ALASKA CONSULTING AND ENVIRONMENTAL ENGINEERING

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June 3, 2005 Project No. 23019

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Project Manager
ADEC
43335 K Beach Road, Suite 11
Soldotna, Alaska 99669

Subject: Kasilof Riverview; ADEC Spill #93230015402; UST Facility ID #384
Monitor Well Sampling, Groundwater Flow, and Stockpile Remediation Plan

Don:

In response to your January 24, 2005 letter regarding review of our January 6, 2004 report to ADEC on the monitor well installations and water sampling for the past fuel spill release at subject site (ADEC spill #93230015402) we provide the following information.

Monitor Well Static Water Level and Groundwater Flow

Static water levels (SWL's) were taken in the three on-site monitor wells quarterly for over one year starting in August 2003, through February 2005 and the most recent in February 2005. SWL measurements were taken using a Solonist water level indicator. The water level meter was decontaminated using a Alconox detergent wash followed by a distilled water rinse prior to use and between each well.

Attached is a groundwater flow map for dates the SWL's were taken (figure 1). The map shows the dates of investigation, top-of-casing (TOC) relative elevations, static water levels, groundwater relative elevations, and direction of apparent ground water flow. The data shows groundwater flow elevation is consistently toward the east and the flow direction varies little between seasons.

Monitor Well Sampling and Laboratory Analysis

Water samples were taken from the three on-site monitor wells on February 2, 2005, and will be taken again in August 2005. The wells were bailed, using individual disposable plastic bailers until more than three casing volumes of water were removed from each well. Water samples were taken for GRO, BTEX, DRO, and RRO and transferred directly to water sample containers provided by the laboratory. Sample containers were placed directly into a cooler with blue ice chilled to 4 degrees centigrade for delivery to the laboratory. Samples were delivered to CTE / SGS Environmental Laboratory under proper security and chain of custody. Samples were analyzed for GRO (method AK 101), BTEX (method EPA 8021b), DRO (method AK 102), and RRO (method AK 103).

The attached laboratory data shows mostly non-detected results for most parameters analyzed with some very low levels of benzene, DRO, and RRO in MW 1 and RRO in MW 2 and MW 3, all below allowable limits contained in 18 AAC 75.345 Table C for groundwater. MW 1 showed a benzene level of 0.00228 mg/l, DRO at 0.680 mg/l, and RRO at 4.66 mg/l. MW 2 shows RRO at 1.38 mg/l and MW 3 with RRO of 1.13 mg/l. We believe the low RRO levels encountered may be from organic and coal layers encountered near bottom of wells during drilling. The benzene and DRO levels in MW 1 are lower than the last sampling round, they appear to be decreasing, and are below allowable limits. Based on this information it does not appear there is substantial migration of contamination toward the adjacent Kasilof River. Based on ADEC's January 24, 2005 letter an additional round of water samples will be taken in August 2005.

Soil Stockpile Plan for Remediation, Sampling, and disposal

The approximate 200 cy of stockpiled soil was sampled with results provided to ADEC in our January 6, 2004 report. The results show most soil contaminate levels to be below ADEC allowable limits contained in 18 AAC 75.341, Table B, for the more stringent criteria for "migration to groundwater." Based on these results further limited on-site treatment, sampling, and final disposal of the stockpile is proposed. An area will be prepared in an existing secured fenced equipment storage yard located west of the soil stockpile. Two samples will be taken of the yard based soils, prior to preparing the area, to confirm existing yard based soils are free of contamination. Ditches will be excavated around an approximate 50' x 30' area in the yard. The ditches will be sloped to route drainage and run-off water to the west as shown on the attached plan.

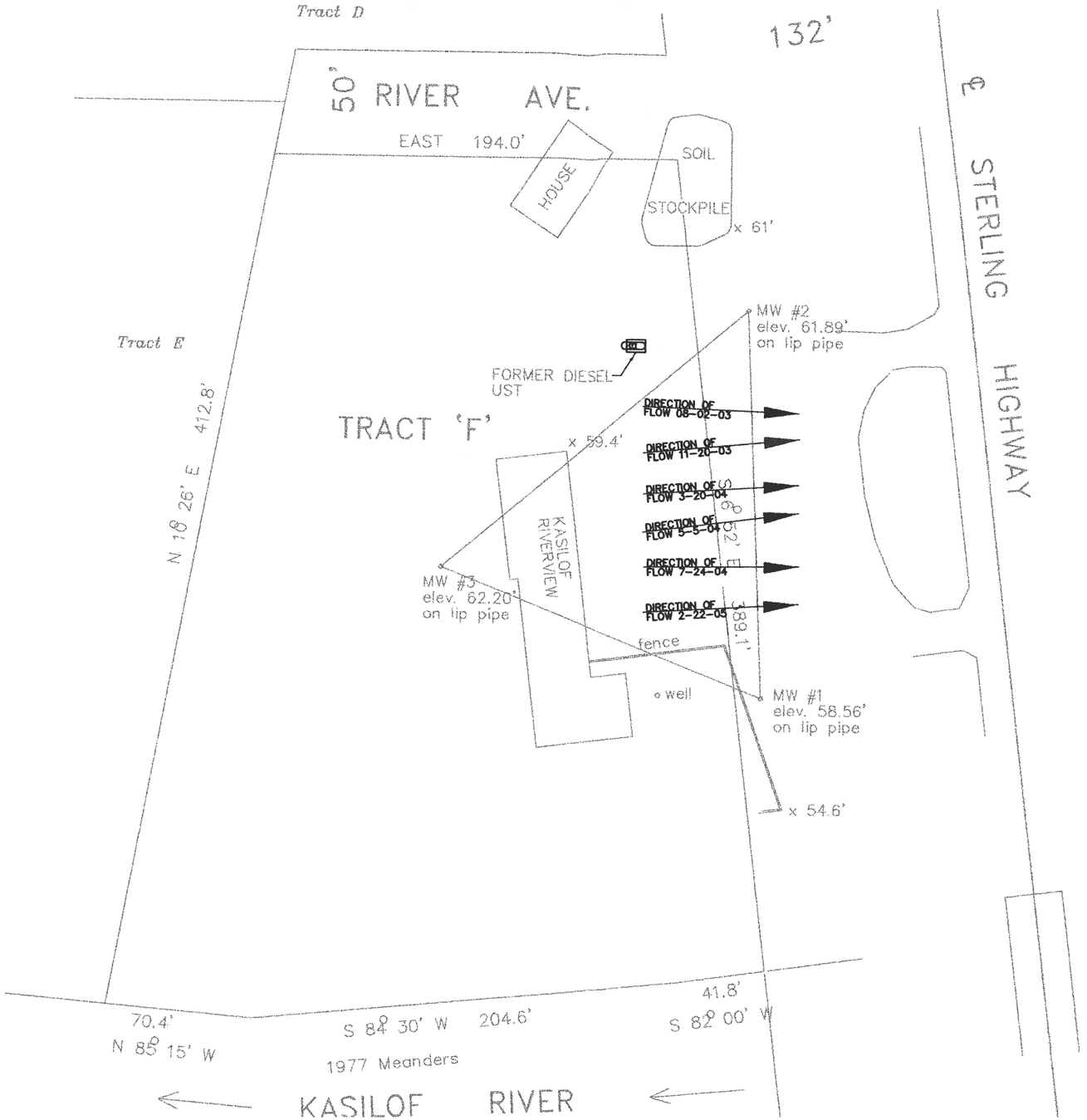
Due t the apparent low levels of contamination in the stockpiled soils, the proposed limited treatment will consist of spreading, tilling, and simple aeration. Approximately 50 cy of soil will be taken from the covered stockpile and spread over the 50' x 30' area in an average 1' lift using a loader. The soil lift will be higher in the middle and sloped to either side. The soil will be taken from the covered stockpile and spread out in the treatment area on clear, sunny days and the main stockpile immediately recovered with the overliner. The treatment area soil will be covered over with a 20-mil liner during rainy / cloudy days and each night. The treatment area soil will be exposed and tilled during clear and sunny weather days until vapor readings indicate the soil contaminate levels are below allowable ADEC limits for final soil disposal. At this time two samples will be taken from the treated soil and sent to the lab for GRO, BTEX, DRO, and RRO analysis. If lab analysis confirms all levels are below ADEC allowable soil cleanup levels the soil will be spread in an adjacent area. The attached plan (figure 2) shows the proposed treatment and final disposal areas. The total soil stockpile contains approximately 200 cy of soil and we anticipate approximately four rounds of spreading, sampling, and disposal. Following final disposal a report will be prepared and submitted to ADEC with total soil quantities, vapor readings, lab sample results, and a map showing final disposal areas. On behalf of the owners, Joe and Joanne Browning, we hereby request ADEC approval of the stockpile remediation, sampling, and disposal plan.

Please call with any questions or if you need additional information.

Sincerely,

Arne Tikka, P.E.
c:\osrpts\kasilofriverviewupdatelettertodonseagren.rpt
Attachments
Approximate Groundwater Flow Map figure 1
Stockpile Treatment and Disposal Plan figure 2

cc Joe Browning, Owner



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GROUND WATER FLOW DIAGRAM

KASILOF RIVERVIEW

ALASKA CONSULTING AND ENVIRONMENTAL ENGINEERING
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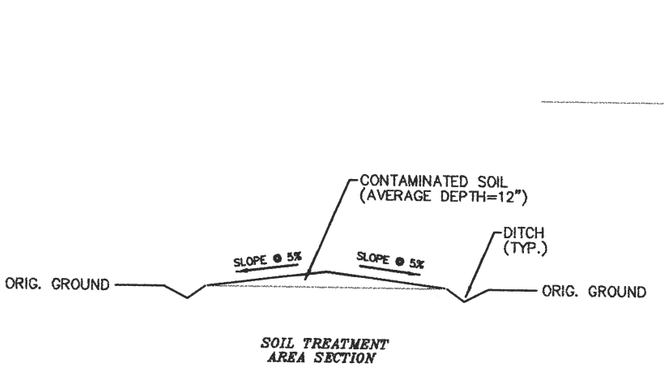
(907) 262-3197 FAX 262-9013

DATE: MAY 2005
DRAWN: RT
CHKD: AT
SCALE: AS SHOWN
PROJ # 23019



SOIL TREATMENT AREA SECTION

Tract D

Tract E

TRACT 'F'

50'

132'

RIVER AVE.

STERLING HIGHWAY

APPROXIMATE FINAL DISPOSAL DISPOSAL AREA

DRAINAGE DITCH

SOIL TREATMENT AREA

E 194.0'

HOUSE

SOIL STOCKPILE

x 61'

APPROXIMATE LOCATION OF DROPOFF

FENCE

APPROXIMATE FINAL DISPOSAL DISPOSAL AREA

FORMER DIESEL UST

x 59.4'

MW #2
elev. 61.89'
on lip pipe

N 10° 26' E 412.8'

KASILOF RIVERVIEW

S 6° 52' E 389.1'

MW #3
elev. 62.20'
on lip pipe

fence

well

MW #1
elev. 58.56'
on lip pipe

x 54.6'

70.4'
N 85° 15' W

S 84° 30' W 204.6'

41.8'
S 82° 00' W

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KASILOF RIVER

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APPROXIMATE SITE PLAN
SCALE: 1"=60'

STOCKPILE REMEDIATION PLAN

KASILOF RIVERVIEW

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FIGURE 2