Appendix D

Pre-Installation Biological Survey

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Survey Purpose

The pre-installation survey shall provide adequate site-specific information to indicate whether the proposed outfall location will meet the requirements of the permit, to document the biological resources (including habitat) which may be affected by the outfall installation and discharge, and to document any existing residues (such as seafood processing waste) at the proposed outfall location.

Submittal of Information

The results of the pre-installation survey shall be submitted before repair or replacement of a broken outfall line or installation of a new outfall line. The survey shall have been performed within the six months prior to outfall placement. The report shall provide transect sample site data, a summary of the survey, and whether the discharge area is appropriate for the proposed discharge, with careful consideration of excluded areas. The survey may be performed using a photographic survey method, but if any existing deposits are found within the survey area, a dive survey will be required. The dive survey performed shall follow this permit's Part II Seafloor Survey Protocol. The pre-installation survey shall be submitted to the Department in writing and may include a narrated underwater video.

Quality Assurance Project Plan Information

The operator shall, prior to commencing survey operations, prepare a written, facility-specific Quality Assurance Project Plan- Monitoring Plan (QAPP-Monitoring Plan) addressing the following:

1. Objectives for measurement data
2. Sampling procedures
3. Analytical procedures
4. Data reduction, validation, and reporting
5. Internal quality control checks
6. Specific routine procedures used to assess data precision, accuracy, completeness, representativeness, and comparability.

Survey Requirements

The pre-installation survey shall include a representative description of the numbers and species of marine organisms, types of aquatic vegetation/benthic fauna, and depths and substrate types where organisms/vegetation/benthic fauna are found within a 300-foot radius of the center of the proposed discharge site.

If seafood waste discharge has not occurred at the proposed site, a photographic survey (performed by Remotely Operated Vehicle (ROV)) may suffice and the Department may not require a dive survey, establishment of hard transect lines, or a central permanent marker. However, a rigorous, repeatable method shall be set out in a Pre-Installation Biological Survey Quality Assurance Project Plan (QAPP) developed to meet the monitoring requirements set out below. For example, the center of the proposed discharge area shall be located by Wide Area Augmentation System (WAAS)-augmented Global Positioning System (GPS), and the depth of the (proposed) outfall location, reported at Mean Lower Low Water (MLLW), shall be noted. If there are any significant benthic features that would help with re-locating the exact position of the (proposed) outfall, (e.g., a unique rock feature), then this information shall be marked on the location map. The survey may be performed at the surface at low tide stage without performing a dive survey if the representative habitat and water clarity is such that data objectives can be met.

Establish Markers. A surveyor's Quality Assurance Project Plan (QAPP)-Monitoring Plan is required to include the establishment of at least five permanent shore-based or facility-based markers (monuments) at suitable locations, provided there is sufficient land/facility property to place five monuments. Some facilities are located over water, or the operator does not own the land the seafood processing facility is located on. In these cases, the survey is required to document useable permanent underwater markers (large rock outcrops, boulders, etc.) or identify why markers/monuments were not established. If permanent markers are not established, the operator shall work with the surveyor to establish repeatable methods for future surveyors to make observations and establish consistent transects. The operator's QAPP-Monitoring Plan is required to be updated to include the surveyor's established underwater markers for use in the next required seafloor survey. GPS coordinates derived using WAAS technologies, or other equivalent technology, are required to be recorded for each permanent shore or underwater marker.

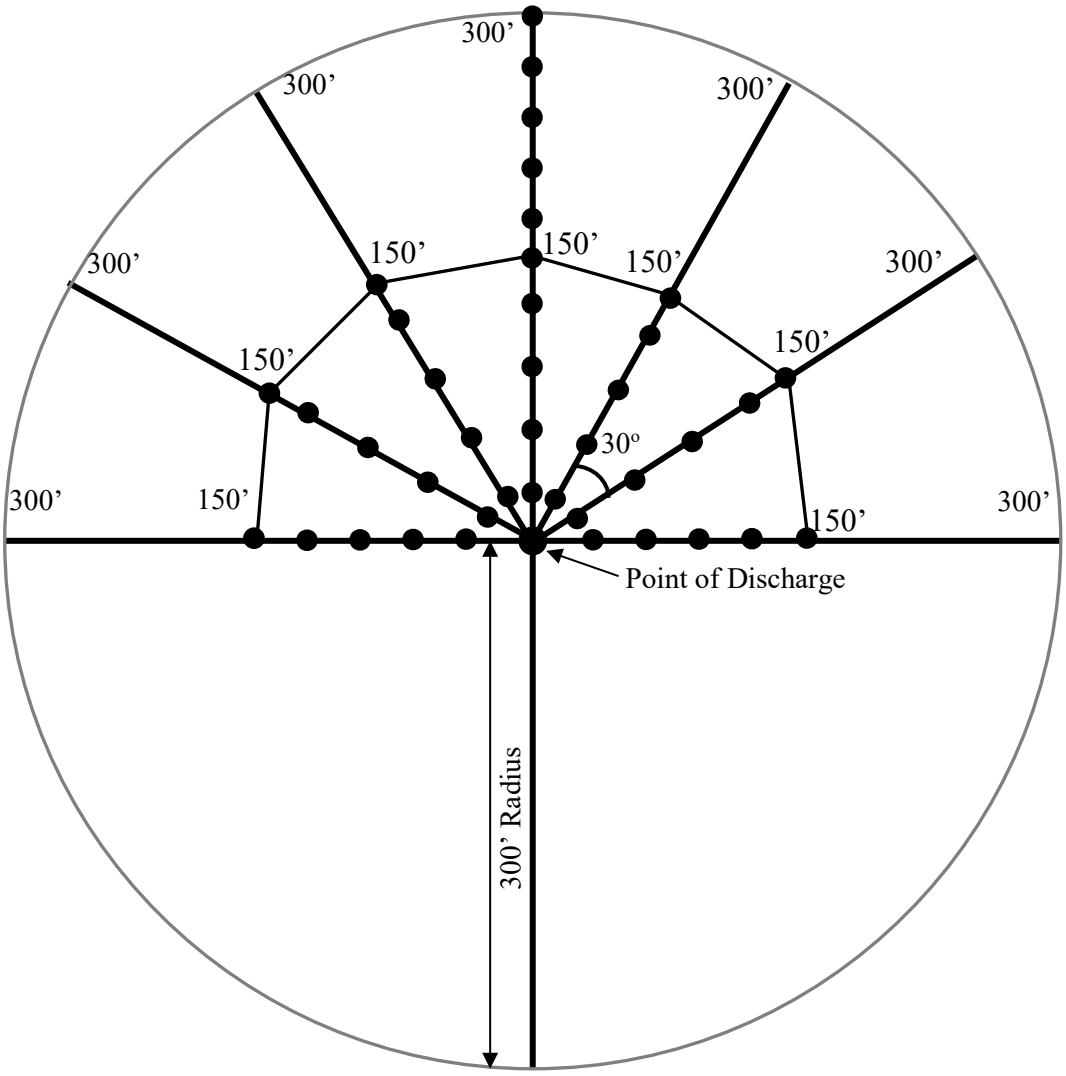
Establish Transect Lines. The surveyor must establish transect lines for the entire survey area. The operator's QAPP-Monitoring Plan must specify the methods used to establish the transect lines. Parallel transects (if used) are required to be established no more than 30 feet apart and extend in a perpendicular direction from the permanent markers.

The survey shall use radial or parallel transects located surrounding the outfall terminus, with a 300 foot radius, at the proposed outfall terminus depth. Determine the number of transects (shall meet a minimum of at least three) which will most accurately delineate the area surrounding the center of the discharge site and the area of any seafood waste accumulation, if present.

Surveys using **Radial Transects**: Use the discharge point as the central marker of the survey. GPS coordinates derived using WAAS technologies shall be recorded at the location of the center of the survey (reported in decimal degrees, to the fifth decimal place if available). Establish a minimum of at least three transects radially from the location of the discharge point. If historic seafood waste accumulations are found, the operator is required to have the surveyor complete a seafloor dive survey for a minimum of 300 feet from the proposed outfall terminus (or as determined by DEC).

The following diagram (Figure 1) shows "typical" radial transects set 30 degrees apart. Points of measurement are at 30-foot intervals spaced on the survey transects, which extend along a 300 foot radius from the point of discharge.

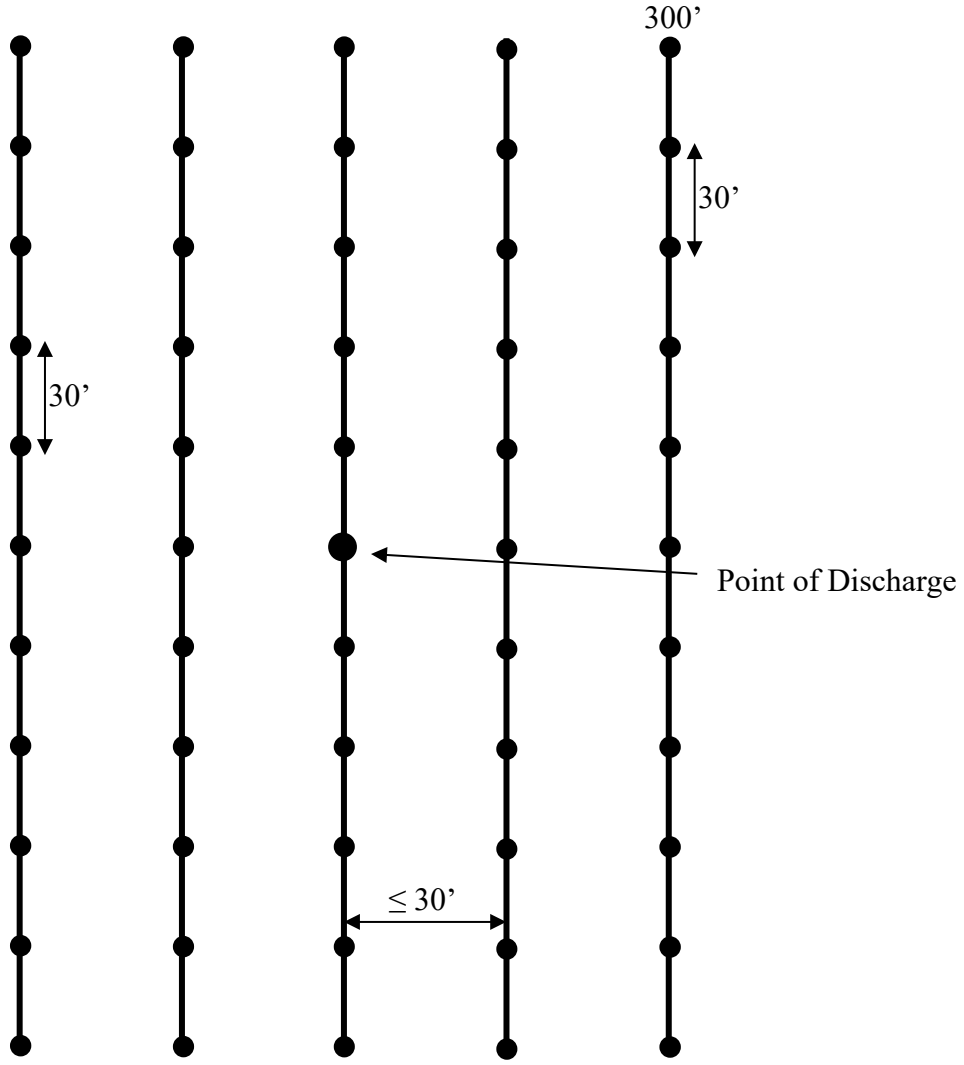
Figure 1 – Example of Radial Transects



Surveys using **Parallel Transects**: Use the discharge point as the central marker of the survey. GPS coordinates derived using WAAS technologies shall be recorded at the location of the discharge point (reported in decimal degrees, to the fifth decimal place if available). A minimum of three parallel transects shall be established, with the center transect passing through or near the discharge point. Transects shall be no more than 30 feet apart, and the number and length of transects shall be adequate to cover the entire estimated area of discharge (at least a 300 foot radius around the point of discharge) and any historic seafood waste accumulations. The sample plots shall be located at 30-foot increments along the transect lines. The sample plots shall be 3-ft by 3-ft squares.

The following diagram (Figure 2) shows "typical" parallel transects set no more than 30 feet apart. Points of measurement (sample plots) are at 30-foot intervals along the transect lines.

Figure 2 – Example of Parallel Transects



Reporting

Pre-Installation Survey Report. Within 30 days of completing the pre-installation survey, a facility operator shall submit a report to DEC that contains the following information:

I. **Facility Information**
   A. Name, address, responsible party (e.g., the permitted entity) and contact information.
   B. Alaska Pollutant Discharge Elimination System (APDES) permit number.
   C. Type of waste treatment process(es).
   D. The proposed discharge and/or current cumulative total annual pounds discharge based on historical BOD, SS, and TSS pollutant loading calculations or known total pounds seafood waste annually.

II. **Surveyor and Survey Information**
   A. Name and contact information of the surveyor.
   B. Brief background of surveyor's previous work history performing seafloor surveys and mapping.
   C. Date and time the survey was completed.
   D. Name of the receiving water where the survey was completed.
   E. Whether there are other seafood waste discharges within 0.25-mile of the discharge.
   F. Information on whether a seafood processing discharge was occurring during the time(s) of the survey.
   G. Method used to:
      1. Establish markers (if placed)
      2. Establish transects
      3. Locate sample plot locations along the transects
      4. Record the required sample plot data
   H. Table or narrative with a summary of findings from video of transects and sample plots.
   I. A photographic log with photo number, transect and sample plot number, and photograph description, including GPS data collected at the sample plots. Photographs shall be in color and minimally 3 inch x 5 inch.
   J. Recommendations for the location of the discharge at the proposed location or at an alternative location that would have less adverse impact to the seafloor community.

III. **Sample Plot Information. The following must be provided for the sample plots:**
   A. **Digital photographs.** Digital photographs must:
      a. Depict the nature and coverage of seafood waste deposit(s), if any, on the seafloor.
      b. Capture images of natural sediment, natural sediment covering seafood processing waste (if observable), and/or seafood waste covering natural sediment.
      c. Be of sufficient definition, clarity, and detail to clearly document the conditions present on the seafloor.
      d. Include a digital date and time stamp.
      e. Be compiled into a photographic log to include the sample plot location identifier.

Photographs are required to be submitted electronically. If feasible, an electronic copy of the report, GIS/GPS map layers, and video recordings shall be submitted at the same time.

B. **Sea Flora and Fauna.** Type and number of macro sea fauna (sea life) and type of aquatic vegetation observed on the seafloor during the survey. The survey shall note observed differences, if any, in numbers and types of marine biota present on or within the waste deposit area and those marine biota found 100' outside the deposit area (on the natural sediments). Types and quantities of sea life observed adjacent to, on, in, or feeding on any seafood processing waste deposits during the survey, along with representative photos that include time and date stamps. Mention shall be made of any indication of change in sea life behavior from any previous observations or seafloor survey reports, and any other observations relevant to the condition of the benthic community or seafloor.

C. **Hydrology.** Report ambient tidal current velocity and direction and the water chemistry (both seasonal and in-situ on the day of the survey), including salinity, water temperature, density, turbidity, DO, and pH. These parameters shall be taken as a grab sample or using a probe at the proposed outfall terminus location and proposed depth of the outfall.

D. **Substrate.** Composition of substrate (soft sediments, cobble, gravels, solid rock, glacial silts, ground seafood, etc.).

E. **Water Depth.** (adjusted to MLLW, reported in feet) The water depth shall be reported with the bottom reading measured at the seafloor or at the top of any waste pile, whichever feature results in a shallower reading, at each sample plot location.

F. **Plume Size.** If actively discharging at the time of survey, the estimated height (rise) and length of any observed discharge plume during the survey. The surveyor shall note any changes in benthic habitat or sea flora/fauna use near the outfall terminus and at 100' from the outfall terminus in or under the influence of the plume.

G. **Water Clarity.** A description of water clarity and changes in water clarity as a result of the discharge, if occurring.

If select information required in the Pre-installation Survey Report is not obtainable using the video/camera methods described above, the report shall include an explanation as to why the information could not be obtained.