THE STATE of ALASKA
GOVERNOR BILL WALKER

Department of Environmental Conservation

DIVISION OF SPILL PREVENTION AND RESPONSE
Contaminated Sites Program

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File No: 1528.38.001

April 16, 2015

Robert and Jacqueline Durette
P.O. Box 1480
Ward Cove, AK 99928

Dear Robert and Jacqueline,

The Alaska Department of Environmental Conservation, Contaminated Sites Program (DEC) has reviewed the environmental records for the Thorne Bay Durette Shop referenced Site. This decision letter explains the site history, cleanup activity and specific conditions required to effectively manage any remaining contamination. No additional remedial action is required as long as compliance with these conditions is maintained.

Site Name and Location
Thorne Bay Durette Shop
Shoreline Drive – NFR 30
Thorne Bay, Alaska
ASLS 82-139 Tract C

Address of Contact Party
Robert and Jacqueline Durette
P.O. Box 1480
Ward Cove, AK 99928

DEC Site Identifiers
Hazard ID: 2398

Regulatory Authority for Determination
Title 18 Alaska Administrative Code 75

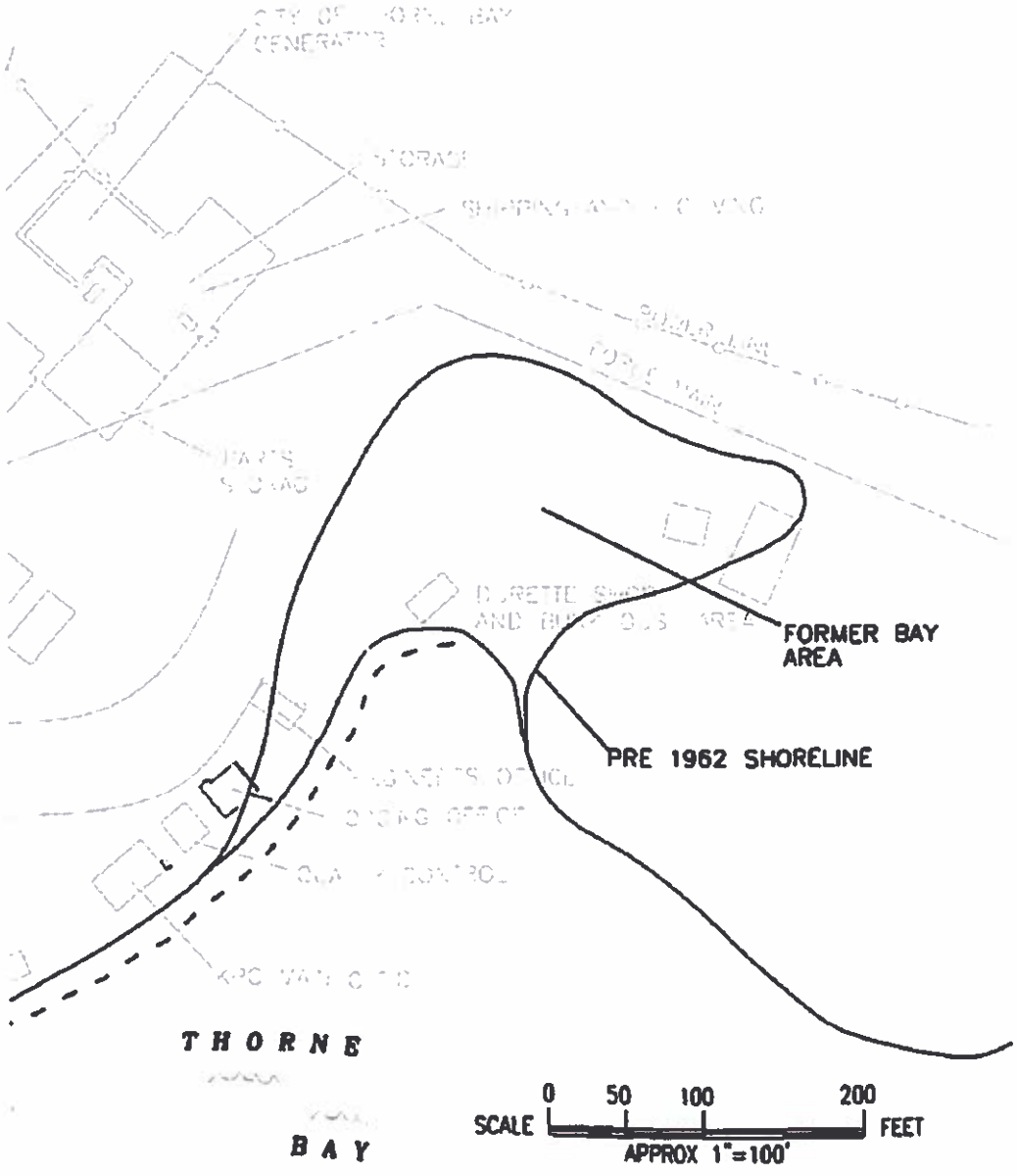
Site Description and Background

The referenced site is located between the intertidal shoreline of Thorne Bay and National Forest 30 Road/Shoreline Drive in the City of Thorne Bay and the Tongass National Forest (Tongass). In 1982 the Alaska legislature enacted CSHB 811 unencumbering the property from the US Forest Service (USFS) to the State of Alaska (State). Kevin and Connie Fox purchased the property from the State, added rock to level the grade, installed a concrete pad and built a warehouse in which they operated a small vehicle repair shop. A chain link fence separates the former Fox property from an adjacent property formerly leased by Ketchikan Pulp Company (KPC) from the USFS to operate an electrical generator and a large vehicle repair shop in support of the Thorne Bay Logging Camp facility and logging operations associated with a long term timber sale in the Tongass.

KPC installed a dike changing the shoreline of Thorne Bay Shop operations area, as displayed in Figure 1, oriented due north, referenced in Work Plan for Site Characterization KPC Thorne Bay

Facility for KPC by URS Greiner Woodward Clyde Inc. (URS), dated June 1998. The shape of the former shoreline is imposed over more recent structures, including the property and structures now owned by Robert and Jacqueline Durette (Durette), located on the east side of the former bay area.

Figure 1. Current and former shoreline of Thorne Bay – URS Work Plan 1998



Taken from historical photographs provided to DEC by Durette, the images below are centered on the dike that initially isolated the former bay area; the main building at the Site is marked with a red dot.

Contaminants of Concern

The following petroleum contaminants of concern are those above cleanup levels that were identified during the course of the site investigations summarized in the Characterization and Cleanup Activities section of this decision letter.

- Diesel Range Hydrocarbons (DRO)
- Residual Range Hydrocarbons (RRO)

Cleanup Levels

In accordance with 18 AAC 75.340(e) Method Three, by letter dated June 1, 2000, DEC approved the alternative DRO cleanup level of 5,700 milligrams per kilogram (mg/kg) as protective of the migration to groundwater pathway in soil at the KPC sites in Thorne Bay, Alaska. Subsurface water at this Site, however, is contaminated by chloride rendering it non-potable. Therefore, the groundwater ingestion pathway is incomplete. As a result, the more restrictive of the inhalation, direct contact, or ingestion cleanup levels in the over 40-inch precipitation zone, established in 18 AAC 75.341(c), Table B2, apply to remaining soil at the Site.

The soil migration to surface water pathway is complete and, in accordance with 18 AAC 341, (Notes to Tables B1 and B2: (7)), the migration to groundwater soil cleanup levels protective of migration to surface water must be determined on a site specific basis. Soil characterization sampling at the Site confirmed that concentrations of the volatile and semi-volatile hydrocarbon compounds used in Water Quality Standards to evaluate surface water quality for dissolved petroleum hydrocarbon contamination were all below laboratory reporting limits and the default Method Two Table B2 migration to groundwater cleanup levels. Without a discrete location to collect representative surface water samples at the Site, the cleanup level standard for surface water, specified in Water Quality Criteria in 18 AAC 70.020(b) that surface water leaving the site be virtually free of film, sheen, or discoloration and floating oils, applies to this Site.

Table 1 – Approved Cleanup Levels – Soil and Surface Water

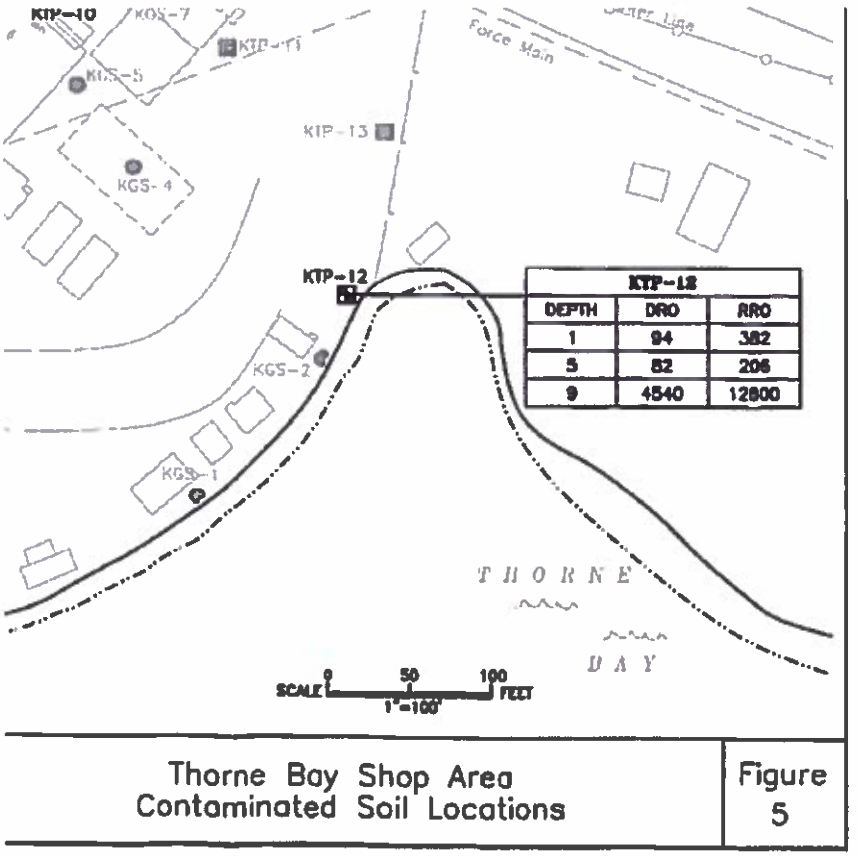
Chemical	Soil in milligrams per kilogram	Surface Water
DRO	8,250	No film, sheen, or discoloration
RRO	8,300	No film, sheen, or discoloration

Site Characterization and Cleanup Activities

Release investigation and corrective action activities conducted under the regulatory authority of the Contaminated Sites Program began in 2000. These activities are described below.

In letter to KPC dated March, 2000, DEC summarized results of a meeting of representatives from the US Forest Service, KPC, URS and DEC regarding results in the draft 1999 KPC Thorne Bay Facility Site Characterization Report. DEC requested additional investigation at the KTP-12 test pit location near the Durette property, based on sample analytical results in the table in Figure 2 below.

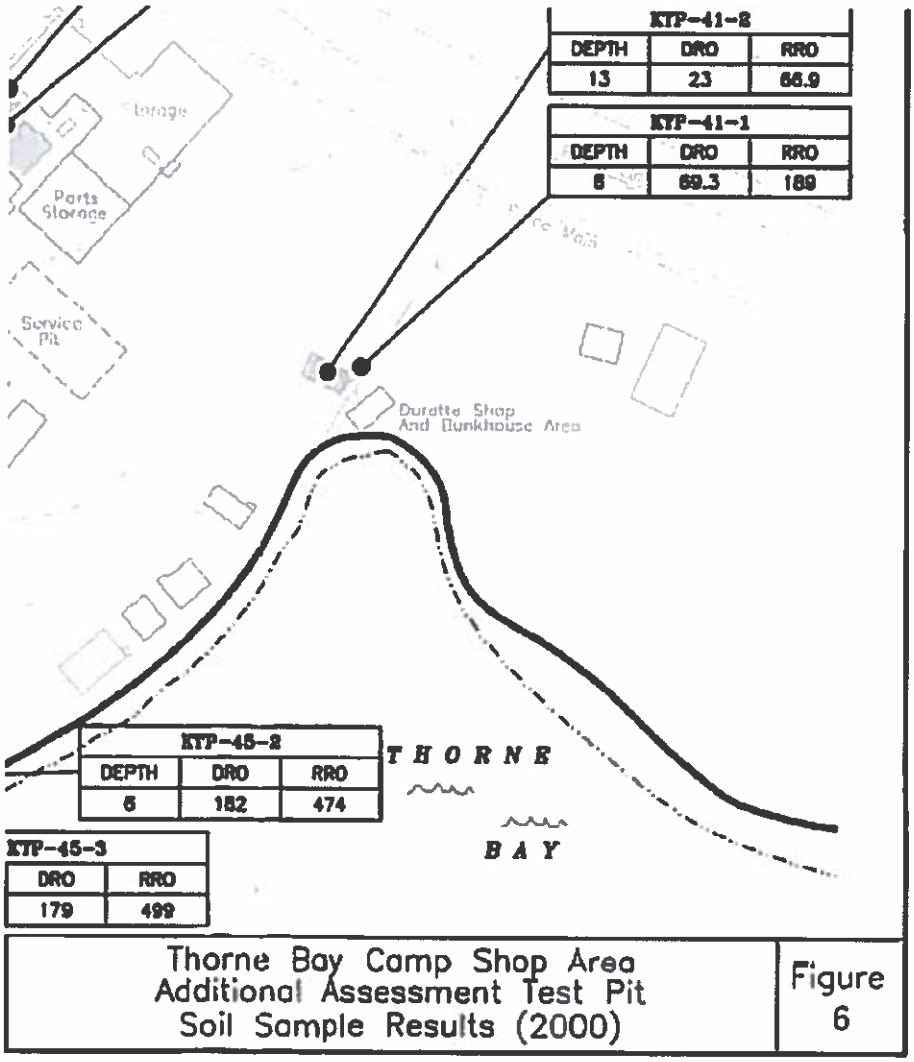
Figure 2. Test Pit KTP-12 in the draft KPC Thorne Bay Site Characterization Report



In Cleanup Action Report KPC Thorne Bay Camp Shop and Bunkhouse Areas dated October, 2000, URS reported that the cleanup excavation near the eastern boundary of the Maintenance Shop Area (KTP-12) was extended to depths of 8-12 feet at the sidewalls and 13 feet in the center below ground surface (bgs) over an estimated 630 square foot area. Of the estimated volume of 300 cubic

yards of material excavated, one third was separated by field screening and stockpiled between liners for off-site remediation. Samples from the stockpile had DRO and RRO concentrations above the respective soil cleanup levels. Soil confirmation samples taken from each sidewall (8-10 feet depth bgs) and the excavation floor (13-feet depth bgs) had DRO and RRO concentrations below approved cleanup levels, as displayed in Figure 3.

Figure 3. Extended sampling Test Pit KPT-10 KPC Thorne Bay Shops



The Contaminated Site Investigation Report completed in 2000 for Durette by R&M Engineering Inc. (R&M), approved by DEC for the Voluntary Cleanup Program, states that in 1988, Durette purchased the Site and added rock fill to the south end of the property to accommodate additional buildings. Although a former KPC employee alleged that KPC discharged waste fluids into a pipe extending from its generator building to a sump hole on the Durette property, neither an R&M Site Investigation of the Durette property nor the KPC Site Investigations and Cleanup on the adjacent property found sufficient evidence to substantiate the claim.

In June 2000, R&M advanced three exploratory trenches to an average depth of 12 feet bgs to investigate subsurface soil for contamination. Buried logs extending from underneath the concrete building foundation slowed progress and limited the number and extent of investigation trenches R&M could advance. Trenches 1, 2 and 3 were located between the main Durette building and the former KPC property to the west. The images below, from the R&M 2000 Report, are photographs facing north, display Trench 2 where R&M encountered a "donkey" log yarder sled that allegedly marked the location of a sump for waste fluid discharged from the KPC Shop on the adjacent property. R&M searched among the debris but found no piping or evidence of a sump.

During high tide, sea water entered Trench 2 to a depth of nine feet bgs. Samples collected from the sidewalls at several depths along the length of the excavation trenches were field screened using both photoionization detection meter (PID) readings and hydrothermally (hot water) activated iridescent sheen diffraction grating observations. Eight of thirteen screening samples with low but measurable PID readings and exhibiting sheen were collected below eight feet bgs. R&M was not convinced the sheen on the highly organic subsurface soil was from petroleum. Excavated material temporarily stored between liners on-site was returned to the excavation.

Figure 4 Site Investigation Thorne Bay Durette Shop R&M 2001, included with this letter as Attachment C, displays R&M confirmation soil analytical sample locations S1, S2 and S3. Two of the confirmation samples were collected at ten feet bgs and a third was collected seven feet bgs. Confirmation samples were analyzed for GRO, DRO and RRO, volatile (VOC) and semi-volatile (SVOC or PAH) hydrocarbon compounds and total metals. One of the three samples (S3) had DRO and RRO concentrations above the approved soil cleanup levels.

Soil

Based on the field screening and analytical results for contamination in the Contaminated Site Investigation Reports dated 2000 and 2001, R&M concluded that GRO, volatile and semi-volatile compounds concentrations were below laboratory reporting limits and soil cleanup levels, metals

concentrations were consistent with background levels in the area, and concentrations of DRO and RRO were elevated above the most conservative migration to groundwater cleanup level.
The highest results were detected in sample S3 from test pit #3 taken at a depth of seven feet bgs. Sample S3 had a DRO concentration of 3,700 milligrams per kilogram (mg/kg) and an RRO concentration of 9,900 mg/kg. Table 2 displays the highest levels detected in remaining soil during site investigation, the depth below the surface that the sample was taken, and the Method Two Migration to Groundwater (M2 MTG) and Direct Contact/Ingestion/Inhalation soil cleanup levels listed in 18 AAC 75.341 Table B2 apply to this Site. The level in bold is above the soil cleanup levels.

Table 2 highest level of petroleum analytes detected in remaining soil

Hydrocarbon range	Greatest level in soil mg/kg	Sample name and depth below the surface	M2 Direct Contact, Ingestion, & Inhalation Cleanup Levels mg/kg	M2 MTG cleanup levels
DRO	3,700	Sample S3 at 7 feet	8,250	230
RRO	**9,900**	Sample S3 at 7 feet	8,300	9,700

Groundwater and Surface Water
A sample of pore water was collected during the 1998 KPC Thorne Bay Facility Site Characterization in the Maintenance Shop Area. The sample, collected from a piezometer in the KPT-12 pit located on the shoreline directly adjacent to the Durette property, had DRO and RRO concentrations below the respective 18 AAC 75.345 Table C groundwater cleanup levels.

Although groundwater was not investigated for contamination at the Durette Site, R&M did conclude in the 2001 Report that tidal waters entering subsurface soil at the site could be a migration pathway for residual contamination. Although data are limited, R&M concluded that petroleum concentrations in remaining soil were lower in sample locations periodically saturated with tidal sea water. The path of a City of Thorne Bay storm drain and sanitary sewer systems under Shoreline Drive are located near the Site. In the 2001 Report, R&M suggested that oil sheen occasionally reported daylighting at the storm drain discharge could have originated at the Site.

Site investigation of remaining soil at the site has shown that petroleum volatile compounds (such as BTEX and polyaromatic hydrocarbons), as indicators of potential effects to aquatic life in 18 AAC 70 water quality standards, are not present at levels above the migration to groundwater cleanup levels. As a result, residual soil contamination is unlikely to migrate in groundwater at levels that will affect the quality of off-site surface water.

Cumulative Health Risk Calculation
Pursuant to 18 AAC 75.325 (g), when detectable contamination remains on-site following a cleanup, a cumulative risk determination must be calculated. The risk from hazardous substances must not exceed a cumulative carcinogenic risk standard of 1 in 100,000 across all exposure pathways and does not exceed a cumulative non-carcinogenic risk standard at a hazard index of one across all exposure pathways. Based on a review of the environmental record, DEC has determined that residual contaminant concentrations do not pose a cumulative human health risk.

Pathway Evaluation

Following investigation and cleanup at the site, exposure to the remaining contaminants was evaluated using DEC's Exposure Tracking Model (ETM). Exposure pathways are the conduits by which contamination may reach human or ecological receptors. ETM results show all pathways to be one of the following: De Minimis Exposure, Exposure Controlled, or Pathway Incomplete. A summary of this pathway evaluation is included in Table 1 as Attachment A to this letter.

DEC Decision

Although a smear zone influenced by tidally fluctuating sea water is present, and the substrate between the remaining contamination and Thorne Bay has a high permeability for contamination to migrate, no discreet point discharge of film, sheen, discoloration or floating oil has been identified on the intertidal shoreline and a consistent discharge has not been observed or reported. As a result, any residual soil contamination migrating to off-site surface water is not exceeding the Water Quality Standard. Petroleum contamination remains on-site in soil above approved cleanup levels; however DEC has determined there is no unacceptable risk to human health or the environment as long as the contamination is not disturbed and is properly managed.

A Notice of Environmental Contamination (deed notice) shall be recorded in the State Recorder's Office as an institutional control (IC) that identifies the nature and extent of contamination at the property and the conditions that the owners and operators are subject to in accordance with this decision document. These conditions are as follows:

1. Periodically monitor the waters of Thorne Bay adjacent to the property for film, sheen, discoloration or floating oils. If such conditions persist, implement sorbent boom control measures and contact DEC. Additional remediation, investigation, and control measures may become necessary.
2. Robert and Jacqueline Durette shall report to DEC of intent to sell or change in land ownership. This management condition agreement must be established with the new owner of the property. The intent to sell and new owner information can be sent to the local DEC office or electronically to DEC.ICUnit@alaska.gov.
3. If disturbance of the subsurface soil on the property described in this letter as having residual contamination is planned (see sample site S3, Figure 4, Attached C) a work plan must be submitted for DEC approval, prior to any such site activity begins, to coordinate proper handling of potentially contaminated soil and water on the Site.
4. Any proposal to transport soil or groundwater off-site requires DEC approval in accordance with 18 AAC 75.325(i). A "site" [as defined by 18 AAC 75.990 (115)] means an area that is contaminated, including areas contaminated by the migration of hazardous substances from a source area, regardless of property ownership.
5. Movement or use of contaminated material in a manner that results in a violation of 18 AAC 70 water quality standards is prohibited.

The DEC Contaminated Sites Database will be updated to reflect the change in site status as detailed above, and will include a description of the contamination remaining at the site. Institutional controls will be removed in the future if documentation can be provided that shows cleanup levels have been met.

Management conditions 4 & 5 are standard and will remain in effect after ICs are removed.

This determination is in accordance with 18 AAC 75.380(d)(2) and does not preclude DEC from requiring additional assessment and/or cleanup action if future information indicates that this site may pose an unacceptable risk to human health, safety or the environment.

Appeal

Any person who disagrees with this decision may request an adjudicatory hearing in accordance with 18 AAC 75.195 -18 AAC 75.340 or an informal review by the Division Director in accordance with 18 AAC 75.185. Informal review requests must be delivered to the Division Director, 410 Willoughby Avenue, Suite 303, Juneau, Alaska 99801, within 15 days after receiving the department's decision reviewable under this section. Adjudicatory hearing requests must be delivered to the Commissioner of the Department of Environmental Conservation, 410 Willoughby Avenue, Suite 303, Juneau, Alaska 99801, within 30 days after the date of issuance of this letter, or within 30 days after the department issues a final decision under 18 AAC 75.185. If a hearing is not requested within 30 days, the right to appeal is waived.

Please sign and return *Attachment B* to DEC within 30 days of receipt of this letter. If you have questions about this closure decision, please contact the DEC project manager, Bruce Wanstall at (907) 465-5210.

Sincerely,

Bruce Wanstall

Bruce Wanstall
Remedial Project Manager
Contaminated Sites Program

Attachment A: Table 3 – Exposure Pathway Evaluation
Attachment B: Cleanup Complete-ICs Agreement and Signature Page
Attachment C: Site Figure 4.

cc: Sally Schlichting, DEC Unit Manager, CS Program, via sally.schlichting@alaska.gov
DEC SPAR Cost Recovery, via email

Attachment A: Exposure Pathway Evaluation

Table 3 – Exposure Pathway Evaluation

Pathway	Result	Explanation
Surface Soil Contact	Pathway Incomplete	There is no soil contamination remaining at the surface on the site above the direct contact cleanup levels.
Sub-Surface Soil Contact	De-minimis exposure	Soil contamination remains not accessible in the subsurface at levels above human health ingestion levels and future excavation is not planned.
Inhalation – Outdoor Air	Pathway Incomplete	Contamination remains in the subsurface, but no volatile compounds are present at levels above outdoor inhalation screening levels
Inhalation – Indoor Air (vapor intrusion)	Pathway Incomplete	Buildings are present but any remaining volatile petroleum levels are either below laboratory reporting limits and/or the inhalation and migration to groundwater screening levels.
Groundwater Ingestion	Pathway Incomplete	Groundwater is contaminated with chloride by sea water, does not influence a current or future drinking water source and was not investigated. The City of Thorne Bay Public Works supplies potable water to the site and the general area.
Surface Water Ingestion	Pathway Incomplete	Surface water hydraulically connected to the site is not of sufficient quality or quantity for a potable water source.
Wild Foods Ingestion	Pathway Incomplete	The site and the urban area are not a wild foods harvest area and none of the contaminants have potential to bioaccumulate in flora or fauna.
Exposure to Ecological Receptors	Pathway Incomplete	BTEX indicator compounds in soil are below laboratory reporting limits and migration to groundwater cleanup levels. Film, sheen, or discoloration and floating oils are not present on surface waters at the site.

Notes to Table 1: "De-minimis exposure" means that in DEC's judgment receptors are unlikely to be affected by the minimal volume of remaining contamination. "Pathway incomplete" means that in DEC's judgment contamination has no potential to contact receptors. "Exposure controlled" means there is an administrative mechanism in place limiting land or groundwater use, or a physical barrier in place that deters contact with residual contamination.

April 16, 2015

Attachment B: Cleanup Complete-ICs Agreement and Signature Page

Robert and Jacqueline Durette agree to the terms and conditions of this Cleanup Complete Determination, as stated in decision letter for the Thorne Bay Durette Shop dated April 14, 2015. Failure to comply with the terms and conditions of the determination may result in DEC reopening this site and requiring further remedial action in accordance with 18 AAC 18 AAC 75.380(d)(2).

_____ _____

Signature of Authorized Representative, Title
Robert and Jacqueline Durette

Date

_____

Printed Name of Authorized Representative, Title
Robert and Jacqueline Durette

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5. Movement or use of contaminated material in a manner that results in a violation of 18 AAC 70 water quality standards is prohibited.

Note to Responsible Person (RP):

After making a copy for your records, please return a signed copy of this form to the ADEC project manager at the address on this correspondence within 30 days of receipt of this letter.

Attachment C: Site Figure 4.

Figure 4. Site Investigation Thorne Bay Durette Shop R&M 2001