



GILFILIAN ENGINEERING & ENVIRONMENTAL TESTING, INC.

Professional Environmental Consultants

2605 Denali Street, Suite 203 • Anchorage, Alaska 99503-2749
Tel: (907) 277-2021 • Fax: (907) 274-8683

April 3, 1996

Mike Krieber, P.E.
Alaska Department of Environmental Conservation
Mat-Su Public Service Office
P O Box 871064
Wasilla, Alaska 99687

RECEIVED

APR - 8 1996

DEPARTMENT OF
ENVIRONMENTAL CONSERVATION
MSDO

RE: Corrective Action Plan
Knik Texaco, Wasilla, Alaska
ADEC UST Facility I.D.# 2540
GE²T Project No. 93147

Dear Mr. Krieber:

This letter presents a corrective action plan for the remediation of the ground water below the project site in the area of the underground storage tanks (USTs). Also, this letter describes a plan for the installation of additional ground water monitoring wells for the purpose of delineating the contaminant plume. The preparation of this letter is in response to the requirements outlined in your letter dated January 24, 1996.

Drinking Water Well

On February 26, 1996, Steve Rebillard, a Senior Environmental Geologist with our firm, collected a representative water sample from the domestic well water. The sample was taken from a faucet located in the tire shop building. Past samples of the domestic well water have been collected from a faucet located in the general repair garage building. The location of the most recent sample was at your request per past correspondence. The sample was tested to determine if petroleum product had impacted the water well.

On March 14, 1996, Mr. Rebillard sent you a fax copy of the analytical test results for the water sample. A hard copy of the report was sent through the mail. The water well sample was analyzed by Commercial Testing and Environmental Services, Inc., (CT&E) located in Anchorage, Alaska. Another copy of the results is attached to this letter. As shown on the attached test results, petroleum product contamination by BTEX compounds is reported at non-detect levels. ✓

Contaminant Plume Delineation

In response to your request, we propose to install three (3) ✓ additional ground water monitoring wells within the area of the USTs. These monitoring wells will be used to determine the horizontal extent of the contamination in the ground water. The information

obtained will be used to assess the impact to the ground water and the effectiveness of the proposed ground water remediation plan described below. Two of the monitoring wells will be placed downgradient of the USTs and dispenser Islands. The third ground water monitoring well will be placed upgradient of the suspected contaminant source. A site plan showing the proposed locations for the ground water monitoring wells is attached for your review.

The monitoring wells will be installed with a 6-inch diameter hollow stem auger. Each boring will be drilled to a depth of five feet below the ground water table. No soil samples from the borings will be submitted for laboratory analysis. Upon completion of drilling the bore holes, a 10 foot section of slotted, 2-inch diameter schedule 40 PVC well screen will be installed in the auger hole. A 2-inch diameter section of schedule 40 PVC casing will be attached to the well screen and brought to the ground surface. As the auger is withdrawn from the bore hole, a sand pack material will be placed in the annular space between the screened section and native soils. The wells upper casing annulus will be sealed from surface water influence by a bentonite clay material. The screened section on each well will penetrate the ground water for a depth of approximately five feet. The well heads will be protected with a flush mounted manhole device or protective steel stick-up casing. Unauthorized access will be prevented by padlock control affixed to a cap on the monitoring well casing or lockable steel cover on any stick-up devices.

Upon completion of the installation of the ground water monitoring wells, representative samples of the ground water will be collected and submitted to an ADEC approved analytical laboratory for subsequent testing. Analyses of the samples will be done for gasoline range organic (GRO) and BTEX contaminant parameters by Test Method AK 101. ✓ Prior to the collection of the ground water samples, the monitoring wells will be purged of a minimum three bore volumes using dedicated bailers unique to each well. The collection of the ground water samples will be conducted in accordance with the procedures outlined in our QAPP approved by the ADEC and includes a survey of the monitoring wells to determine ground water flow characteristics, gradient and direction.

Ground Water Remediation

Based on a review of the ground water sample test results for the June and December 1995 ground water monitoring events, remediation of the ground water is necessary to mitigate contamination from moving downgradient and potentially off-site onto neighboring properties. A summary of the ground water test results for the water samples collected during the June and December 1995 monitoring events is summarized in the Table 1.

As shown on the above table, BTEX compounds have impacted the ground water below the former UST and dispenser island locations. We propose to remediate the ground water with the use of oxygen releasing compounds (ORC) manufactured by Regenesis Bioremediation Products. Injection of the ORC compounds into the existing monitoring wells should stimulate the natural biological activity in the ground water. The ORC product consists of a patented mix of magnesium peroxide and an inert carrier matrix contained within an inert filter sock that is manufactured by Regenesis. Literature on the Regenesis Bioremediation Products ORC sock should be on file at your office.

TABLE 1
Water Test Results

Sample I.D. #	Date Collected	Static Water Level Elevation (ft.)	Benzene (ppb)	Total BTEX (ppb)
MW 1	6/6/95	90.48	102	124.9
MW 2	6/6/95	90.50	65	419
MW 3	6/6/95	90.50	9420	41955
MW 1	12/8/95	89.14	1190	1342.5
MW 2	12/8/95	88.96	86	592
MW 3	12/8/95	88.84	6500	24366

Legend:

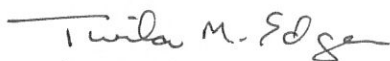
ppb = parts per billion.

Ground water elevations are referenced to an arbitrary datum of 100,00 ft. located at the top of the NE bolt on the Goodyear Sign.

The ORC socks will be installed in existing monitoring wells # 1, 2 and 3 by lacing together a string of ORC socks which will be lowered into each well. The socks will be placed throughout the length of the water column within each well. Contact with the ground water will cause the ORC filter socks to release oxygen at a rate that should enhance natural bioremediation. It is anticipated, the ORC socks oxygen releasing compounds will be depleted within two months of installation. We will monitor the dissolved oxygen concentrations and Redox potentials in the wells to determine the optimum time for replacement.

We look forward to your review comments and approval of this corrective action plan. Feel free to call on us if you have any questions on this report.

Sincerely,



for Steve Rebillard
Senior Environmental Geologist

Reviewed by



Robert E. Gilfilian, P.E.
Principal Engineer

Attachment: Site Plan

c: Herb Rosencrans, Knik Texaco

PARCEL D-15, SEC. 16,
T17N, R1W, S.M., AK.

APPROX LOCATION
GOODYEAR BUILDING

SEPTIC RISERS (TYP)
6000 GALLON UST's
(TYP OF 4)
89.14
MW-1

KNIK
TEXACO
BUILDING

DOMESTIC
WELL

PROPOSED
MW

PROPOSED
MW

MW-2

MW-3

DISPENSER ISLANDS

PROPOSED
MW

GROUND WATER DIRECTION
(GRADIENT = 0.0061% F/F)

APPROX. PROPERTY LINE

APPROX. PROPERTY LINE

KNIK-GOOSE BAY ROAD

75'
R.O.W.

75'
R.O.W.



GROUND WATER ELEVATIONS ARE BASED ON
12/08/95 MONITORING EVENT.

LEGEND:

- = EXISTING MONITORING WELL
- ◆ = PROPOSED MONITORING WELL

NOTE: UNDERGROUND STORAGE AND DISPENSER ISLANDS SHOWN
ARE THE ORIGINAL IMPROVEMENTS PRIOR TO SITE UP-
GRADE WORK.

KNIK TEXACO, WASILLA, AK. - GROUND WATER MONITORING WELL PROPOSED LOCATION PLAN

**GILFILIAN ENGINEERING &
ENVIRONMENTAL TESTING, INC.**

2605 Denali St., Suite 203, Anchorage, Alaska 99503-2749

SCALE: 1" = 50'

DATE: 4/02/96

GEI PROJECT NO. 93147

(D)93147, 82147-95.DWG



CT&E Environmental Services Inc.

Laboratory Division

Laboratory Analysis Report

GILFILIAN ENGR/ENV TESTING INC
BOB GILFILIAN
2605 DENALI STREET, SUITE 203
ANCHORAGE, AK 995032749

Client Name GILFILIAN ENGR/ENV TESTING INC
Ordered By STEVE REBILLARD

Project Name KNIK TEXACO/93147

CT&E Project# 960640

Printed Date 03/12/96 14:15



CT&E Environmental Services Inc.

Laboratory Division

Laboratory Analysis Report

CT&E Ref.# 960640.4042
Client Sample ID DOMESTIC WELL|0640-01
Matrix Water (Surface, Eff., Ground)

Collected Date 02/26/96

Technical Director

Released By *Shawn Patten*

Sample Remarks:

Parameter	Results	QC		Units	Method	Allowable Limits	Prep Date	Analysis	
		Qual	PQL					Date	Init
BTEX 602									
Benzene	0.0010 U		0.001	mg/L	AK101/602 Combo			03/01/96	MMP
Toluene	0.0010 U		0.001	mg/L	AK101/602 Combo			03/01/96	MMP
Ethylbenzene	0.0010 U		0.001	mg/L	AK101/602 Combo			03/01/96	MMP
P & M -Xylene	0.0010 U		0.001	mg/L	AK101/602 Combo			03/01/96	MMP
o-Xylene	0.0010 U		0.001	mg/L	AK101/602 Combo			03/01/96	MMP



COLFILLIAN ENGINEERING & ENVIRONMENTAL TESTING, INC.

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96.0640

CHAIN OF CUSTODY RECORD

PROJECT NAME:

Knik Texaco

PROJECT NUMBER:

93147

SAMPLER: (Printed) *Steve Rebillard*

WITNESS: (Printed)

(Signature)

Steve Rebillard

(Signature)

ID No.	Description / Location	Date	Time	Sample Type	# of Cont.	Analysis Required	QA/QC Req.
<i>107</i>	<i>Domestic Well</i>	<i>2/26/96</i>	<i>1400</i>	<i>Water</i>	<i>2</i>	<i>BTEX (602)</i>	<i>Level 1</i>

Relinquished by: (Printed) *Steve Rebillard*

Date / Time

Received by: (Printed)

(Signature)

Steve Rebillard

2/27/96 830

(Signature)

Relinquished by: (Printed)

J. GROVES

Date / Time

Received by: (Printed)

(Signature)

Jeffrey Groves

2-27-96 9:10

(Signature)

Dispatched by: (Printed)

Date / Time

Received at Laboratory by:

Date / Time

(Signature)

Jeffrey Groves

Jana Decosta

2/27/96 0910

Method of Shipment:

Condition of Containers:

Seals yes / no

Coed Cooler

Comments: