



THE STATE  
of **ALASKA**  
GOVERNOR SEAN PARNELL

Department of  
**Environmental Conservation**

DIVISION OF SPILL PREVENTION & RESPONSE  
Contaminated Sites Program

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File No: 2100.38.534

May 15, 2014

Ben Katon  
Four Seasons, LLC  
9757 Juanita Drive Suite 300  
Kirkland, WA 98034

Re: Decision Document - Four Seasons Mobile Home Park  
Cleanup Complete determination

Dear Mr. Katon:

The Alaska Department of Environmental Conservation (ADEC), Contaminated Sites Program, has reviewed the environmental records associated with the Four Seasons Mobile Home Park site ("site"). The site is within the approximately 39-acre property shown on Figure 1 below, bounded to the west by Newell Street and to the south in part by East 6<sup>th</sup> Avenue. Additionally, the property is known by the street address 5901 E 6th Avenue and lies south of the Glenn Highway and east of Boniface Parkway. Based on the information provided to date, the ADEC has determined that the contaminant concentrations remaining from releases at the site do not pose an unacceptable risk to human health or the environment, and this contaminated site will be closed.

This decision is based on the administrative record which is located in the offices of the Alaska Department of Environmental Conservation in Anchorage, Alaska. This letter summarizes the decision process used to determine the environmental status of the site, and provides a summary of the regulatory issues considered in this Cleanup Complete determination.

**Introduction**

**Site Name and Location:**

Four Seasons, LLC  
5901 6<sup>th</sup> Avenue  
Anchorage, AK 99518  
T13N R3W SEC 14 Seward Meridian  
Anchorage (A-8, NW) Quadrangle

**Database Hazard No. and File Number:**

File No. 2100.38.534  
Hazard I.D. No. 25921

**Name and Mailing Address of Contact Party:**

Ben Katon  
Four Seasons, LLC  
9757 Juanita Drive Suite 300  
Kirkland, WA 98034

**Regulatory authority under which the site  
is being cleaned up:**

18 AAC 75

## Background

The site comprises a 39-acre parcel developed in the late-1960s as a mobile home park. Heating oil was provided to park residents by an underground piped heating oil system. The system was gravity-fed by an aboveground storage tank (AST) located in the southeastern corner of the parcel. Extensive soil contamination and localized groundwater contamination were associated with releases from the underground piping and with the AST. The system was abandoned in place, with the AST removed from the property sometime between 1981 and 1986. Natural gas became available in 1971, however, file documents do not indicate the year a gas distribution system was put in service. Because contamination was widespread throughout the property, the terms site and property as used in this decision refer to the same area, that is, within the Four Seasons property boundaries (current Municipality of Anchorage tax parcel 006-392-03-000).

The site is being converted to a modular housing development, with approximately two-thirds of the site still in use as a mobile home park but planned for conversion to modular housing in the near future. The southern third of the site was converted to modular housing in 2013.

Site investigation and cleanup of contamination associated with the former heating oil system took place from 2012 to 2014 and included the excavation and off-site thermal treatment of over 5,000 tons of soil contaminated by diesel range organics (DRO). This total included approximately 35 tons of surface stained soils from various mobile home spaces and approximately 4,989 tons of contaminated soil associated with the heating oil system and former AST location. All buried pipelines, totaling over 6,600 linear feet, were investigated, removed, and disposed of off-site. Following cleanup reports on file document that soil confirmation samples met ADEC's Method Two, Migration to Groundwater soil cleanup levels established in 18 AAC 75.340(2)(B). Groundwater was investigated and determined not to be contaminated above ADEC's default groundwater cleanup standards established in 18 AAC 75.345, Table C.

Shallow groundwater encountered at the site is present at depths of approximately 12-15 feet below the ground surface. Drinking water for all residences on the property is provided and will continue to be provided from a well that draws from an aquifer present from approximately 60 feet below the ground surface. The water well log indicates that the drinking water aquifer is separated from the near-surface aquifer by one or more aquitards.<sup>1</sup> The well is connected to the water supply of the Municipality of Anchorage at a valve station within the park (see Well House location on Figure 3 below). Water from the city supply is used only if the water supply or water pressure from the onsite well system becomes too low, and specifically in the case of fire where large volumes might be needed. The system is automatically turned on when pressure falls to a specified number.

## Contaminants of Concern

### Soil

During investigations at the site, soil was analyzed for gasoline range organics (GRO); DRO; residual range organics (RRO); volatile organic compounds (VOCs); benzene, toluene, ethylbenzene, and total xylenes (BTEX); polynuclear aromatic hydrocarbons (PAHs); and semi-volatile organic compounds (SVOCs).

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<sup>1</sup> See drinking water well log, Appendix D, *Characterization and Remediation Investigation at Four Seasons Mobile Home Park* report dated April 3, 2013 and prepared by TERRASAT.

Based on the above analyses and knowledge of the source area, the following contaminants of concern (COCs) were identified in soil:

- GRO
- Ethylbenzene
- DRO
- Xylenes (total)
- Benzene
- 1,2,4-Trimethylbenzene
- Toluene
- Naphthalene

#### Groundwater

Groundwater samples were analyzed for DRO, RRO, SVOC and VOC compounds.

Based on the above analyses and knowledge of the source area, the following contaminant of concern (COCs) were identified in groundwater:

- DRO

#### **Cleanup Levels**

Soil and groundwater cleanup levels for the soil and groundwater are presented in Table 1 below. The default soil cleanup levels for this site are established in 18 AAC 75.341, Method Two, Tables B1 and B2, Migration to Groundwater. The default groundwater cleanup levels for this site are established in 18 AAC 75.345 Table C Groundwater Cleanup Levels.

**Table 1- Soil and Groundwater Cleanup Levels**

<b>Contaminants of Concern</b>	<b>Soil- Method Two, Direct Contact /Ingestion (mg/Kg)</b>	<b>Soil- Method Two, Inhalation (mg/Kg)</b>	<b>Soil- Migration to Groundwater (mg/Kg)</b>	<b>Groundwater (mg/L)</b>
DRO	10,250	12,500	250	1.5
GRO	1,400	1,400	300	2.2
Benzene	150	11	0.025	0.005
Toluene	8,100	220	6.5	1.0
Ethylbenzene	10,100	110	6.9	0.7
Xylenes (total)	20,300	63	63	10
1,2,4-Trimethylbenzene	5,100	49	23	1.8
Naphthalene	1,400	28	20	0.73

#### **Site Characterization and Cleanup Activities**

Stained soils and potential contaminant sources were identified during the *Phase 1 Environmental Site Assessment* by TERRASAT, Inc. dated June 25, 2012. The Phase I report included a review of historical aerial photographs and an on-site investigation done on June 21, 2012. Evidence of the underground piped system included fuel oil fittings visible above the ground surface, historical records, and aerial photographs showing the gravity-feed tank that supplied the system.

Initial work at the park included removing contaminated surface soil identified at 11 mobile home driveways within the park. The contamination was characterized and found to be motor oil. DRO-

contaminated soil was excavated on September 7, 2013 and thermally treated off-site. The remedial activities are documented in a report dated March 30, 2013.<sup>2</sup>

The over-6,000 feet of abandoned oil pipeline at the park were buried from one to two feet below the surface. These were systematically exposed and the couplings and other fittings investigated using an air knife that removed the soil around the pipelines with high pressure air.

The first phase of investigation and remediation of contamination associated with the heating oil system took place over a period of 8 weeks, from September 3, 2012 until October 23, 2012 and is documented in a report dated April 3, 2013.<sup>3</sup>

The piped system included six east-west oriented fuel distribution lines (designated 1 through 6 by the consultant as shown on **Figure 1** below) and a north-south header line connected to the AST and to the east ends of the six fuel distribution lines. Five of the six fuel distribution lines and part of the sixth were exposed and inspected during this phase of work. A total of 417 tons of DRO-contaminated soil was removed from various locations along pipelines 1 through 4 and from areas of extensive soil contamination identified as the “east pit” at the east end of Driftwood Road shown on Figure 2 below and at the east end of line four designated as 4LN-01.

Confirmation sampling within the excavations along the pipelines showed that soil cleanup levels were met. Confirmation sampling was not done in the east pit as additional excavation of contaminated soil was necessary. During excavation of 4LN-01 shallow groundwater was encountered at a depth of approximately 12 feet below the ground level. As a result of this finding a groundwater investigation plan was proposed and approved by ADEC.



**Figure 15. Schematic showing the heating oil distribution network at Four Seasons, based on field evidence. The above ground storage tank (AST) is not to scale.**

From "Characterization and Remediation Investigation" report dated April 3, 2014 by TERRASAT.

**Figure 1**

<sup>2</sup> See report on file: *Characterization and Remediation Investigation at Four Seasons Mobile Home Park – Oil Stains on Lots* dated March 30, 2013 and prepared by TERRASAT.

<sup>3</sup>See report on file: *Characterization and Remediation Investigation at Four Seasons Mobile Home Park* dated April 3, 2013 and prepared by TERRASAT.

The second and final phase of work was done from May 23, 2013 through August 30, 2013 and is documented in the *Site Characterization and Remediation of the Four Seasons Mobile Home Park* dated March 26, 2014 and prepared by TERRASAT. Work included excavating additional soil at the east pit and completing the investigation of line 6 and excavating contaminated soil encountered along that line. Four borings, with two completed as monitoring wells within the shallow aquifer (less than 15 feet below the ground surface) were drilled at the east pit location. Soil and groundwater analytical results showed no contamination above applicable cleanup levels. The wells were decommissioned after the initial sampling. Five borings, with three completed as monitoring wells, were drilled near and around the 4LN-01 location. Soil and groundwater analytical results showed no contamination above applicable cleanup levels. The wells were decommissioned after the initial sampling. One water sample collected from shallow groundwater that seeped into the 4LN-01 excavation contained 3.16 mg/L DRO, but all associated soil that included the 2-foot thick saturated zone was removed and transported off-site for thermal remediation.



Figure 2

In total, 4,989 tons of soil associated with the heating oil system and 35 tons of soil associated with surface stains excavated from individual trailer lots were excavated and thermally treated off-site. The two major excavations, all borings and monitoring wells and the location of the well house are shown on **Figure 2** above (prepared by TERRASAT).

### Cumulative Risk Calculation

Pursuant to 18 AAC 75.325(g), when detectable contamination remains on-site following a cleanup, a cumulative risk determination must be made that the risk from hazardous substances does 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, ADEC has determined that residual contaminant concentrations do not pose a cumulative human health risk at this site.

### Pathway Evaluation

Following investigation and cleanup at the site, exposure to the remaining contaminants was evaluated using ADEC'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.

**Table 1 – Exposure Pathway Evaluation**

Pathway	Result	Explanation
Surface Soil Contact	De Minimis Exposure	Contaminants in surface soil confirmation samples were below the most stringent cleanup levels and the remaining contaminated soil is considered De Minimis in volume. Therefore risk via this pathway is considered insignificant.
Sub-Surface Soil Contact	De Minimis Exposure	Contaminants in sub-surface soil confirmation samples were below the most stringent cleanup levels and the remaining contaminated soil is considered De Minimis in volume. Therefore risk via this pathway is considered insignificant.
Inhalation – Outdoor Air	Pathway Incomplete	Remaining petroleum contamination is below the most stringent cleanup level for soil. Therefore risk via this pathway is considered incomplete.
Inhalation – Indoor Air (vapor intrusion)	Pathway Incomplete	Remaining petroleum contamination is below the most stringent cleanup level for soil. Therefore risk via this pathway is considered incomplete.
Groundwater Ingestion	De Minimis Exposure	Contaminants were detected in groundwater above default cleanup levels for DRO within an area that was later excavated. Analytical results from monitoring wells subsequently installed did not exceed default cleanup levels for DRO or other contaminants.
Surface Water Ingestion	Pathway Incomplete	Surface water is not used as a drinking water source in this area.
Wild Foods Ingestion	Pathway Incomplete	This area is not used for harvesting wild foods.
Exposure to Ecological Receptors	Pathway Incomplete	There are no complete exposure pathways to ecological receptors at the site.

**Notes to Table 1:** “De minimis exposure” means that in ADEC’s judgment receptors are unlikely to be affected by the minimal volume of remaining contamination. “Pathway incomplete” means that in ADEC’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.

**ADEC Decision**

Based on the information available, ADEC has determined no further assessment or cleanup action is required. There is no longer a risk to human health or the environment, and this site will be designated as closed on the Department's database.

Although a Cleanup Complete Determination has been granted, ADEC approval is required for off-site soil disposal in accordance with 18 AAC 75.325(i). It should be noted that movement or use of potentially contaminated soil or groundwater in a manner that results in a violation of 18 AAC 70 water quality standards is unlawful.

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

**Appeal**

Any person who disagrees with this decision may request an adjudicatory hearing in accordance with 18 AAC 15.195 -18 AAC 15.340 or an informal review by the Division Director in accordance with 18 AAC 15.185. 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 15.185. If a hearing is not requested within 30 days, the right to appeal is waived.

If you have questions about this decision document, please contact the ADEC Project Manager, Eileen Olson at (907) 269-7527.

Sincerely,



Eileen Olson  
Environmental Specialist

cc: Dan Young, TERRASAT, Inc.  
DEC-Response Fund Administration via email