



File No. 2320.38.032

October 15, 2024

Marshall Farris  
Hilcorp Alaska, LLC.  
3800 Centerpoint Drive, Suite 1400  
Anchorage AK 99503

Re: Kenai Gas Field 2023 Groundwater Monitoring Program Report  
ADEC Comments - Pad 41-7

Mr. Farris:

On May 13, 2024, the Department of Environmental Conservation, (DEC) Contaminated Sites Program, received the 2023 Groundwater Monitoring Program Report. This document was prepared by Aleut Remediation LLC. DEC has the following comments on KGF Pad 41-7.

I am concerned that the monitoring well network on the 41-7 Pad may be a liability or may be contributing to environmental problems. The 41-7 Pad was constructed by hauling gravel to the site on winter roads. The gravel was laid on top of the peat soils, compressing them down, until they were in contact with the underlying mineral soils. The compressed peat and associated lithologies appear to be acting as an aquitard and organic barrier between the pad gravels and the underlying mineral soils.

This is demonstrated by the groundwater elevations in monitoring wells MW-15 and MW-17 in the central pad, where there is a downward potential from the pad groundwater into the underlying mineral soils "aquifer". MW-15 is screened with a two-foot screen in the mineral soils from 15 to 17 feet below ground surface. MW-17 is screened in the pad soils and into the peat soils from two to 12 feet below ground surface.

The attached table shows representative groundwater elevations in the two monitoring wells from 2007 to 2010. The majority of the groundwater elevations demonstrate downward groundwater potential from the pad to the mineral soils. There are seasonal and other precipitation events that may influence wells screened in the mineral soils and wells close to the peat / mineral soil interface that then show an upward potential.

It is our understanding from these two wells and other well observations represent conditions on the pad in general. The concern is that contamination within the pad may be migrating through wells that are screened through pad contamination and through the peat layer or at the bottom of the peat layer,

where the potentiometric head may be carrying dissolved phase contamination into a previously unimpacted zone. The two 2007 Groundwater Contour Maps attached demonstrate the potential for downward groundwater movement.

Hilcorp should evaluate their monitoring network and determine which wells are set into the peat and have the potential of leaking from the peat into the lower aquifer. It is our opinion that these wells should be abandoned by injecting liquid grout that is tremmied into the casing after the screen plug is knocked out to ensure a competent well borehole seal. The casing should not be removed until grouting is started, i.e. no open borehole grouting.

A monitoring network should then be established that has wells set in the upper pad soils and separately in the lower mineral soils to monitor for impacts that have or may be occurring in the lower “aquifer”. The peat should be considered an organic aquitard, and not be penetrated if possible.

There are significant areas of separate phase product on the pad. The monitoring network will include areas of separate phase product so that environmental risk areas are represented and can be monitored into the future. The shallow monitoring network should be able to define and monitor these areas, especially on the western side of the pad in the downgradient groundwater flow direction. The end result of this monitoring change should result in two distinct groundwater potentiometric groundwater contour maps.

We are requesting this to be a mid-term project with the first priority being to control potential impacts to the mineral soil “aquifer”. If you have any questions on any aspect of the project, please contact me at (907) 262-3412, or by e-mail at [peter.campbell@alaska.gov](mailto:peter.campbell@alaska.gov)

Sincerely,

*Peter Campbell*

Peter Campbell  
Environmental Program Specialist

Attachments:

Table - Groundwater Elevation Potential - Pad to Mineral Soils  
2007 Groundwater Contour Maps  
Drill Logs MW-15 and MW-17

Kenai Gas Field 41-7 Groundwater Elevation Potential - Pad to Mineral Soils

Date	MW-15	MW-17	Trend
May-07	62.79	64.42	Down
Sep-07	63.14	65.04	Down
May-08	63.16	64.34	Down
Aug-08	62.92	63.23	Down
Jun-10	63.01	64.29	Down
Dec-10	63.46	62.52	Up

Adapted from the 2012 Oasis KGF 41-7 Grundwater Monitoring Report

PATH: V:\Project Drawings\Marathon\09 Mar\09 Pad 41-7\09 P41-7 RPT FILE: 08-P41-7-RPT-F3.DWG PLOTTED: 3/31/09.



**EXPLANATION**

- ⊕ MONITORING WELL LOCATION
- ⊙ GAS WELL LOCATION
- 62.63 GROUNDWATER ELEVATION (MSL)
- 63.26\*\* ASTERISK INDICATES WELL DATA NOT USED FOR CONTOURING
- 63.0 SEPTEMBER 2007 GROUNDWATER CONTOUR (MSL)

SOURCE: AERIAL PHOTOGRAPH KENAL\_SOL-5-22-06\_5-4.TIF DATED 5/22/06 PROVIDED BY AERO-METRIC INC.



<p><b>MAY 2007 INFERRED GROUNDWATER CONTOURS</b></p> <p>MARATHON OIL COMPANY KENAI GAS FIELD PAD 41-7 Kenai, Alaska</p>	<p>FIGURE <b>3</b></p>
<p>DATE: MARCH 2009 CHKD: D.J.F. DRAWN: C.E.H. PROJ. No.: 85-027 825 W. 8th Ave., Anchorage, AK 99501, (907) 258-4880</p>	

PATH: V:\Project Drawings\Marathon\09 Mar\09 Pad 41-7\09 P41-7 RPT FILE: 08-P41-7-RPT-F4.DWG PLOTTED: 3/31/09.



**EXPLANATION**

- ⊕ MONITORING WELL LOCATION
- ⊙ GAS WELL LOCATION
- 62.81 GROUNDWATER ELEVATION (MSL)
- 62.79\*\* ASTERISK INDICATES WELL NOT USED FOR CONTOURING
- 63.0 SEPTEMBER 2007 GROUNDWATER CONTOUR (MSL)

SOURCE: AERIAL PHOTOGRAPH KENAL\_SOL-5-22-06\_5-4.  
TIF DATED 5/22/06 PROVIDED BY AERO-METRIC INC.



FIGURE  
**4**

**SEPTEMBER 2007 INFERRED GROUNDWATER CONTOURS**

MARATHON OIL COMPANY  
KENAI GAS FIELD PAD 41-7  
Kenai, Alaska

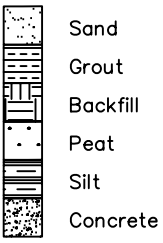
DATE: MARCH 2009  
CHKD: D.J.F.  
DRAWN: C.E.H.  
PROJ. No.: 85-027  
825 W. 8th Ave., Anchorage,  
AK 99501, (907) 258-4880



Project Kenai Gas Field Pad 41-7 Owner Marathon Oil Company  
 Location Approximately 43.2' NNW of Waste Water BLDG  
 Surface Elevation 66.3' MSL Total Hole Depth 16' bgs Diameter 6"  
 Top of Casing 69.02' MSL Initial Water Level 4' bgs Static 6.68' btoc  
 Screen Diameter 2" Length 2' Type/Size PVC 10 Slot  
 Casing Diameter 2" Length 15.72' Type N/A  
 Fill Material Sand/Grout Rig CME  
 Drilling Company Hughes Drilling Method Rotary Auger  
 Driller Pat Smith Log By Peter Campbell Date August 10, 2007  
 Checked By P.C. Permit Number \_\_\_\_\_ Project No. \_\_\_\_\_

Comments:  
 \* B indicates bounce

Depth In Feet	Well Completion	PID ppm	Sample ID Blow Counts % Recovery	Graphic Log	USCS Class	Description (Color, Texture, Structure) Trace <10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-4						
-3						
-2						
-1						
0						Well hole cleared with supersucker to 4' bgs
-1						
-2						
-3						
-4						
-5		221	4 2 50% 2 4			4'-5' Saturated sand and gravel with silt. Grey and odorous
-6						
-7		479	3 2 75% 3 4		SW	6'-8' Saturated sand and gravel. Grey fine to medium. Peat in tip. KGF-41-7-006-SS and KGF-41-7-007-SS (dupe)
-8						
-9		162	1 2 75% 2 3			8'-8.4' Void; 8.4'-9' Sand with minor silt and gravel. Grey, saturated.
-10						9'-10' Peat
-11						10'-11.2' Peat (PID 35) wet.
-12		349	1 2 100% 2 0			11.2'-12' Grey sand and grave, fine to medium. Satuated.
-13						
-14		320	7 10 100% 18 25		SM	12'-12.2' Peat; 12.2'-12.5' Grey sand, fine. KGF-41-7-009-SS (12'-12.5')
-15		5.4				12.5'-13.4' Dense grey silt; 13.4'-14' Sand and gravel. KGF-41-7-008-SS
-16		5.4	14 21 100% 33 45			14'-16' Medium to coarse grey sand, with medium to coarse gravel (to 1") Saturated.
-17						
-18		7.0	17 40 100% 40 60			16'-17' Medium sand, grey. 17'-18' Sandy silt and gravel. Grey, saturated.
-19						
-20						
-21						
-22						
-23						
-24						
-25						
-26						
-27						
-28						
-29						



Project Kenai Gas Field Pad 41-7 Owner Marathon Oil Company  
 Location ~20' West of MW-15  
 Surface Elevation 66.26' MSL Total Hole Depth 12' bgs Diameter 6"  
 Top of Casing 69.14' MSL Initial Water Level 6' bgs Static 5.59' btoc  
 Screen Diameter 2" Length 10' Type/Size PVC 10 Slot  
 Casing Diameter 2" Length 4.88' Type N/A  
 Fill Material Sand/Grout Rig CME  
 Drilling Company Hughes Drilling Method Rotary Auger  
 Driller Pat Smith Log By Peter Campbell Date August 13, 2007  
 Checked By P.C. Permit Number \_\_\_\_\_ Project No. \_\_\_\_\_

Comments:  
 \* B indicates bounce

Depth In Feet	Well Completion	PID ppm	Sample ID	Blow Counts % Recovery	Graphic Log	USCS Class	Description (Color, Texture, Structure) Trace <10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-4							
-3							
-2							
-1							
-0							
-1							Well hole cleared with supersucker to 6' bgs
-2							
-3							SAMPLE KGF-41-7-015-SS collected from hole prior to drilling.
-4							
-5							
-6							
-7							
-8		110	2 1 70%				7'-7.4' Void; 7.4'-9' Peat KGF-41-7-016-SS
-9							
-10		0.7	1 2 100%				9'-11' Peat
-11			1				
-12							
-13							
-14							
-15							
-16							
-17							
-18							
-19							
-20							
-21							
-22							
-23							
-24							
-25							
-26							
-27							
-28							
-29							

