment, then (1) in BOX 6 and Box 7 check the "NO" box in OIL CHARACTER, and (2) there is no need to complete BOX 5 ("Operational Features") and Box 8.
- Where oil is observed in a segment, a **SHORELINE TREATMENT RECOMMENDATION TRANSMITTAL** (STRT) form (Appendix B) is completed by the OG.
- In the unlikely event that the team does not reach consensus regarding the percent oil distribution or the tar ball density, then this will be noted in the Comments box on the form.
- For segments in which oil is removed by Operations during the segment survey, the post-cleanup oiling conditions MUST BE RECORDED in the Comments box.

Where tar balls are observed and removed by Operations during a survey, then a **SEGMENT INSPECTION REPORT** form (Appendix D) is completed in the field at that time and signed by the three UC representatives.

SHORELINE OILING SUMMARY (SOS) FORM - M/V SELENDANG AYU Spill Response Page ____ of ____

1 GENERAL INFORMATION	Date: dd/mmm/yyyy	Time (24h): standard/daylight	Tide Height
Segment ID:			
Operations Division:		hrs to hrs	rising / falling

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

2 SURVEY TEAM # _____	name	organization	contact phone number

3 SEGMENT *Total Segment Length* _____ *m* *Segment Length Surveyed* _____ *m*

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

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

Differential GPS Yes / No

4A SHORELINE TYPE *select only one primary (P) oiled shoreline type and any number of secondary (S) types*

BEDROCK : ___ *MAN-MADE SOLID :* ___	*SEDIMENT BEACH :* Sand ___	*SEDIMENTS FLATS :* Mud Flats ___	
cliff/vertical ___ sloping ___ platform ___	Pebble-Cobble ___ Boulder ___	Sand Flats ___	Sand-Gravel ___
Winter Only: Ice Foot ___ Snow ___	Mixed Sand-Gravel ___ *MARSH :* ___	Peb-Cob ___	Boulder ___

4B COASTAL CHARACTER *backshore character — select only one primary (P) and any number of secondary (S) types*

CLIFF or HILL : ____ : est. height _____ m	Beach ___	Delta ___	Tidal inlet ___	Marsh/Wetland ___
slope: gentle (<5º) ___ medium ___ steep (>30º) ___	Barrier beach ___	Dune ___	Channel ___	other _____

5 OPERATIONAL FEATURES debris Y / N oiled? Y / N debris amount: _____ bags OR _____ trucks

direct backshore access Y / N suitable backshore staging Y / N

alongshore access from next segment Y / N access restrictions _____

6 SURFACE OILING CONDITIONS *begin with "A" in the lowest tidal zone*

OIL ZONE	TIDAL ZONE				OIL COVER			OIL THICKNESS					OIL CHARACTER								SUBST. TYPE(S)
ID	LI	MI	UI	SU	Length m	Width m	Distrib. %	PO	CV	CT	ST	FL	FR	MS	TB	PT	TC	SR	AP	NO	
A																					

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

TRENCH or PIT NO.	TIDAL ZONE				MAX. PIT DEPTH	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	LI	MI	UI	SU	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	cm	B, R, S, N	Yes / No	

8 COMMENTS *cleanup recommendations — ecological/recreational/cultural/economic issues & constraints — wildlife obs.*

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

Sketch Yes/No **Photos** Yes/No (Roll # _____ Frames_____) **Video Tape** Yes/No (tape #_____) ver. Mar/05

TAR BALL OILING SUMMARY (TBS) FORM - M/V SELENDANG AYU Spill Response Page ____ of ____

1 GENERAL INFORMATION	Date: dd/mmm/yyyy	Time (24h): standard/daylight	Tide Height
Segment ID:			
Operations Division:		hrs to hrs	rising / falling
Survey by: Foot / ATV / Boat / Helicopter / Overlook / _____		Sun / Clouds / Fog / Rain / Snow / Windy / Calm	

2 SURVEY TEAM # ___	*name*	*organization*	*contact phone number*

3 SEGMENT ***Total Segment Length*** _____ ***m*** ***Segment Length Surveyed*** _____ ***m***

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

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

Differential GPS Yes / No

4A SHORELINE TYPE ***select only one primary (P) oiled shoreline type and any number of secondary (S) types***

BEDROCK : ___	*MAN-MADE SOLID :* ___	*SEDIMENT BEACH :*	Sand ___	*SEDIMENT FLATS :*	Mud Flats ___		
cliff/vertical ___	sloping ___	platform ___	Pebble-Cobble ___	Boulder ___	Sand Flats ___	Sand-Gravel ___	
Winter Only:	Ice Foot ___	Snow ___	Mixed Sand-Gravel ___	*MARSH :* ___	Peb-Cob ___	Boulder ___	

4B COASTAL CHARACTER ***backshore character — select only one primary (P) and any number of secondary (S) types***

Cliff or Hill: ___ : est. height _____ m		Beach ___	Delta ___	Tidal inlet ___	Marsh/Wetland ___		
slope: gentle (<5°)___	medium ___	steep (>30°) ___	Barrier beach___	Dune ___	Channel ___	other _____	

5 OPERATIONAL FEATURES debris Y / N oiled? Y / N debris amount: _____ bags OR _____ trucks

direct backshore access Y / N suitable backshore staging Y / N

alongshore access from next segment Y / N access restrictions _____

6 TARBALL CONDITIONS	***AREA 1***	***AREA 2***	***AREA 3***
Tar Balls Observed ?	YES ⊔ NO ⊔	YES ⊔ NO ⊔	YES ⊔ NO ⊔
Oiled Debris Observed ?	YES ⊔ NO ⊔	YES ⊔ NO ⊔	YES ⊔ NO ⊔
Tidal Zone (LI – MI – UI – SU)			
Length (m) Approximate alongshore length of of shore ir segment in which tarballs/oiled debris are observe			
Width (m) Across-shore width of the band on the shore in which tarballs/oiled debris are observed			
Average Number of Tar Balls Within Area (e.g. 2 per sq.m. within band; 3 per 100 m alongshore; 6 total within area, etc.) *Be specific*			
Average Size of Tar Balls (cm)			
Size of Largest Tar Ball (cm)			
Type of Tar Balls	Weathered ⊔ Sticky ⊔	Weathered ⊔ Sticky ⊔	Weathered ⊔ Sticky ⊔
Tar Balls Collected ?	YES ⊔ NO ⊔	YES ⊔ NO ⊔	YES ⊔ NO ⊔

7 COMMENTS cleanup recommendations — ecological/recreational/cultural/economic issues & constraints — wildlife obs.

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

Sketch Yes/No **Photos** Yes/No (Roll # _____ Frames_____) **Video Tape** **Yes/No** (tape #_____) ver. Mar/05

Appendix B Shoreline Treatment Recommendation Transmittal (STRT) Form

The STRT form is completed in the field by the OG following discussion with the SCAT team and the UC representatives and forwarded to the SCAT Field Coordinator/Data Entry Manager in the Command Post.

The ecological and cultural "Constraints" in Boxes 4 and 5 respectively are defined in Appendix H.

The SCAT process is designed to be an integrated team assessment. If, however, the team members are not unanimous regarding treatment recommendations or the constraints, then a sheet listing the reasons for disagreement is attached to the STRT form and forwarded to the UC for resolution.

The STRT is routed by the SCAT Field Coordinator/Data Entry Manager for review initially by:

- the Safety Officer for safety concerns, and
- an Operations representative for practicality.

The form then is reviewed and approved by:

- the Historic Properties Specialist (HPS),
- the Environmental Unit Leader for environmental risk and environmental priority assignment, and
- the Unified Command (FOSC; SOSC; RPIC).

Once approved, the form is forwarded to Operations via the EUL.

M/V Selendang Ayu

Shoreline Treatment Recommendation Transmittal Form[1]

Site Location:

Segment: **Length (m):** **Survey Date:**

Shoreline Type: **Substrate:** **Coastal Character:**

Box 1 Oiled Area for Treatment (EU)

Box 2 Treatment Recommendations (EU)

Box 3 Recommendations / Staging and-or Logistic Constraints / Waste Issues (OPS)

Box 4 Ecological Resurce Comments

Constraint:

Box 5 Cultural Resources Comments (HPS)

Constraint:

Box6 Safety Issues (EU/OPS/SSO)

Attached: Segment Map Sketch Map SOS Form Fact Sheet Other

FINAL APPROVALS:

Environment Unit Lead | Planning Section Chief | Historic Property Specialist

RP | SOSC | FOSC

Prepared By: **Date Prepared:**

To Ops | To HPS | To DNR | To SOS | To EUL | To PLN | To UC

Final Approval to OPS | Final Approval to EUL

1- Complete all Boxes and forward to appropriate party for comments / approval via tracking

Appendix C Treatment End Points

SHORELINE CLEANUP TERMINATION ENDPOINTS

The purpose of these guidelines is to provide the Unified Command and Operations Supervisors with practical cleanup targets. These targets, once met, indicate the point at which active shoreline cleanup operations should be suspended and do not constitute shoreline restoration or full recovery criteria. These full recovery criteria will be established through longer-term assessment programs under applicable state and federal law.

Governing principles of cleanup terminations endpoints decision-making.

1. **Worker Safety:** In every instance, human health and safety is of primary importance and is not be jeopardized for any cleanup operations. The final determination as to the safety of a cleanup operation is made by the Unified Command and the Operations Supervisors.
2. **Lowest Practicable Level of Contamination**: Cleanup shall remove accessible and recoverable oil as much as practicable. The endpoints are established with the understanding that it is not practicable to remove all oil, but that cleanup teams make the effort to remove as much oil as possible. Additionally, cleanup stops when the cleanup techniques cause more damage to the shoreline than leaving the remaining oil in place.
3. **Immediate Threat:** Oil, by virtue of its location, volume or consistency, that poses an immediate threat of remobilization, of injuring wildlife/marine life, or impacting human health and safety are given priority for removal.
4. **No Sheen:** Treatment activities are expected to continue on any shoreline segment that continues to produce a regular sheen. All practical measures will be taken to control significant off-segment migration of oil.

Terms:
"Recoverable" oil or oiled material (e.g.: debris, vegetation, sediment) that can be removed from the shoreline by manual, mechanical, or other means.
"Subsurface Oil" oil contamination below the immediate surface sediments that cannot be recovered without some manual or mechanical excavation of the beach. Subsurface oil can be a result of either penetration through porous sediments or burial during depositional processes.
"Lowest Practicable Level of Contamination" is a term defined in Alaska Law requiring spillers to clean up a discharge until the lowest practicable level of contamination is achieved. Alaska determines the lowest practicable level of contamination based on several items including protection of human health, safety, and welfare and of the environment; the nature and toxicity of the hazardous substance; the extent to which the substance has migrated or is likely to migrate; and the natural dispersion, attenuation, or degradation of contamination.

ENDPOINT CRITERIA BY SHORELINE TYPE

Note: residual coverage terms are those employed by the NOAA and Environment Canada SCAT manuals and as represented in the Rite In The Rain® *Shoreline Oiling Assessment Field Book* No. X-225.

The State of Alaska will evaluate the shoreline endpoints following information received from the Spring/Summer SCAT surveys. The endpoints may be modified to ensure they are practicable, achievable, and protective of shoreline and marine resources and interests from further contamination of oil.

The State of Alaska may require cleanup of high priority sites, such as anadromous streams and key subsistence areas, at a higher level than the following cleanup endpoints. The treatment endpoints for the high priority sites will be evaluated following the SCAT survey to ensure that these shorelines receive the lowest practicable level of cleanup using the available cleanup methods.

The remaining shoreline will be cleaned to the following proposed endpoint goals:

VEGETATED SHORELINES

Surface Oil (*light patchy*)[3]

- Tarballs, tar patties and tar mats removed
- Oiled sand and gravel removed or cleaned to a light patchy (<20%) coverage of coat (CT)
- Oiled cobbles and boulders removed or cleaned to light patchy (<20%) coverage of coat (CT)
- Oiled vegetation removed, to a light patchy (<10%) coverage of coat (CT)

Subsurface Oil

- Subsurface oiling is unlikely given the density and stability of sediments common to these shorelines types, nevertheless, subsurface oil, if discovered, will be evaluated by the SCAT teams and Unified Command to determine if cleanup should occur.

Constraints

- Avoid damage to unoiled roots of vegetation
- Limited foot traffic in the vegetation
- No mechanical equipment in vegetation
- Avoid destabilization of bank

[3] The USFWS has indicated that the use of a "wildlife surrogate" may be appropriate for segments where oiled vegetation remains after cleanup to ensure that the residues do not pose a wildlife contact threat.

MIXED SEDIMENT/GRAVEL/COBBLE - STEEP CLIFF BACKSHORE

Surface Oil

- Tarballs greater than 2 cm in diameter and all tar patties and tar mats removed
- Oiled sediment and gravel removed or cleaned to a light patchy (<20% coverage of coat (CT)
- Oiled cobbles and boulders removed or cleaned to light patchy (<20%) coverage of coat (CT)
- Oiled vegetation removed, to a light patchy (<20%) coverage of coat (CT)

Subsurface Oil

- Tar patties and tar balls greater than 5 cm in diameter removed
- Buried tar mats or oiled lens removed or cleaned to light (20%) partially filled pore spaces (PP)

Constraints

- Avoid damage to unoiled roots of vegetation
- Avoid destabilization of backshore
- Probably foot traffic only

MIXED SEDIMENT/GRAVEL/COBBLE - LOW BACKSHORE

Surface Oil

- Tarballs greater than 2 cm in diameter and all tar patties and tar mats removed
- Oiled sediment and gravel removed or cleaned to a light patchy (<10% coverage of coat (CT)
- Oiled cobbles and boulders removed or cleaned to light patchy (<10%) coverage of coat (CT)
- Oiled vegetation removed, to a light patchy (<10%) coverage of coat (CT)

Subsurface Oil

- Tar patties and tar balls greater than 5 cm in diameter removed
- Buried tar mats or oiled lens removed or cleaned to light (20%) partially filled pore spaces (PP)

Constraints

- Avoid damage to unoiled roots of vegetation
- Avoid destabilization of backshore

FINE SEDIMENT/SAND/GRAVEL

Surface Oil

- Tarballs greater than 1 cm in diameter and all tar patties and tar mats removed
- Oiled sand and gravel removed or cleaned to a light patchy (<20% coverage of coat (CT)
- Oiled vegetation removed, to a light patchy (<20%) coverage of coat (CT)

Subsurface Oil

- Tar patties and tar balls greater than 2 cm in diameter removed
- Buried tar mats or oiled lens removed or cleaned to light (20%) partially filled pore spaces (PP)

Constraints

- Avoid damage to unoiled roots of vegetation

BOULDER/BEDROCK

Surface Oil

- Oiled boulders removed or cleaned to light patchy (<20%) coverage of cover (CV)
- Oiled vegetation removed, to a light patchy (<20%) coverage of coat (CT)

Constraints

- Minimize damage to unoiled roots of vegetation

OILED SHORELINE DEBRIS

- Small trash and oiled debris, such as containers and plastics, with greater than 10% coverage of oil, will be removed.
- Large oiled debris, such as fishing equipment, with greater than 10% coverage of oil, will be cleaned or removed.
- Oiled seaweed and marine vegetation will be removed to a light patchy (20%) coverage of coat (CT).
- Oiled logs and woody debris will be cleaned or removed to a light patchy (20%) coverage of coat (CT). Oiled sections may be removed from unoiled sections.

Constraints

- Minimize damage to unoiled vegetation and roots.

Appendix D Segment Inspection Report Form

After the Operations Division Supervisor or Shoreline Supervisor considers that cleanup in a segment has been completed, the segment is inspected by a SCAT team who are empowered to (a) determine that end point criteria have been met and (b) recommend to the Unified Command that cleanup in that segment be terminated. The team uses the criteria in the "M/V *Selendang Ayu* Shoreline Cleanup Termination Endpoints 2005" (Appendix C) to make this determination.

- If the SCAT team, in consultation with the land manager, determines that no oil is present in the segment or that the cleanup has met the end-point criteria, then the members of the SCAT team who represent the UC sign the Segment Inspection Report form and forward this recommendation to the UC for approval.

- If a segment fails to meet the cleanup criteria by unanimous agreement among the UC representatives, the team indicates on the Segment Inspection Report where work is required and what should be done to pass inspection and send the form to the SCAT Field Coordinator /Data Manager who forwards this to Operations via the EUL.

The SCAT process is designed to be an integrated team assessment. If, however, the team members are not unanimous regarding whether or not the end point criteria are met, then a sheet listing the reasons for disagreement is attached to the Segment Inspection Report and forwarded to the UC for resolution.

M/V Selendang Ayu

Segment Inspection Report

Segment ID ____

Date of Survey ____
Time of Survey ____
Tide Stage ____
Weather ____

SCAT Team ( ) Members

If no further treatment is required, each UC rep sign below.

Name		Signature
	FOSC rep	
	SOSC rep	
	RP rep	

Inspection Completed Along Entire Segment? YES / NO

Treatment Endpoint Criteria:

Is treatment or further treatment required? (circle one)

YES - define below specific treatment action(s) and specific locations within the segment where required. Provide sketches, maps, GPS coordinates to OPS.

NO - each UC rep sign appropriate signature box above

Comments:

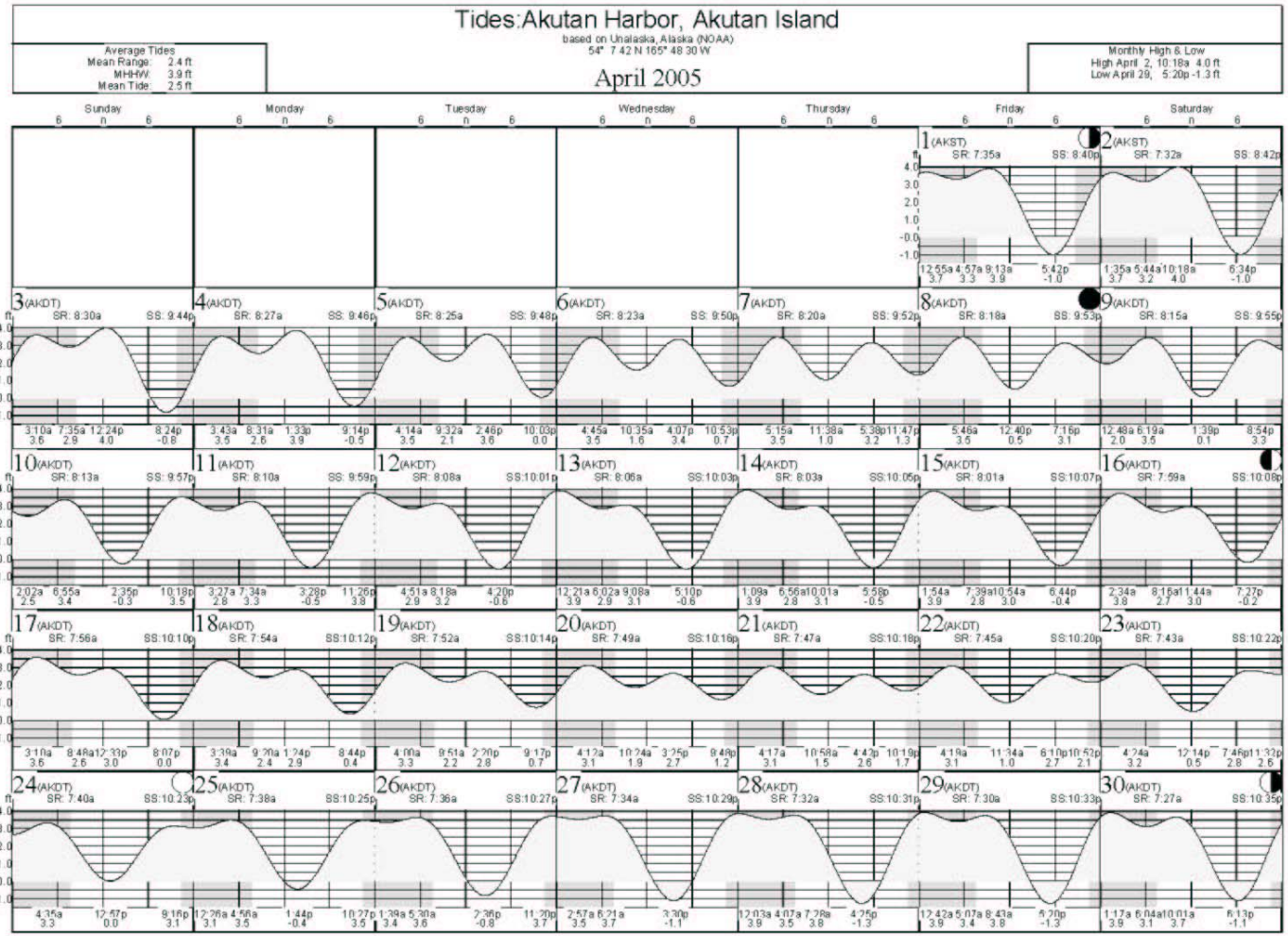
FOSC_____ **SOSC**_____ **RP**_____

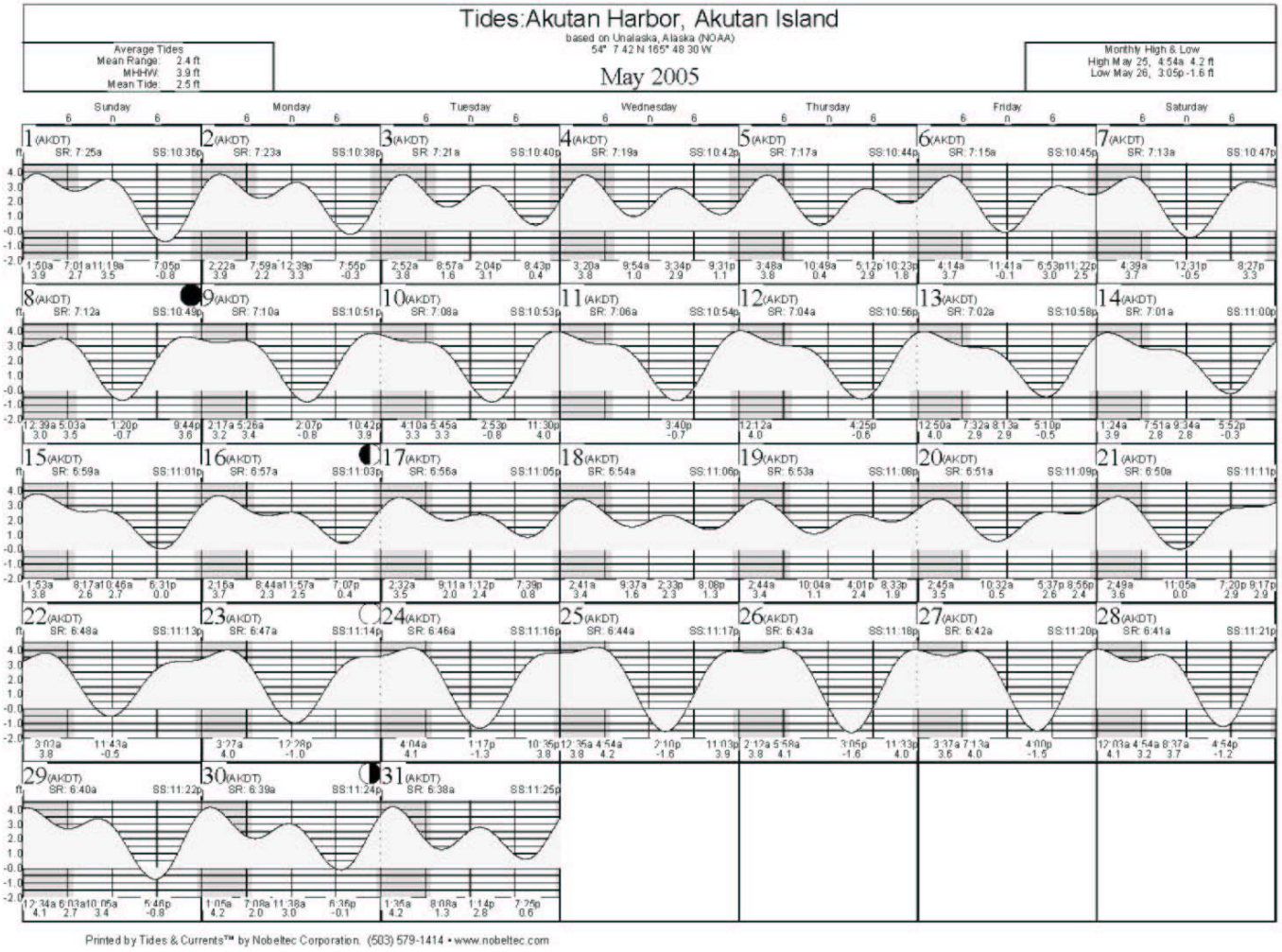
Appendix E Predicted Tides

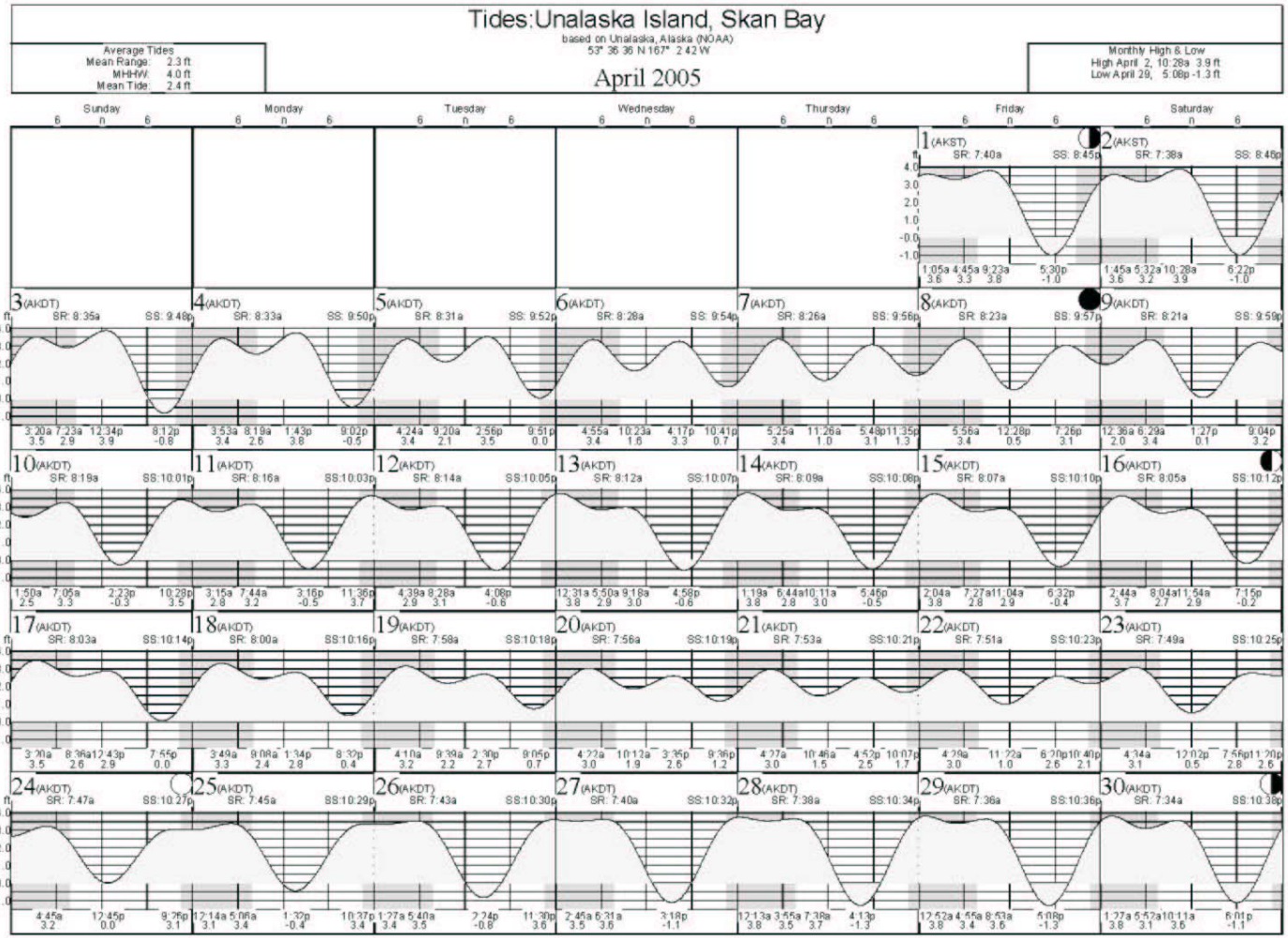
The attached tidal predictions are intended for general planning purposes for the eastern (Akutan Harbor), central (Skan Bay), and western (Umnak Is. - Otter Point) areas.

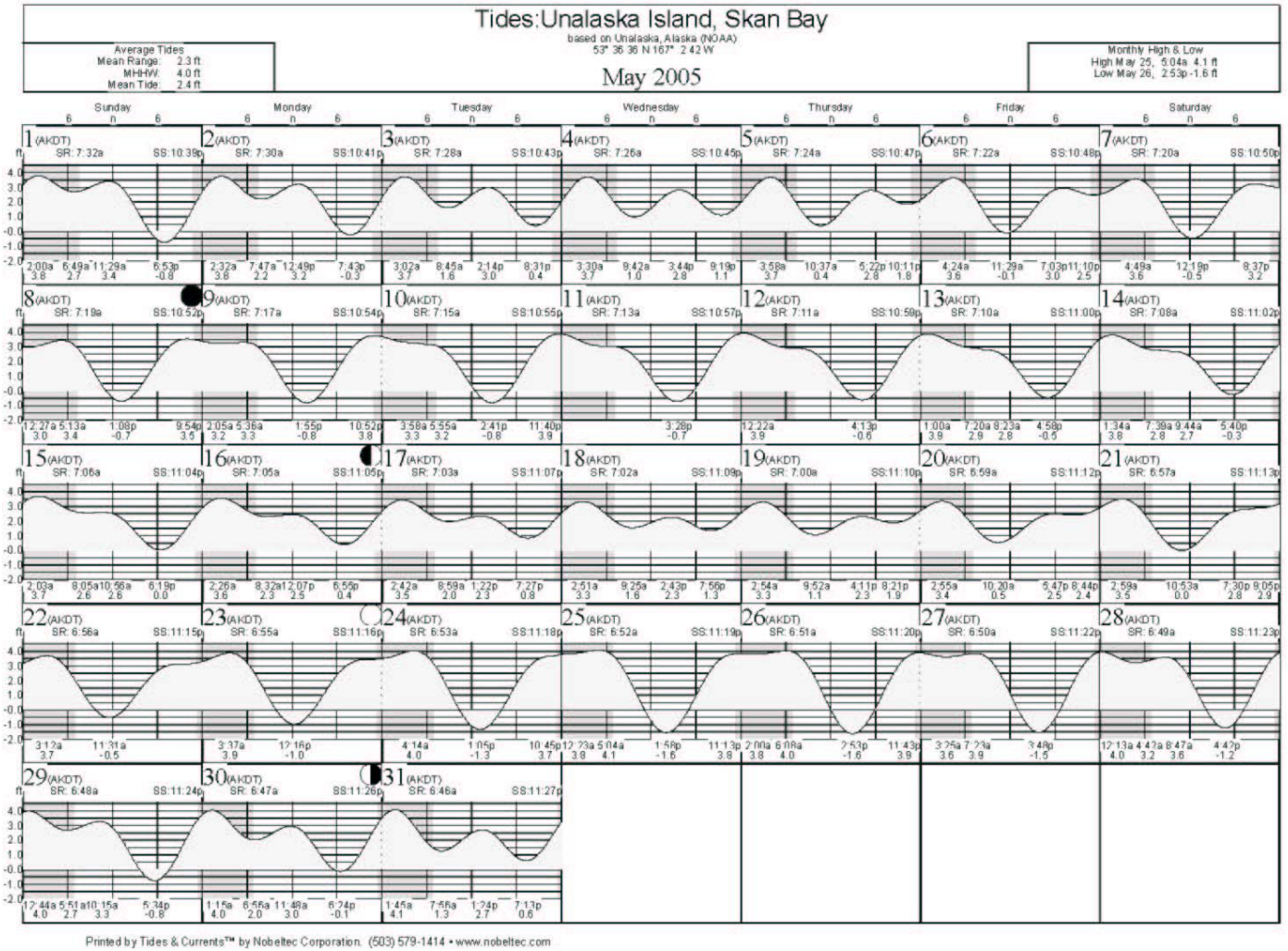
Specific planning for survey schedules and to define the Low Tide Window should use the hourly tidal predictions for the secondary stations in the area of the survey.

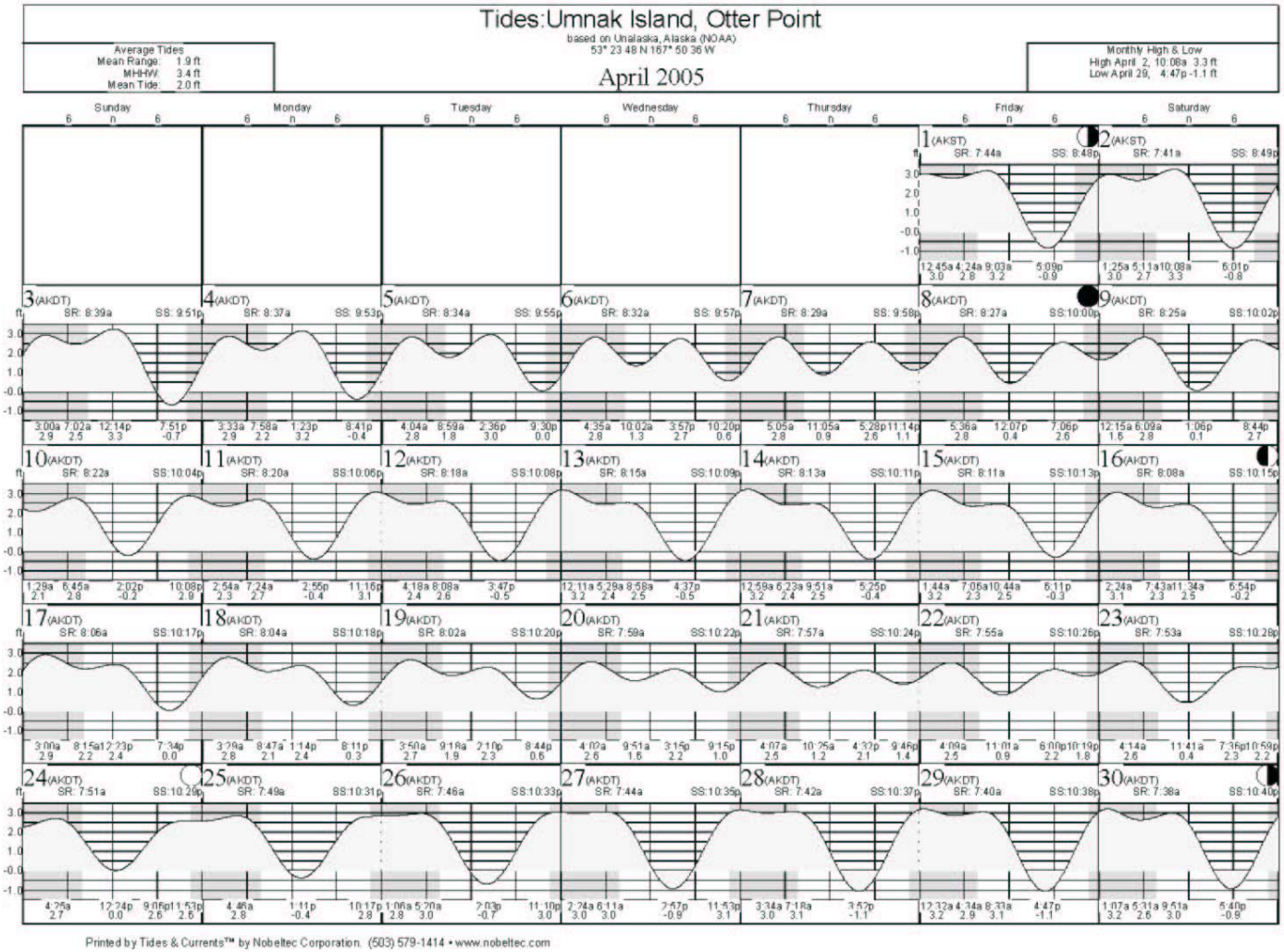
The **LOW TIDE WINDOW** during which SCAT surveys are conducted typically is between 1.5 hours before and 1.5 hours after the predicted time of the low tide. This "window" may be extended to the time at which the predicted tidal elevation reaches 2.0 feet if no oil has been observed in the lower 1/2 of the tidal zone on previous surveys in that area.

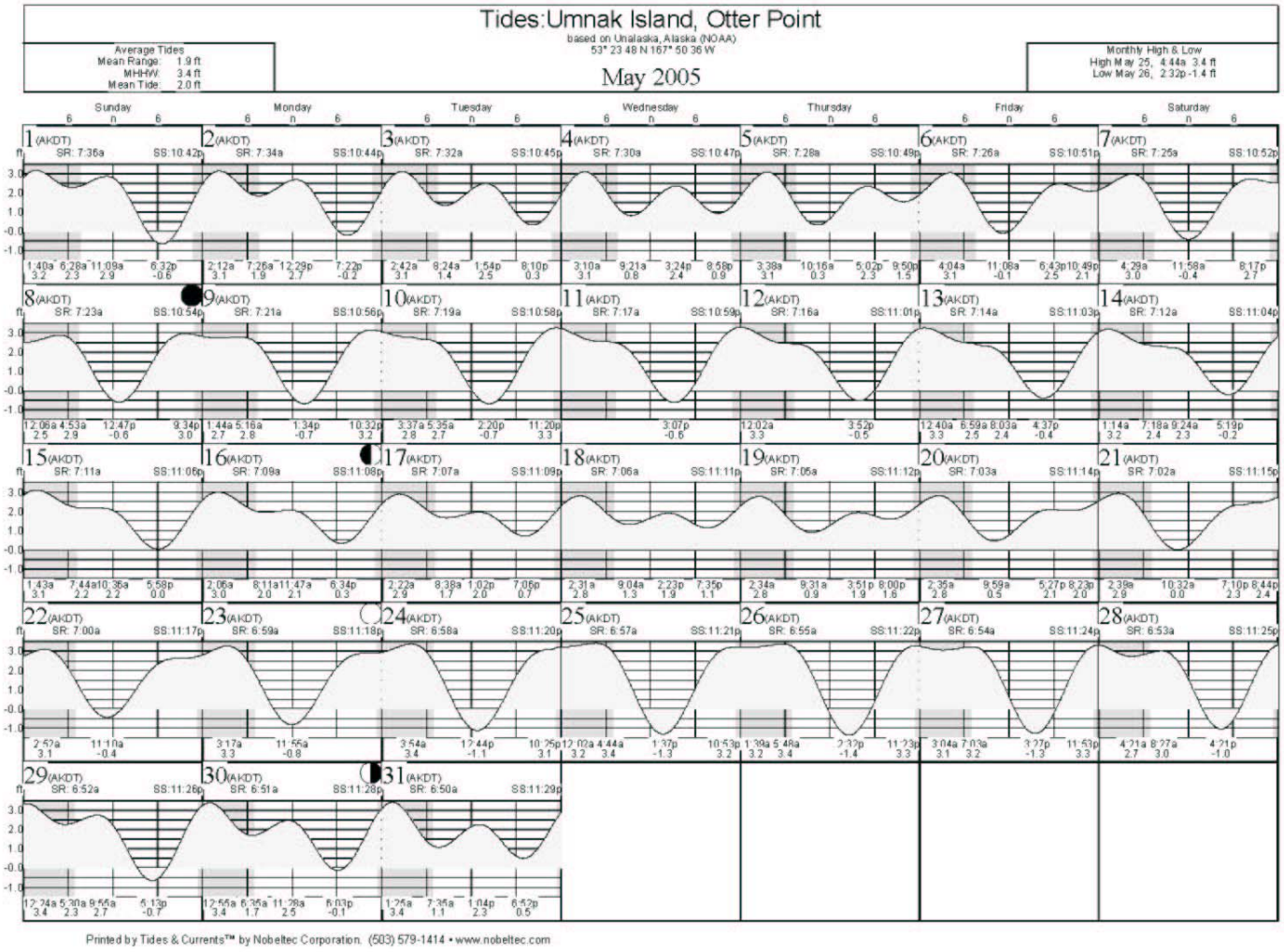

Tides:Akutan Harbor, Akutan Island
based on Unalaska, Alaska (NOAA)
54° 7.42 N 165° 48.30 W
April 2005
Average Tides
Mean Range: 2.4 ft
MHHW: 3.9 ft
Mean Tide: 2.5 ft
Monthly High & Low
High April 2, 10:18a 4.0 ft
Low April 29, 5:20p -1.3 ft
Sunday
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Printed by Tides & Currents™ by Nobeltec Corporation. (503) 579-1414 • www.nobeltec.com


Tides:Akutan Harbor, Akutan Island
based on Unalaska, Alaska (NOAA)
54° 7.42 N 165° 48.30 W
May 2005
Average Tides
Mean Range: 2.4 ft
MHHW: 3.9 ft
Mean Tide: 2.5 ft
Monthly High & Low
High May 25, 4:54a 4.2 ft
Low May 26, 3:05p -1.6 ft
Sunday
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Printed by Tides & Currents™ by Nobeltec Corporation. (503) 579-1414 • www.nobeltec.com


Tides:Unalaska Island, Skan Bay
based on Unalaska, Alaska (NOAA)
53° 36.36 N 167° 2.42 W
April 2005
Average Tides
Mean Range: 2.3 ft
MHHW: 4.0 ft
Mean Tide: 2.4 ft
Monthly High & Low
High April 2, 10:28a 3.9 ft
Low April 29, 5:08p -1.3 ft
Sunday
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Printed by Tides & Currents™ by Nobeltec Corporation. (503) 579-1414 • www.nobeltec.com


Tides:Unalaska Island, Skan Bay
based on Unalaska, Alaska (NOAA)
53° 36.36 N 167° 2.42 W
May 2005
Average Tides
Mean Range: 2.3 ft
MHHW: 4.0 ft
Mean Tide: 2.4 ft
Monthly High & Low
High May 25, 5:04a 4.1 ft
Low May 26, 2:53p -1.6 ft
Sunday
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Printed by Tides & Currents™ by Nobeltec Corporation. (503) 579-1414 • www.nobeltec.com


Tides:Umnak Island, Otter Point
based on Unalaska, Alaska (NOAA)
53° 23 48 N 167° 50 36 W
April 2005
Average Tides
Mean Range: 1.9 ft
MHHW: 3.4 ft
Mean Tide: 2.0 ft
Monthly High & Low
High April 2, 10:08a 3.3 ft
Low April 29, 4:47p -1.1 ft
Sunday
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Printed by Tides & Currents™ by Nobeltec Corporation. (503) 579-1414 • www.nobeltec.com


Tides:Umnak Island, Otter Point
based on Unalaska, Alaska (NOAA)
53° 23.48 N 167° 50.36 W
May 2005
Average Tides
Mean Range: 1.9 ft
MHHW: 3.4 ft
Mean Tide: 2.0 ft
Monthly High & Low
High May 25, 4:44a 3.4 ft
Low May 26, 2:32p -1.4 ft
Sunday
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Printed by Tides & Currents™ by Nobeltec Corporation. (503) 579-1414 • www.nobeltec.com

Appendix F Pre-Survey Segmentation

The pre-survey segmentation has been completed for all of the areas to be covered by the Spring/Summer SCAT program. A total of 43 Segment Groups and 794 individual segments have been mapped (See Appendix G). The segment boundaries have been entered onto the project GIS and 33 laminated detailed maps have been produced for use by the field teams.

The survey area has been segmented based on the hydrographic charts and the predefined segment boundaries may not in all cases coincide with real physical shoreline units.

- Field teams are expected to define the segment boundaries using GPS coordinates, and so can adjust a boundary at that time if it is appropriate to do so.
- It may be appropriate to subdivide the segment if more than one primary shoreline type is present in a predefined segment. The convention is then to use a lower case suffix “a”, “b”, “c” etc. – for example, if segment XYZ-15 is divided into two, then the new segment numbers would be **XYZ-15a** and **XYZ-15b**. These are numbered in the same direction along the coast as the segment group numbering. An SOS or TBS form is then be completed for each subdivision.
- One practice in the segmentation process has been to make a stream mouth a separate segment. Field observations have shown that some streams that appear on the hydrographic charts are only terrestrial and not actually streams in the supratidal or intertidal zones. These may be ignored and, in effect, the segment deleted. It may be necessary to subdivide a segment in order to add stream mouths in other cases.

The Segment Group names and numbers outside of the region that was pre-segmented in December (2004) for the winter survey program have changed. Following the process of pre-segmentation for areas outside of the original (December) pre-segmented region the data collected in those segments has been reassigned a new Segment Group ID and Segment Number that is being used for the spring/summer SCAT program. The data/segments reside in the project SCAT data base.

Appendix G Segment Groups Table and Segment Maps

This table lists the 43 Segment Group IDs along with (1) name of that group, (2) the total number of predefined segments in the group, and (3) the map numbers on which the segment boundaries have been drawn.

The segment boundaries have been plotted on the GIS and can be printed on either a chart or map base. For consistency, these are referred to as "Segment Maps", even if the base is the hydrographic chart. The set of Segment Maps that have been prepared for use by the field teams have been numbered as follows:

- The numbers of the original winter survey maps 1 through 14 are unchanged.
- Fourteen new maps to the east of the original area have been numbered E1 through E14 from west to east.
- Five new maps to the west of the original area have been numbered W1 through W5 from east to west.

Geographically, there are

- 176 predefined segments west of Spray Cape,
- 324 in the "core area" between Spray Cape and Makushin Head, and
- 294 in the eastern area north and east of Makushin Head.

Segment ID	Segment Group Name	Segments	Map(s)
AKT	Akutan Island (West)	23	E11, E12, E13, E14
ALM	Alimuda Bay	23	#1
AND	Anderson Point	8	#11
ASP	Aspid Bay	18	#1
BBY	Baby Islands	6	E10
BCK	Buck Bight	14	#3
CBE	Captains Bay East	33	E6, E6a
CBW	Captains Bay West	32	E6, E6a
CFE	Chernofski Harbor East	34	W1
CFW	Chernofski Harbor West	24	W1, W2
CHF	Cape Cheerful	7	E5
CNB	Cannery Bay	21	#11
CNS	Constantine Bay	10	E8
DFT	Driftwood Bay	33	E1, E2, E3, E4
DTE	Dutch Harbor East	38	E7, E7a
DTW	Dutch Harbor West	12	E6, E7, E7a
ENB	English Bay	18	E9
HMP	Humpback Bay	13	#12
HOG	Hog Island	4	E6, E7

KFP	Kof Point	17	#8, #9
KLK	Kalekta Bay	16	E8, E9
KMK	Kismaliuk Bay	33	#2
KSB	Kashega Bay	16	#3
KTS	Konets Head	32	W2, W3
MCB	McIver Bight	15	#3, #4
MKS	Makushin	18	#12, #13
NGE	Naginak Cove East	7	#10
NGW	Naginak Cove West	16	#9, #10
OTB	Otter Bight (N.B. may be more segments to W.)	17	W4, W5
PME	Pumicestone Bay East	20	#5
PMN	Pumicestone Bay North	28	#5, #6
PMS	Pumicestone Bay South	21	#4, #5
PTN	Portage Bay North	15	#11
PTS	Portage Bay South	11	#11
SKN	Skan Bay North	15	#7
SKS	Skan Bay South	18	#7
SMB	Summer Bay	13	E7
SPR	Spray Cape	14	#7
UDE	Udamak Cove East	24	#10, #11
UDW	Udamak Cove West	8	#10
UNG	Unalga Island	14	E10
UNK	Unalaska Bay	25	E5, E6
VLC	Volcano Bay	10	#14
TOTAL		***794***	

Appendix H Cultural Resource and Ecological Treatment Constraints

CULTURAL RESOURCE CONSTRAINTS

Cultural resource data are available for use only by qualified individuals on a "need to know" basis according to existing archaeology permits. To protect site confidentiality during assessment and cleanup, only generic data such as a segment's cultural resource constraint is made public. Each segment is assigned one of the following treatment constraints:

- "**REPORT** any cultural resources found during operations to the FOSC's Historic Properties Specialist (HPS) or to the Environmental Unit Leader at **359-3726** or **3728** in the Command Post." *If you find cultural resources during your response operations in this area, leave them in place, mark the location, stop cleanup in the vicinity surrounding the site, and inform your field supervisor immediately, who in turn, should immediately inform the HPS.*

- "The FOSC's Historic Properties Specialist should **INSPECT** area prior to operations." *The FOSC's HPSs, or someone he/she designates, should inspect the treatment area prior to you beginning your work.*

- "The FOSC's Historic Properties Specialist should **MONITOR** on-site operations." *The FOSC's HPSs, or someone he/she designates, should be on-site monitoring response operations.*

The SCAT procedure if a team member discovers a cultural resource(s) while NOT in the presence of an archaeologist is:

1. leave the material(s) in place at the site of the discovery,
2. mark the location on a map and/or sketch and obtain a GPS coordinate,
3. take digital photographs of the resource/material and of the site/location to assist in the identification and later relocation, and
4. inform the FOSC's Historic Properties Specialist or the RP representative archaeologist immediately.

ECOLOGICAL TREATMENT CONSTRAINTS

Ecologists on the SCAT team may define treatment constraints for a segment or part of a segment. Typical constraints that have been used previously in Alaska are:

- **STANDARD** – applied if standard treatment is sufficient to safeguard the ecological community for the work that is planned or recommended
- **DEFERRED** – applied to segments where no oil is present and/or no treatment is planned
- **HOLDING** – applied as a temporary measure for sites where treatment is planned, but where the ecological survey is incomplete and/or further survey work is considered necessary
- **SPECIAL CONSIDERATION** – applied when treatment measures are recommended for segments in the immediate vicinity of sensitive wildlife resources (i.e., seabird nesting colony, harbor seal haulout, etc.). An ecologist identifies the sensitive resource and provide special written instructions on how to avoid or minimize disturbance during the cleanup operation within the "Shoreline Treatment Recommendation Transmittal Form".
- **CONSULTATION** – applied where the standard treatment could adversely affect the ecological community and consultation between ecologists and Operations Supervisor(s) is appropriate to prevent or minimize potential adverse effects
- **ON-SITE MONITORING** – applied where high sensitivity or highly vulnerable areas require the presence of an on-site ecological monitor during cleanup

The last two categories involve a site-specific discussion regarding what is acceptable and what is not acceptable, e.g., with respect to a particular treatment technique, timing, or level of effort.

Most segments should receive a "Standard" or "Deferred" constraint.

Appendix I "Short" SOS Form for Oiling Observations

This "short" form was developed in December 2004 at the beginning of the response for use by field observers who are not on the SCAT teams. The intent of this simplified oiling observation form was to promote a consistent reporting format and terminology so that observations can be entered into the data base that is in use for storing all of the shoreline oiling observations.

Observations recorded on this form should be submitted to the Field Coordinator/Data Entry Manager in the Command Post for QA/QC and entry into the SCAT data base.

Oiling observations in addition to those recorded by the formal SCAT survey that are not recorded on the "Short" SOS form will not be included in the database of shoreline oiling observations.

These forms are available at the Command Post as .xls, .pdf, and .jpg files, as well as hard copy on waterproof paper.

Selendang Ayu Shoreline Oiling Observations Short Form

Segment ID	**Observation Date (dd – mmm – yyyy)**	**Time (24h):**

Observer

Last Name _____ First Name _____ Organization _____

Contact phone number or email:

Intertidal Zone (circle one)	**Oiled Shoreline Type (circle one)**
SUTZ Supratidal Zone – area above mean high tide that occasionally experiences wave action (i.e. splash zone). UITZ Upper Intertidal Zone – upper ~ 1/3 of ITZ. MITZ Middle Intertidal Zone – middle ~ 1/3 of ITZ. LITZ Lower Intertidal Zone – lower ~ 1/3 of ITZ.	**Cliff** (Bedrock, Unconsolidated, Scree/Talus) **Rock Platforms/Ramps** **Beach** (sand, mixed sand-gravel, pebble-cobble, boulders) **Flats** (sand, mud, mixed sand-gravel, pebble-cobble, boulder) **Delta** (sand, mud, mixed sand-gravel, pebble-cobble, boulder) **Marsh** (sand, mud, vegetation)

Backshore Character (circle one)

Beach	Bedrock	Marsh/Wetland
Lagoon	Cliff (Bedrock, unconsolidated)	Lowlands
Water (Stream or Inlet)	Scree/Talus	Hill Slopes
Man Made (seawall, jetty, rip-rap, road, etc)		Other _____

☐ **No Oil Observed**

Observations Coordinates (decimal degrees) Longitude _____ Latitude_____

Oil Zone Dimension (m) **Length:** _____ **Width:** _____

Oil Distribution Category (circle one)	**Oil Thickness Category (circle one)**
CN Continuous (> 91%)	PO Pooled Oil > 1cm
BR Broken (51-90%)	CV Cover > 0.1 cm - < 1cm
PT Patchy (11-50%)	CT Coat > 0.01cm - < 0.1cm
SP Sporadic (1-10%)	ST Stain < 0.01 cm
TR Trace (< 1%)	FL Film

Oil Character (circle one)

FR Fresh	TC Tar – weathered coat/cover or tarry, almost solid
MS Mousse	AP Asphalt Pavement
TB Tarballs or Mousse Patties	DB Debris /LG = logs; /VG = vegetation; /RB = rubbish (including response equipment)
SR Surface Oil Residue	

Subsurface Oil Character/Relative Concentration (circle one)

AP Asphalt Pavement PP Partially Filled Pores OP Oil-Filled Pores NO No Oil

OR/C Oil Residue Cover or Coat OR/S Oil Residue Stain TR Trace

Thickness of Oiled Layer (depth from surface to top and bottom of oiled layer):

top of layer _____cm bottom of layer _____cm clean below? Y / N sheen? Y / N

Comments:

Appendix J Shoreline Treatment Methods and Tactics

The following table was developed for discussion with the intent to provide guidance on the treatment methods that would be appropriate for the areas affected by oil from the M/V Selendang Ayu. This list is not intended to be exhaustive or exclusive and additional treatment and cleanup methods may be considered.

Bioremediation is included in this table as an option, although the state has indicated that this may not be an appropriate technique.

SEGMENT	CHARACTER	OILING CONDITIONS	POSSIBLE TREATMENT STRATEGY-TACTICS
various locations	**Mixed-sediment** (sand-pebble-cobble) **beaches**	**Heavy** surface oiling: Continuous or discontinuous thick band in upper ½ of the intertidal zone	▪ **Manual removal** with shovels and rakes ▪ After gross oil removal, consider mechanical **tilling** or **sediment relocation** (surf washing); use (a) booms and/or sorbent booms at the water line and skimmer to contain and remove any released oil and (b) hazing devices to clear birds from the operating area; followed by **bioremediation** for treatment to accelerate weathering of residual Stains or Coats on pebbles and cobbles without sediment removal
various locations, e.g. SKN-8 and SKN-11	**Mixed-sediment** (sand-pebble-cobble) **beaches**	**Heavy** subsurface oiling: Continuous or discontinuous thick buried oil band in upper ½ of the intertidal and the supratidal zones	▪ **Manual removal** of any large spots of oil on the beach surface (e.g., shovel-size tar patties) ▪ Consider **sediment relocation** with use of an extended reach back-hoe on a landing craft at times of mid- and high-tides to pull sediment down into the upper ½ of the intertidal zone for surf washing ▪ Use (a) booms and/or sorbent booms at the water line and skimmer to contain and remove any released oil and (b) hazing devices to clear birds from the operating area ▪ Consider by **bioremediation** for treatment to accelerate weathering of residual Stains or Coats on pebbles and cobbles without sediment removal
various locations	**Mixed-sediment beaches**	**Moderate - Light - Very Light** oiling: Stain or Coat on pebbles and cobbles	▪ **Manual removal** of any large spots of oil (e.g., shovel-size tar patties) ▪ Consider mechanical **tilling** or **sediment relocation** (surf washing); use (a) booms and/or sorbent booms at the water line and skimmer to contain and remove any released oil and (b) hazing devices to clear birds from the operating area; followed by

SEGMENT	CHARACTER	OILING CONDITIONS	POSSIBLE TREATMENT STRATEGY-TACTICS
			bioremediation for treatment to accelerate weathering of residual Stains or Coats on pebbles and cobbles without sediment removal
various segments in HMP, MKS, PRT, SKN, etc.	**Mixed-sediment beaches** with **backshore vegetation**	**Oiled edge veg.** with occasional patches of oil on the top of the beach	▪ **Manual removal** of gross oil ▪ Vegetation cutting and raking ▪ Consider/test use of propane torches to **burn** off oiled veg. if soil is water saturated
SKN-14	Salt Marsh	Predominantly **marsh fringe oiled vegetation**	▪ Continue the raking and **manual removal** techniques used during the winter cleanup. ▪ Use board-walks and other tactics to minimize damage to the root systems and to prevent driving oil into the sediments. ▪ Consider/test use of propane torches to **burn** off oiled veg. if soil is water saturated
various locations	**Mixed-sediment beaches; sand beaches; bedrock outcrops**	**Tar balls and tar patties**	▪ **Manual removal** with shovels and rakes
various locations	**Mixed-sediment beaches**	**Oiled debris, nets, and ropes**	▪ Consider **burning** on site with mobile incinerator (such as a modified skip) ▪ Followed by **manual removal** of any burn residues

NOTES:

1. The work on the **beaches with subsurface oil**, such SKN-8 and SKN-11, will **begin as soon as possible** in order to complete the treatment before the anticipated arrival of larger numbers of birds in May-June.

2. The treatment of the **oiled marsh** in SKN-14 will **begin as soon as possibl**e in order to complete the treatment before the onset of the vegetation growth season in late-April/May and before the anticipated arrival of larger numbers of birds in May-June.

3. A **deluge/flush system** is available in the event that the oil is sufficiently mobile that it could be washed onto the adjacent water for containment and recovery.

4. A **high-pressure unit** is available in the event that there is a need for spot washing of oiled Stains and Coats on bedrock outcrops.

SCAT PHOTO LOG FORMAT

Item	*Format*	*Example*
Date	dd mmm yyyy	06 Apr 2005
Time	24 hour	16:45
Team	L	A
Location Name *	text	Skan Bay
Segment Number	LLL-NN	SKN-04
Frame # in Seg.	NN	02
Latitude	dd.ddddd	53.12345
Longitude	ddd.ddddd	163.12345
Waypoint *	NNN	016
Subject	text	panorama to east at HWM (High Water Mark): frame # in camera

** optional*

NOTES:

1. Ensure the GPS is on with the "trackline" active. For aerial tracks, use a 5-second fix, for ground/walking use about a 30-second fix. **DO NOT SAVE THE TRACKLINE TO THE GPS** – download tracks to a computer file each day; if you save to the GPS then the track fixes are averaged and so we lose the ability to sync the times of the track fixes to the photos with OziExplorer.
2. Ensure GPS and camera times are in sync.
3. Take photo of GPS time at least twice a day.
4. **The purpose of the photographs is to document the character of any oil observed within a segment**. Do not take too many photos of the oiled zone or location as one or two good photos only are necessary for documentation.
5. If there is **no oil** found within in segment then take only one or two photos. Preferably take a photo alongshore approximately at the High Water Level to record the general character of the segment.
6. For alongshore shots indicate "view to N-NE-E-SE-S-SW-W-NW" as appropriate.
7. **WAYPOINTS**: Not necessary to take a waypoint at every photo location, but is valuable for specific items of interest that are photographed (such as the start and/or end of an oiled area or a pit in which oil is found).
8. **SCALE**: For distant or panorama shots always try to have a person in the middle distance for scale. For close-up shots always use a scale (the back of the field note book scale is preferred rather than a pencil or a coin!!).

Date	Time	Team	Location	Segment	Frame # in Segment	Latitude	Longitude	Waypoint	Subject and Frame # in Camera

Photographer's Name _____

Appendix L Initial Segment Survey Priorities: Makushin Bay-Skan Bay Area

Segment ID	Surface Oil Category	Anadromous Fish Stream present (ref ADFG Fish Dist Viewer)
FIRST PRIORITY	***9 segments with H or M oil and <u>with</u> an Anadromous Fish Stream***	
HMP10	Heavy	**yes**
MKS05	Heavy	**yes**
MKS09	Heavy	**yes**
PTN03	Heavy	**yes**
SKN13	Heavy	**yes**
SKN14	Heavy	**yes**
SKN15	Heavy	**yes**
SKS18	Heavy	**yes**
SPR04	Heavy	**yes**
SECOND PRIORITY	***42 segments with H or M oil but <u>no</u> Anadromous Fish Stream***	
AND06	Heavy	no
BCK09	Heavy	no
CNB21A	Heavy	no
HMP05	Heavy	no
HMP06	Heavy	no
HMP07	Heavy	no
HMP11	Heavy	no
HMP12	Heavy	no
HMP13A	Heavy	no
KMK09	Heavy	no
KMK11	Heavy	no
KMK28	Heavy	no
KMK30	Heavy	no
KSB10	Heavy	no
MKS01	Heavy	no
MKS02	Heavy	no
MKS03	Heavy	no
MKS06	Heavy	no
MKS11A	Heavy	no
MKS11B	Heavy	no
PMN02	Heavy	no
PTN04	Heavy	no
SKN05	Heavy	no
SKN08	Heavy	no
SKN11	Heavy	no
SKS06	Heavy	no
SPR02	Heavy	no

CNB19	Moderate	no
CNB20	Moderate	no
KFP09	Moderate	no
KMK06	Moderate	no
KMK07	Moderate	no
KMK27	Moderate	no
KSB02	Moderate	no
KSB08	Moderate	no
NGW02	Moderate	no
PMS10	Moderate	no
PTN01	Moderate	no
PTS05	Moderate	no
PTS07	Moderate	no
SKS04	Moderate	no
WDE03	Moderate	no
THIRD PRIORITY	***10 segments in the area to be surveyed by Teams A and B with no reported oil in the winter survey but <u>with</u> an Anadromous Fish Stream***	
CNB08		**yes**
HMP08		**yes**
MKS10b		**yes**
NGE03		**yes**
NGW16		**yes**
PMN20		**yes**
PTN07		**yes**
PTS10		**yes**
SKN04		**yes**
UDE01		**yes**

Appendix M Anadromous Fish Stream Permit Process

The Alaska Department of Natural Resources' Office of Habitat Management and Permitting (OHMP) in Anchorage, Alaska is responsible for issuing permits for cleanup operations in catalogued anadromous fish streams in the Aleutian Islands. Three permits were issued by this office for response cleanup operations in three individual anadromous fish streams this past winter. The OHMP will issue additional, similar permits for each of the nine catalogued anadromous fish streams in the core SCAT survey area where heavy oiling was observed during the winter surveys. These segments are:

HMP10	SKN14
MKS05	SKN15
MKS09	SKS18
PTN03	SPR04
SKN13	

The permits OHMP will be issuing for these segments are for manual removal techniques only, following the same format and general content as the three permits issued earlier. Should the SCAT teams recommend treatment techniques more complex and/or intrusive in the anadromous fish streams in the above segments, the DNR permits must go through a review process via the Unified Command and be amended by the OHMP.

The "spot cleaning" Ops team that will be accompanying the boat-based SCAT Teams C and D will not require a permit to work near catalogued anadromous fish streams **if** they limit their activities to manual techniques only and work only in the terrestrial portion of the stream banks, **above** the high ordinary water line. For streams with incised banks, the high ordinary water mark is usually found within those banks, so if workers stay above the banks they will not need a permit to work in that stream. For streams that empty onto beaches, work cannot be done in the intertidal portion of the stream, or where the stream gets backed up from the high tide, without a permit. Additionally, any personnel landing from small boats into the stream areas due to safety concerns must take extra care to protect stream banks and vegetation from trampling or other damage, either by avoidance or by use of boards or plywood for foot traffic as appropriate.

Appendix N Biological Observations Form

Information recorded on the Biological Observations Form will be used to develop and support the Ecological Constraints determinations. Observations should begin to be noted on initial approach to beach in order to capture animals fleeing or diving in response to disturbance from approaching team.

General Information: Record similar to SCAT form. This information will allow the biological observations to be tied to a SCAT segment.

Bird Species Present: Check species present in the nearshore zone, along the shoreline, and within the adjacent terrestrial zone. Species likely to occur are listed on the form using AOU codes (see list below). Numbers may also be recorded as time permits. Additional species may be added as needed.

YBLO Yellow-billed Loon
COLO Common Loon
HOGR Horned Grebe
RNGR Red-necked Grebe
RFCO Red-faced Cormorant
DCCO Double-crested Cormorant
PECO Pelagic Cormorant
EMGO Emperor Goose
MALL Mallard
GWTE Green-winged Teal
GRSC Greater Scaup
STEI Steller's Eider
COEI Common Eider
KIEI King Eider
COGO Common Goldeneye
BUFF Bufflehead
HADU Harlequin Duck
WWSC White-winged Scoter
BLSC Black Scoter
COME Common Merganser
RBME Red-breasted Merganser
BAEA Bald Eagle
PEFA Peregrine Falcon
BLOY Black Oystercatcher
ROSA Rock Sandpiper
GWGA Glaucous-winged Gull
MEGU Mew Gull
BLKI Black-legged Kittiwake
COMU Common Murre
TBMU Thick-billed Murre
PIGU Pigeon Guillemot
MAMU Marbled Murrelet
KIMU Kittlitz's Murrelet
WHAU Whiskered Auklet
CRAU Crested Auklet
LEAU Least Auklet
TUPU Tufted Puffin
HOPU Horned Puffin
BEKI Belted Kingfisher
CORA Common Raven
PAJA Parasitic Jaeger
WIWR Winter Wren
AMDI American Dipper
SOSP Song Sparrow
GCRF Gray-crowned Rosy-finch
LALO Lapland Longspur
SASP Savannah Sparrow
SNBU Snow Bunting

Marine Mammal Observations: Note number observed and behavior (i.e. loafing, swimming, feeding, etc.)

Intertidal/Subtidal Habitat Description: For each of the parameters listed, estimate percent of segment occupied and coverage. Add descriptive notes and additional information as time allows.

Ecological Constraints Recommendations: Reference Appendix H for appropriate category. Add descriptive instructions for protection, avoidance, and minimization measures as needed,

Carcasses: Record number and condition of carcasses observed. To prevent secondary oiling, all oiled, whole or partially scavenged carcasses must be collected.

Red Fox Observations: Record number and behavior of red fox observed within the shoreline segment.

	Date:	Start Time:	Observer:
Segment ID: SCAT Team ID:		End Time:	

Survey by: Foot Boat Helo Other

BIRD SPECIES PRESENT:

YBLO	STEI	PEFA	WHAU	GCRF
COLO	COEI	BLOY	CRAU	LALO
HOGR	KIEI	ROSA	LEAU	SASP
RNGR	COGO	GWGU	TUPU	SNBU
RFCO	BUFF	MEGU	HOPU	
DCCO	HADU	BLKI	BEKI	
PECO	WWSC	COMU	CORA	
EMGO	BLSC	TBMU	PAJA	
MALL	COME	PIGU	WIWR	
GWTE	RBME	MAMU	AMDI	
GRSC	BAEA	KIMU	SOSP	

MARINE MAMMALS OBSERVATIONS:

Steller Sea Lion:	Sea Otter:	Harbor Seal:

INTERTIDAL/SUBTIDAL HABITAT DESCRIPTION:

_____marsh grass _____eel grass _____ Fucus _____ kelp ____ other algae _____ clams / mussels / chitons _____ urchins / starfish
% of Segment: (1) <25% (2) 26-50% (3) 51-75% (4) 76-100% Coverage: (a) continuous (b) patchy (c) sparse
NOTES:

ECOLOGICAL CONSTRAINT RECOMMENDATIONS:

CARCASSES:

___ unoiled ___ oiled ___ mostly scavenged ___ partially scavenged ___ collected (collect all oiled, whole to partially scavenged carcasses)
NOTES:

RED FOX OBSERVATIONS: