

**GROUNDWATER MONITORING REPORT
FEBRUARY 1994 SAMPLING EVENT**

BP SERVICE STATION No. 11049

**13201 100th Avenue NE
Kirkland, Washington**

Prepared for

BP Oil Company

11-09410-01

April, 1994

RZA AGRA, Inc.
Engineering & Environmental Services

 **AGRA**
Earth & Environmental Group

Table 1: Summary of Fluid Level Measurements
BP Service Station No. 11049
13201 100th Avenue Northeast
Kirkland, Washington
RZA AGRA, Inc. Project No. 11-09410-01

(page 1 of 1)

Well Number/ Top of Casing Elevation (ft)	Date Collected	Product Thickness (ft)	Depth to Water (ft)	Groundwater Elevation (ft)*
MW-1/ 99.10	29-Mar-90	0	11.61	87.49
	02-Oct-90	0	13.37	85.73
	10-Oct-91	0	13.40	85.70
	01-Apr-92	0	12.43	86.67
	01-Dec-92	0	14.63	84.47
	21-Feb-94	0	15.12	83.98
MW-2/ 98.75	29-Mar-90	0	18.52	80.23
	02-Oct-90	Well Destroyed September 1990		
MW-3/ 94.88	29-Mar-90	0	19.51	75.37
	02-Oct-90	0	20.12	74.76
	10-Oct-91	0	20.13	74.75
	01-Apr-92	0	19.67	75.21
	01-Dec-92	0	19.81	75.07
	21-Feb-94	0	20.38	74.50
MW-4/ 98.67	29-Mar-90	0	13.06	85.61
	02-Oct-90	0	15.11	83.56
	10-Oct-91	Well Dry When Sampled		
	01-Apr-92	**	**	**
	01-Dec-92	**	**	**
	21-Feb-94	Well Dry When Sampled		
MW-5/ 97.43	29-Mar-90	0	15.85	81.58
	02-Oct-90	0	16.74	80.69
	10-Oct-91	0	16.79	80.64
	01-Apr-92	0	16.26	81.17
	01-Dec-92	0	17.12	80.31
	21-Feb-94	0	17.34	80.09

Notes:

Groundwater elevation established relative to an arbitrary datum of 100.00 feet.

* = Groundwater elevation is corrected for the effects of LPH using the following formula:

$TOC - [DTW - (PT)(0.80)]$ where TOC=Top of Casing, DTW=Depth to Water,

PT=Product Thickness, and 0.80=Typical Specific Gravity for Gasoline.

** = Groundwater elevation was not measured on this date.

Table 2: Summary of Analytical Results: Groundwater
BP Service Station No. 11049
13201 100th Avenue Northeast
Kirkland, Washington
RZA AGRA, Inc. Project No. 11-09410-01

(page 1 of 1)

Well Number	Date Collected	WTPH-D (ppb)	WTPH-G (ppb)	Benzene (ppb)	Toulene (ppb)	Ethyl-Benzene (ppb)	Total Xylenes (ppb)	Total Lead (ppb)	Dissolved Lead (ppb)	Turbidity (NTU)
MW-1	10-Oct-91	NT	<50	<0.5	<0.5	<0.5	<0.5	7.6	5	740
	01-Apr-91	<500	<50	<0.5	<0.5	<0.5	<0.5	<1	NT	110
	01-Dec-92	NT	NT	NT	NT	NT	NT	NT	NT	NT
	02-Dec-92	NT	<50	<0.5	<0.5	<0.5	<1	28	<2	2,350
	21-Feb-94	NT	<100	<0.5	<0.5	<0.5	<0.5	21	<3	1,100
MW-3	10-Oct-91	NT	<50	<0.5	<0.5	<0.5	<0.5	55	27	1,300
	01-Apr-91	NT	<50	<0.5	<0.5	<0.5	<0.5	<1	NT	19
	01-Dec-92	NT	<50	<0.5	<0.5	<0.5	0.5	2.8	<2	72
	02-Dec-92	NT	NT	NT	NT	NT	NT	NT	NT	NT
	21-Feb-94	NT	<100	<0.5	<0.5	<0.5	<0.5	9.5	<3	260
MW-5	10-Oct-91	NT	<50	<0.5	<0.5	<0.5	<0.5	95	50	380
	01-Apr-91	NT	<50	<0.5	<0.5	<0.5	<0.5	<1	NT	<1
	01-Dec-92	NT	<50	<0.5	<0.5	<0.5	0.5	28	<2	230
	02-Dec-92	NT	NT	NT	NT	NT	NT	NT	NT	NT
	21-Feb-94	NT	<100	<0.5	<0.5	<0.5	<0.5	42	<3	260

Notes:

WTPH-D = Total Petroleum Hydrocarbons, diesel range, by Ecology Method WTPH-D.

WTPH-G = Total Petroleum Hydrocarbons, gasoline range, by Ecology Method WTPH-G.

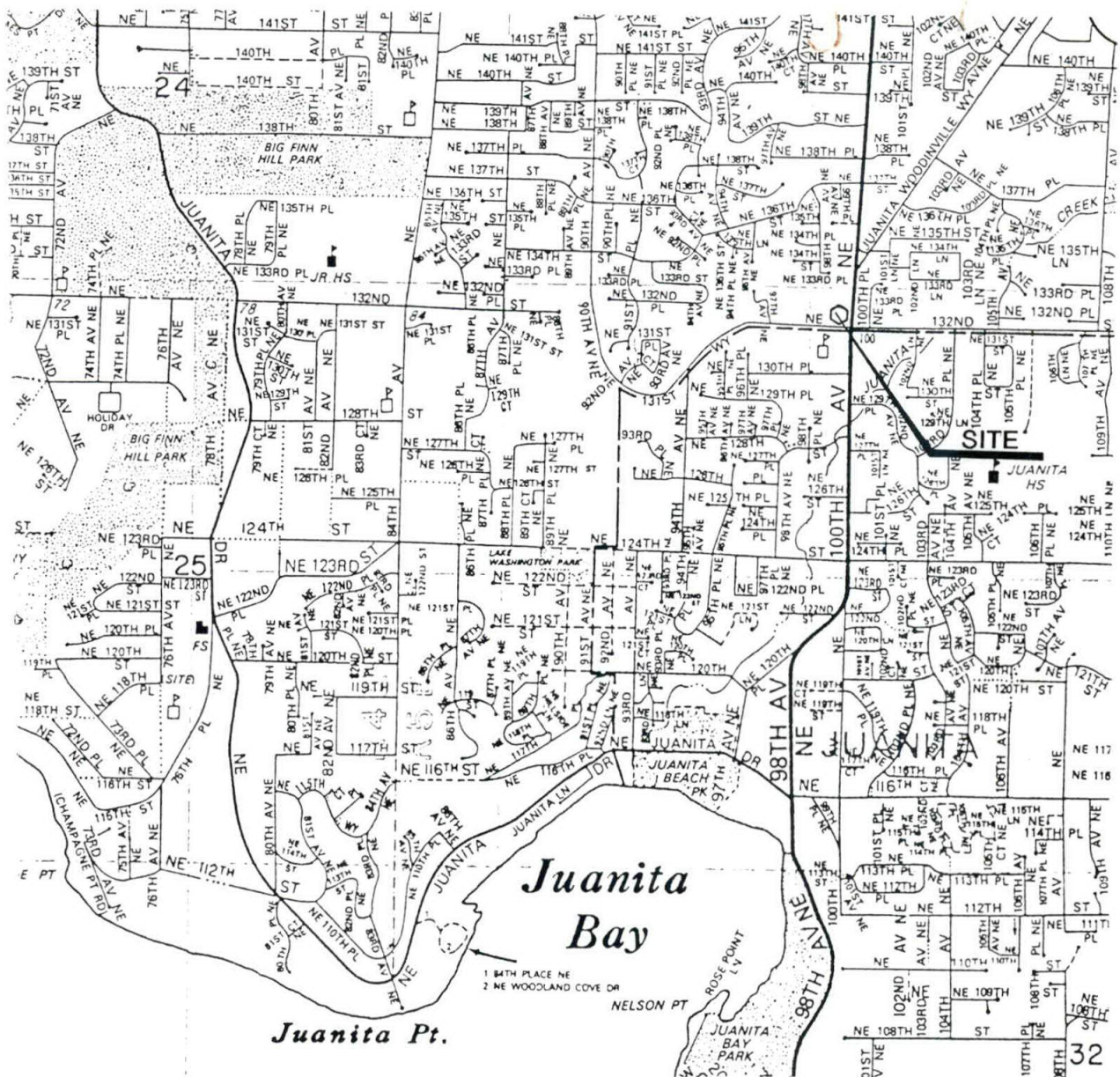
Benzene, Toulene, Ethylbenzene, and Total Xylenes (BTEX), by EPA Method 8020.

Total and dissolved lead by EPA Method 7421.

NT = Not tested.

All Concentration are expressed in parts per billion (ppb).

Concentrations preceded by a "<" are laboratory method detection limits. The method detection limit may vary depending on the laboratory used and sample characteristics.



BP OIL STATION #11049
KIRKLAND, WASHINGTON

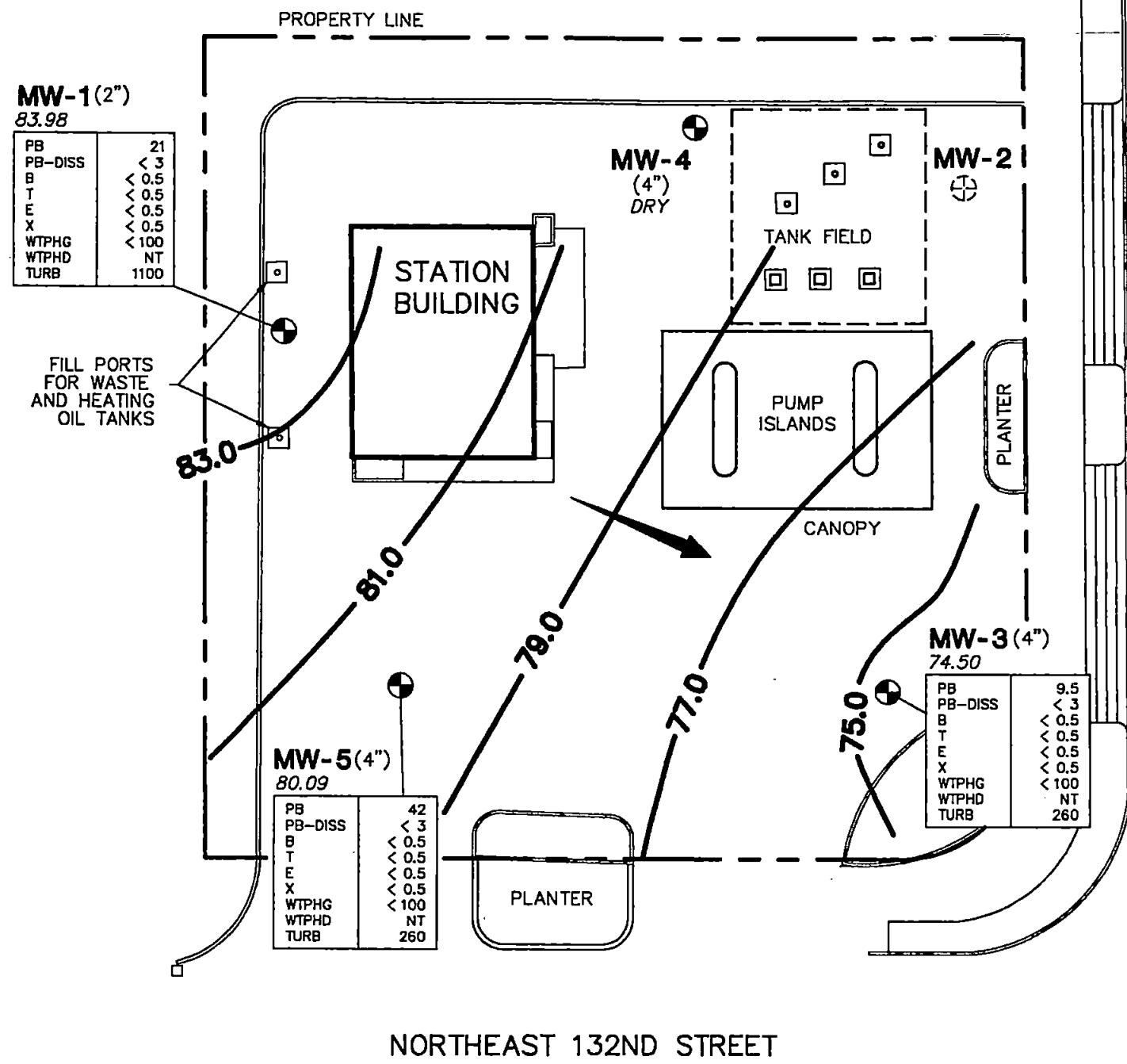
VICINITY MAP

FIGURE 1

W.O. W-7134
BY WRV
DATE OCT 1990
SCALE N.T.S.

RITTENHOUSE-ZEMAN &
ASSOCIATES, INC.
Geotechnical & Environmental
Consultants
1400 140th Avenue N.E.
Bellevue, WA 98005





LEGEND

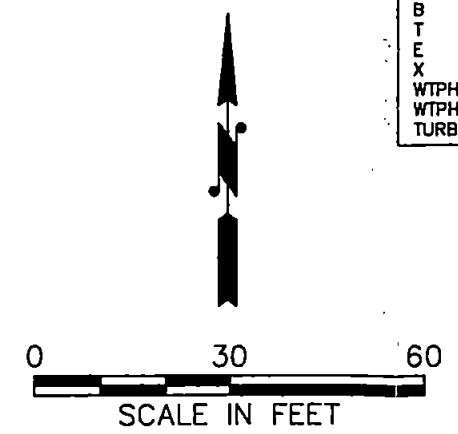
- MW-5** MONITORING WELL NUMBER AND LOCATION (EXISTING)
- MW-2** MONITORING WELL NUMBER AND LOCATION (DESTROYED)
- 83.0-** INFERRED GROUNDWATER SURFACE ELEVATION CONTOUR IN FEET
- 83.98** SPOT GROUNDWATER SURFACE ELEVATION IN FEET
- ←** INFERRED DIRECTION OF GROUNDWATER MIGRATION

GROUND WATER TEST RESULTS 21 FEBRUARY 1994

CONCENTRATIONS IN PARTS PER BILLION (PPB)
(OR METHOD DETECTION LIMIT IF PRECEDED BY "<")

- NT NOT TESTED
- PB TOTAL LEAD
- PB-DISS DISSOLVED LEAD
- B BENZENE BY EPA METHOD 8020
- T TOLUENE BY EPA METHOD 8020
- E ETHYLBENZENE BY EPA METHOD 8020
- X XYLENES BY EPA METHOD 8020
- WTPHG WASHINGTON TOTAL PETROLEUM HYDROCARBONS FOR GASOLINE (EPA METHOD 8015)
- WTPHD WASHINGTON TOTAL PETROLEUM HYDROCARBONS FOR DIESEL (EPA METHOD 8015)
- TURB TURBIDITY IN NTU's

PB	< 3
PB-DISS	< 3
B	< 0.5
T	< 0.5
E	< 0.5
X	< 0.5
WTPHG	< 100
WTPHD	NT
TURB	N/A



RZA AGRA, INC. Engineering & Environmental Services 11335 N.E. 122nd Way Suite 100 Kirkland, Washington 98034-6918	W.O.	11-09410-01	BP SERVICE STATION No. 11049 KIRKLAND, WASHINGTON GROUNDWATER SURFACE ELEVATION CONTOUR MAP FOR 21 FEBRUARY 1994 FIGURE 2
	DESIGN	RPC	
	DRAWN	MJF	
	DATE	MAR 1994	
	SCALE	1"=30'	

11335 NE 122nd Way
Suite 100
Kirkland, WA 98034-6918
(206) 820-4669
FAX (206) 821-3914

RZA AGRA, Inc.
Engineering & Environmental Services

GROUNDWATER MONITORING AND SAMPLING

PROJECT NAME BP # 11049 100th NE & NE 132nd, Kirkland FIELD REPORT No.: 1 2 of 3
SAMPLER: Steve Nicholls Scot Overdick DATE SAMPLED: 2-21-94 PROJECT No.: 11-9410-01
METHOD OF COLLECTION: Disp Bailer WEATHER: Rainy 40°
PURGE WATER DISPOSITION: RZA AGRA, INC. TREATMENT ☐ DRUMMED ON-SITE ☒ OTHER (SPECIFY) _____ DRUM COUNT 1
PRODUCT DISPOSITION: DRUMMED ON-SITE ☐ DRUM COUNT _____ OTHER (SPECIFY) _____

1 WELL VOLUME = (COLUMN HEIGHT)(WELL VOLUME CONSTANT)

WELL VOLUME CONSTANTS: 1"ID...0.041 gal/ft 1.5"ID...0.092 gal/ft 2"ID...0.163 gal/ft 4"ID...0.653 gal/ft 6"ID...1.469 gal/ft

SAMPLE WELL DIAMETER	LAB I.D.	DEPTH TO PRODUCT (ft)	DEPTH TO WATER (ft)	PRODUCT THICKNESS (ft)	DEPTH TO BOTTOM (ft)	COLUMN HEIGHT (ft)	VOLUME PURGED	TIME PURGED	TIME SAMPLED	CONDUCTIVITY (uMHOS)	DISSOLVED O ₂		TEMP. (C)	pH
											%	(mg/L)		
Mk-1 2"	CFD		15.12		16.55	1.43 .23	2 NO		1315	1.75	22.3 2.30		13.8 6.86	
										1.74			13.8 6.87	
										1.75			13.8 6.86	
Mk-3 4"	CFL		20.38		23.6	3.22 2.1	9 NO		1300	1.38	54.6 5.53		14.9 7.34	
										1.38			14.9 7.34	
										1.38			14.9 7.35	
TOTAL							11							

REMARKS: 1 drum on site labeled as purge water but contains trash.

$$1 \text{ WELL VOLUME} = (\text{COLUMN HEIGHT})(\text{WELL VOLUME CONSTANT})$$

WELL VOLUME CONSTANTS:

1"ID...0.041 gal/ft

1.5"ID...0.092 gal/ft

2"ID...0.163 gal/ft

4"ID...0.653 gal/ft

6"ID...1.469 gal/ft

[illegible]

TOTAL

с

250

REMARKS: mw-4 Damage: Dirt in bottom of well - no water



Analytical**Technologies**, Inc.

560 Naches Avenue, S.W., Suite 101, Renton, WA 98055 (206) 228-8335

Karen L. Mixon, Laboratory Manager

ATI I.D. # 9402-175

March 7, 1994

RZA AGRA, Inc.
11335 N.E. 122nd Way
Suite 100
Kirkland WA 98034-6918

Attention : Bob Czaja

Project Number : BP #11049

Project Name : BP #11049/Kirkland 11-09410-01

Dear Mr. Czaja:

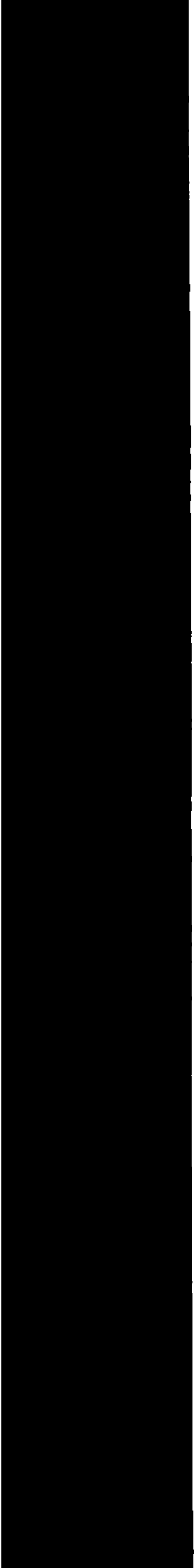
On February 22, 1994, Analytical Technologies, Inc. (ATI), received four samples for analysis. The samples were analyzed with EPA methodology or equivalent methods as specified in the attached analytical schedule. The results, sample cross reference, and quality control data are enclosed.

Sincerely,

Diana Spence
Project Manager

DS/hal/mrj

Enclosure





Analytical Technologies, Inc.

ATI I.D. # 9402-175

SAMPLE CROSS REFERENCE SHEET

CLIENT : RZA AGRA, INC.
PROJECT # : BP #11049
PROJECT NAME : BP #11049/KIRKLAND 11-09410-01

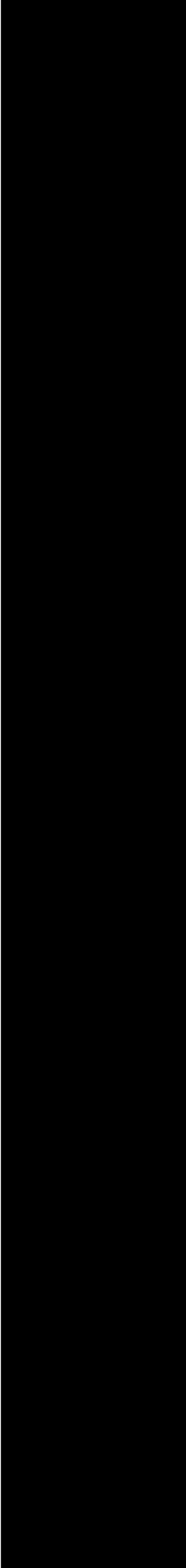
ATI #	CLIENT DESCRIPTION	DATE SAMPLED	MATRIX
9402-175-1	CFA	02/21/94	WATER
9402-175-2	CFC	02/21/94	WATER
9402-175-3	CFD	02/21/94	WATER
9402-175-4	TRIP BLANK	N/A	WATER

----- TOTALS -----

MATRIX	# SAMPLES
WATER	4

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of the report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.



1



Analytical Technologies, Inc.

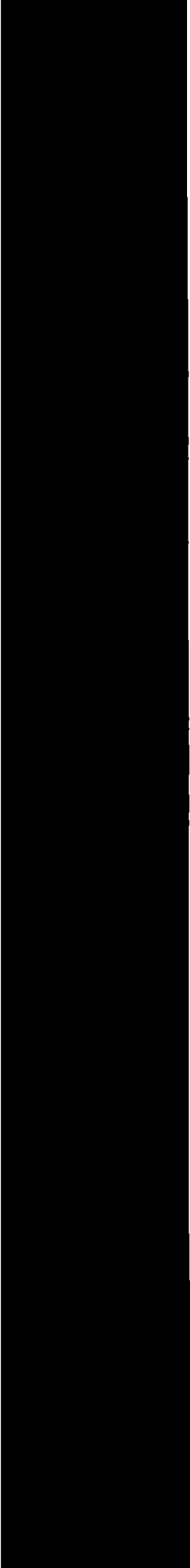
ATI I.D. # 9402-175

ANALYTICAL SCHEDULE

CLIENT : RZA AGRA, INC.
PROJECT # : BP #11049
PROJECT NAME : BP #11049/KIRKLAND 11-09410-01

ANALYSIS	TECHNIQUE	REFERENCE	LAB
BETX	GC/PID	EPA 8020	R
TOTAL PETROLEUM HYDROCARBONS	GC/FID	WA DOE WTPH-G	R
LEAD	AA/GF	EPA 7421	R
TURBIDITY	NEPHELOMETRIC	EPA 180.1	R

R = ATI - Renton
SD = ATI - San Diego
PHX = ATI - Phoenix
PNR = ATI - Pensacola
FC = ATI - Fort Collins
SUB = Subcontract





ATI I.D. # 9402-175

BETX - GASOLINE
DATA SUMMARY

CLIENT	: RZA AGRA, INC.	DATE SAMPLED	: N/A
PROJECT #	: BP #11049	DATE RECEIVED	: N/A
PROJECT NAME	: BP #11049/KIRKLAND 11-09410-01	DATE EXTRACTED	: N/A
CLIENT I.D.	: METHOD BLANK	DATE ANALYZED	: 02/22/94
SAMPLE MATRIX	: WATER	UNITS	: ug/L
METHOD	: WA DOE WTPH-G/8020 (BETX)	DILUTION FACTOR	: 1

COMPOUNDS

RESULTS

BENZENE	<0.5
ETHYLBENZENE	<0.5
TOLUENE	<0.5
TOTAL XYLENES	<0.5

FUEL HYDROCARBONS	<100
HYDROCARBON RANGE	TOLUENE TO DODECANE
HYDROCARBON QUANTITATION USING	GASOLINE

SURROGATE PERCENT RECOVERY

LIMITS

BROMOFLUOROBENZENE	96	76 - 120
TRIFLUOROTOLUENE	99	50 - 150



ATTI I.D. # 9402-175-1

BETX - GASOLINE
DATA SUMMARY

CLIENT	: RZA AGRA, INC.	DATE SAMPLED	: 02/21/94
PROJECT #	: BP #11049	DATE RECEIVED	: 02/22/94
PROJECT NAME	: BP #11049/KIRKLAND 11-09410-01	DATE EXTRACTED	: N/A
CLIENT I.D.	: CFA	DATE ANALYZED	: 02/22/94
SAMPLE MATRIX	: WATER	UNITS	: ug/L
METHOD	: WA DOE WTPH-G/8020 (BETX)	DILUTION FACTOR	: 1

COMPOUNDSRESULTS

BENZENE	<0.5
ETHYLBENZENE	<0.5
TOLUENE	<0.5
TOTAL XYLENES	<0.5

FUEL HYDROCARBONS	<100
HYDROCARBON RANGE	TOLUENE TO DODECANE
HYDROCARBON QUANTITATION USING	GASOLINE

SURROGATE PERCENT RECOVERY

LIMITS

BROMOFLUOROBENZENE	96	76 - 120
TRIFLUOROTOLUENE	101	50 - 150

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Analytical**Technologies**,Inc.

ATI I.D. # 9402-175-2

BETX - GASOLINE
DATA SUMMARY

CLIENT	: RZA AGRA, INC.	DATE SAMPLED	: 02/21/94
PROJECT #	: BP #11049	DATE RECEIVED	: 02/22/94
PROJECT NAME	: BP #11049/KIRKLAND 11-09410-01	DATE EXTRACTED	: N/A
CLIENT I.D.	: CFC	DATE ANALYZED	: 02/23/94
SAMPLE MATRIX	: WATER	UNITS	: ug/L
METHOD	: WA DOE WTPH-G/8020 (BETX)	DILUTION FACTOR	: 1

COMPOUNDSRESULTS

BENZENE	<0.5
ETHYLBENZENE	<0.5
TOLUENE	<0.5
TOTAL XYLENES	<0.5

FUEL HYDROCARBONS	<100
HYDROCARBON RANGE	TOLUENE TO DODECANE
HYDROCARBON QUANTITATION USING	GASOLINE

SURROGATE PERCENT RECOVERY

LIMITS

BROMOFLUOROBENZENE	97	76 - 120
TRIFLUOROTOLUENE	100	50 - 150

2

1



Analytical Technologies, Inc.

ATI I.D. # 9402-175-3

BETX - GASOLINE
DATA SUMMARY

CLIENT	: RZA AGRA, INC.	DATE SAMPLED	: 02/21/94
PROJECT #	: BP #11049	DATE RECEIVED	: 02/22/94
PROJECT NAME	: BP #11049/KIRKLAND 11-09410-01	DATE EXTRACTED	: N/A
CLIENT I.D.	: CFD	DATE ANALYZED	: 02/22/94
SAMPLE MATRIX	: WATER	UNITS	: ug/L
METHOD	: WA DOE WTPH-G/8020 (BETX)	DILUTION FACTOR	: 1

COMPOUNDSRESULTS

BENZENE	<0.5
ETHYLBENZENE	<0.5
TOLUENE	<0.5
TOTAL XYLENES	<0.5

FUEL HYDROCARBONS	<100
HYDROCARBON RANGE	TOLUENE TO DODECANE
HYDROCARBON QUANTITATION USING	GASOLINE

SURROGATE PERCENT RECOVERY

LIMITS

BROMOFLUOROBENZENE	100	76 - 120
TRIFLUOROTOLUENE	97	50 - 150

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ATI I.D. # 9402-175-4

BETX - GASOLINE
DATA SUMMARY

CLIENT	: RZA AGRA, INC.	DATE SAMPLED	: N/A
PROJECT #	: BP #11049	DATE RECEIVED	: 02/22/94
PROJECT NAME	: BP #11049/KIRKLAND 11-09410-01	DATE EXTRACTED	: N/A
CLIENT I.D.	: TRIP BLANK	DATE ANALYZED	: 02/22/94
SAMPLE MATRIX	: WATER	UNITS	: ug/L
METHOD	: WA DOE WTPH-G/8020 (BETX)	DILUTION FACTOR	: 1

COMPOUNDS

RESULTS

BENZENE	<0.5
ETHYLBENZENE	<0.5
TOLUENE	<0.5
TOTAL XYLENES	<0.5

FUEL HYDROCARBONS	<100
HYDROCARBON RANGE	TOLUENE TO DODECANE
HYDROCARBON QUANTITATION USING	GASOLINE

SURROGATE PERCENT RECOVERY

LIMITS

BROMOFLUOROBENZENE	95	76 - 120
TRIFLUOROTOLUENE	100	50 - 150



ATT I.D. # 9402-175

BETX - GASOLINE
QUALITY CONTROL DATA

CLIENT	: RZA AGRA, INC.	SAMPLE I.D. #	: BLANK
PROJECT #	: BP #11049	DATE EXTRACTED	: N/A
PROJECT NAME	: BP #11049/KIRKLAND 11-09410-01	DATE ANALYZED	: 02/22/94
SAMPLE MATRIX	: WATER	UNITS	: ug/L
METHOD	: WA DOE WTPH-G/8020 (BETX)		

COMPOUNDS	SAMPLE RESULT	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
BENZENE	<0.500	20.0	20.4	102	N/A	N/A	N/A
TOLUENE	<0.500	20.0	21.3	107	N/A	N/A	N/A
TOTAL XYLENES	<0.500	40.0	41.2	103	N/A	N/A	N/A
GASOLINE	<100	1000	1030	103	N/A	N/A	N/A

CONTROL LIMITS	% REC.	RPD
BENZENE	80 - 111	20
TOLUENE	78 - 111	20
TOTAL XYLENES	80 - 114	20
GASOLINE	75 - 120	20

SURROGATE RECOVERIES	SPIKE	DUP. SPIKE	LIMITS
BROMOFLUOROBENZENE	101	N/A	76 - 120
TRIFLUOROTOLUENE	98	N/A	50 - 150



ATI I.D. # 9402-175

BETX - GASOLINE
QUALITY CONTROL DATA

CLIENT	: RZA AGRA, INC.	SAMPLE I.D. #	: 9402-174-2
PROJECT #	: BP #11049	DATE EXTRACTED	: N/A
PROJECT NAME	: BP #11049/KIRKLAND 11-09410-01	DATE ANALYZED	: 02/22/94
SAMPLE MATRIX	: WATER	UNITS	: ug/L
METHOD	: WA DOE WTPH-G/8020 (BETX)		

COMPOUNDS	SAMPLE RESULT	DUP. RESULT	RPD	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED RESULT	DUP. % REC.	RPD
GASOLINE	<100	<100	NC	N/A	N/A	N/A	N/A	N/A	N/A
CONTROL LIMITS						% REC.			RPD
GASOLINE						N/A			20
SURROGATE RECOVERIES				SAMPLE		SAMPLE DUP.		LIMITS	
TRIFLUOROTOLUENE				102		99			50 - 150

NC = Not Calculable.

ATI I.D. # 9402-175

BETX - GASOLINE
QUALITY CONTROL DATA

CLIENT : RZA AGRA, INC.	SAMPLE I.D. # : 9402-175-3
PROJECT # : BP #11049	DATE EXTRACTED : N/A
PROJECT NAME : BP #11049/KIRKLAND 11-09410-01	DATE ANALYZED : 02/22/94
SAMPLE MATRIX : WATER	UNITS : ug/L
METHOD : WA DOE WTPH-G/8020 (BETX)	

COMPOUNDS	SAMPLE RESULT	SAMPLE DUP. RESULT	RPD	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED RESULT	DUP. % REC.	RPD
BENZENE	<0.500	N/A	N/A	20.0	19.8	99	20.1	101	2
TOLUENE	<0.500	N/A	N/A	20.0	20.9	105	21.2	106	1
TOTAL XYLENES	<0.500	N/A	N/A	40.0	40.6	102	41.9	105	3
GASOLINE	<100	<100	NC	1000	955	96	899	90	6

CONTROL LIMITS						% REC.	RPD
BENZENE						77 - 112	20
TOLUENE						72 - 113	20
TOTAL XYLENES						80 - 110	20
GASOLINE						58 - 127	20

SURROGATE RECOVERIES	SPIKE	DUP. SPIKE	LIMITS
BROMOFLUOROBENZENE	106	108	76 - 120
TRIFLUOROTOLUENE	102	100	50 - 150

NC = Not Calculable.

[REDACTED]

Analytical**Technologies**, Inc.

ATI I.D. # 9402-175

METALS ANALYSIS

CLIENT : RZA AGRA, INC.
PROJECT # : BP #11049
PROJECT NAME : BP #11049/KIRKLAND 11-09410-01

MATRIX : WATER

ELEMENT	DATE PREPARED	DATE ANALYZED
LEAD	02/24/94	02/25/94

ATI I.D. # 9402-175

METALS ANALYSIS

CLIENT : RZA AGRA, INC.
PROJECT # : BP #11049
PROJECT NAME : BP #11049/KIRKLAND 11-09410-01

MATRIX : WATER

ELEMENT

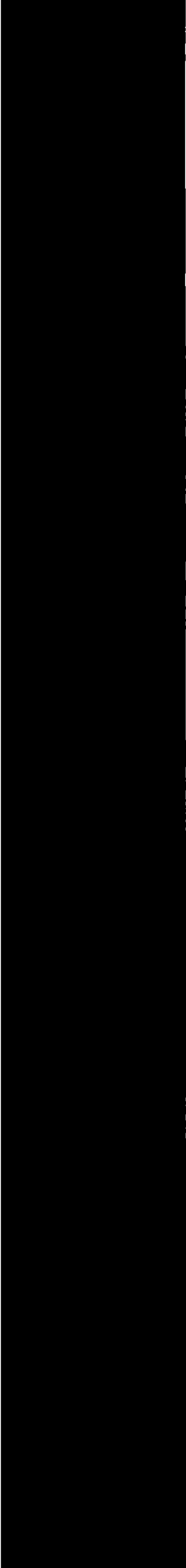
DATE PREPARED

DATE ANALYZED

LEAD

02/24/94

02/25/94



Analytical**Technologies**, Inc.

ATI I.D. # 9402-175

METALS ANALYSIS
DATA SUMMARY

CLIENT : RZA AGRA, INC.
PROJECT # : BP #11049
PROJECT NAME : BP #11049/KIRKLAND 11-09410-01

MATRIX : WATER

UNITS : mg/L

ATI I.D. #	CLIENT I.D.	LEAD (TOTAL)	LEAD (DISSOLVED)
9402-175-1	CFA	0.042	<0.0030
9402-175-2	CFC	0.0095	<0.0030
9402-175-3	CFD	0.021	<0.0030
METHOD BLANK	-	<0.0030	<0.0030

[REDACTED]

ATI I.D. # 9402-175

METALS ANALYSIS
QUALITY CONTROL DATA

CLIENT : RZA AGRA, INC.
PROJECT # : BP #11049
PROJECT NAME : BP #11049/KIRKLAND 11-09410-01

MATRIX : WATER

UNITS : mg/L

ELEMENT	ATT I.D.	SAMPLE RESULT	DUP RESULT	RPD	SPIKED RESULT	SPIKE ADDED	% REC
LEAD	BLANK	<0.0030	N/A	N/A	0.0257	0.0250	103
LEAD	9402-175-2D	<0.0030	<0.0030	NC	N/A	N/A	N/A
LEAD	9402-175-3D	<0.0030	N/A	N/A	0.0269	0.0250	108

NC = Not Calculable.

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{|(\text{Sample Result} - \text{Duplicate Result})|}{\text{Average Result}} \times 100$$

[REDACTED]

ATI I.D. # 9402-175

GENERAL CHEMISTRY ANALYSIS

CLIENT : RZA AGRA, INC. MATRIX : WATER
PROJECT # : BP #11049
PROJECT NAME : BP #11049/KIRKLAND 11-09410-01

PARAMETER DATE ANALYZED

TURBIDITY 02/22/94

ATI I.D. # 9402-175

GENERAL CHEMISTRY ANALYSIS
DATA SUMMARY

CLIENT : RZA AGRA, INC. MATRIX : WATER
PROJECT # : BP #11049
PROJECT NAME : BP #11049/KIRKLAND 11-09410-01 UNITS : NTU

ATI I.D. # CLIENT I.D. TURBIDITY

9402-175-1	CFA	260
9402-175-2	CFC	260
9402-175-3	CFD	1100
METHOD BLANK	-	<1

ATI I.D. # 9402-175

GENERAL CHEMISTRY ANALYSIS
QUALITY CONTROL DATA

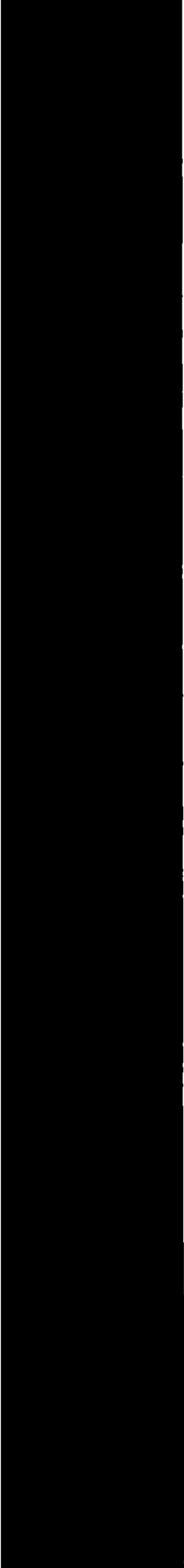
CLIENT : RZA AGRA, INC. MATRIX : WATER
PROJECT # : BP #11049
PROJECT NAME : BP #11049/KIRKLAND 11-09410-01 UNITS : NTU

PARAMETER	ATI I.D.	SAMPLE RESULT	DUP RESULT	RPD	SPIKED RESULT	SPIKE ADDED	% REC
TURBIDITY	9402-176-3	400	400	0	N/A	N/A	N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{|(\text{Sample Result} - \text{Duplicate Result})|}{\text{Average Result}} \times 100$$

10



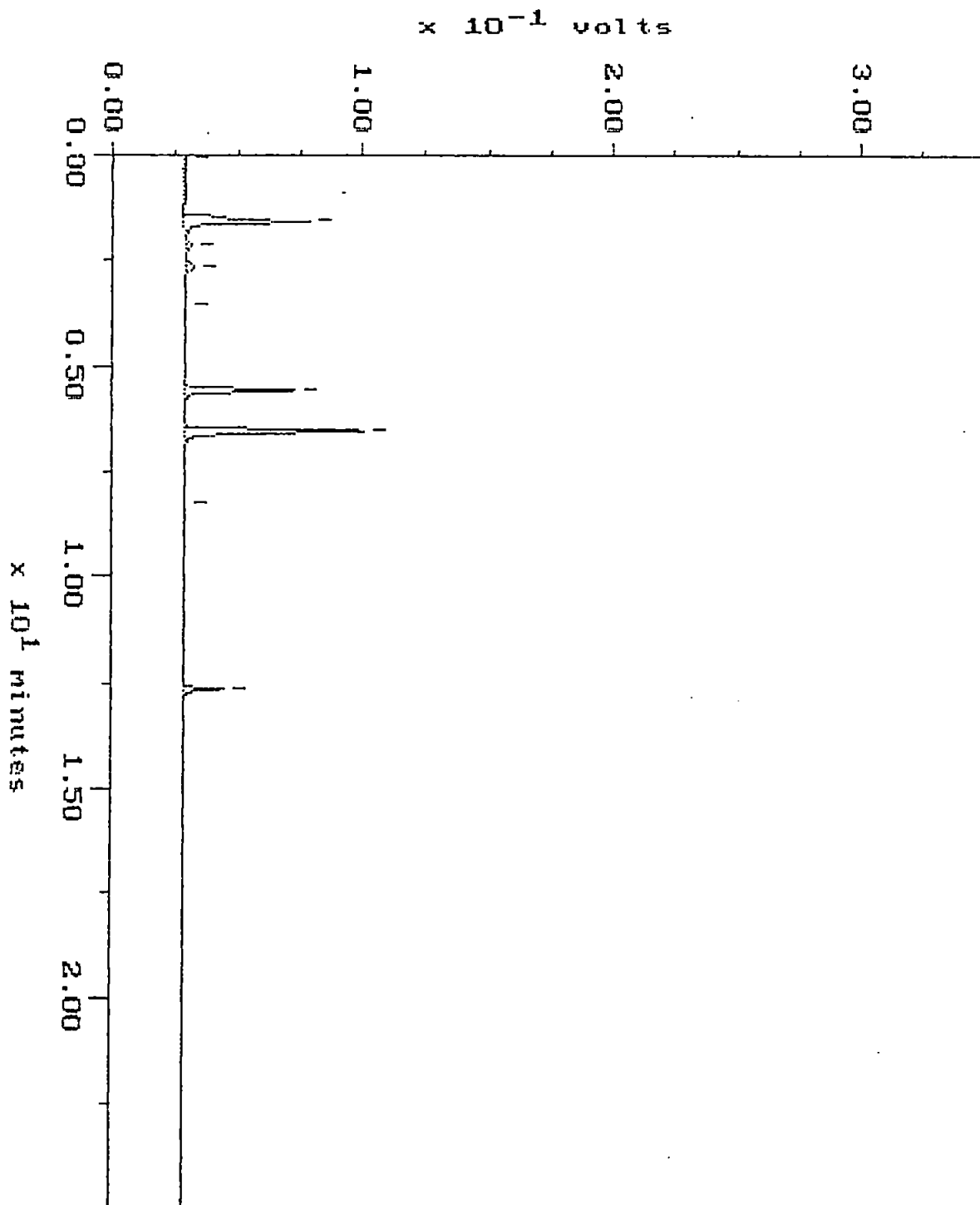
[The main body of the page contains faint, illegible text that has been redacted. The text is too light to be accurately transcribed.]

WADIE WTPH-G

Blank

Sample: WRB 2-22 Channel: FID
Acquired: 22-FEB-94 9:10 Method: F:\BRO2\MAXDATA\GLAD\022294GS
Comments: ATI : A COMMITMENT TO QUALITY

Filename: R2229603
Operator: ATI

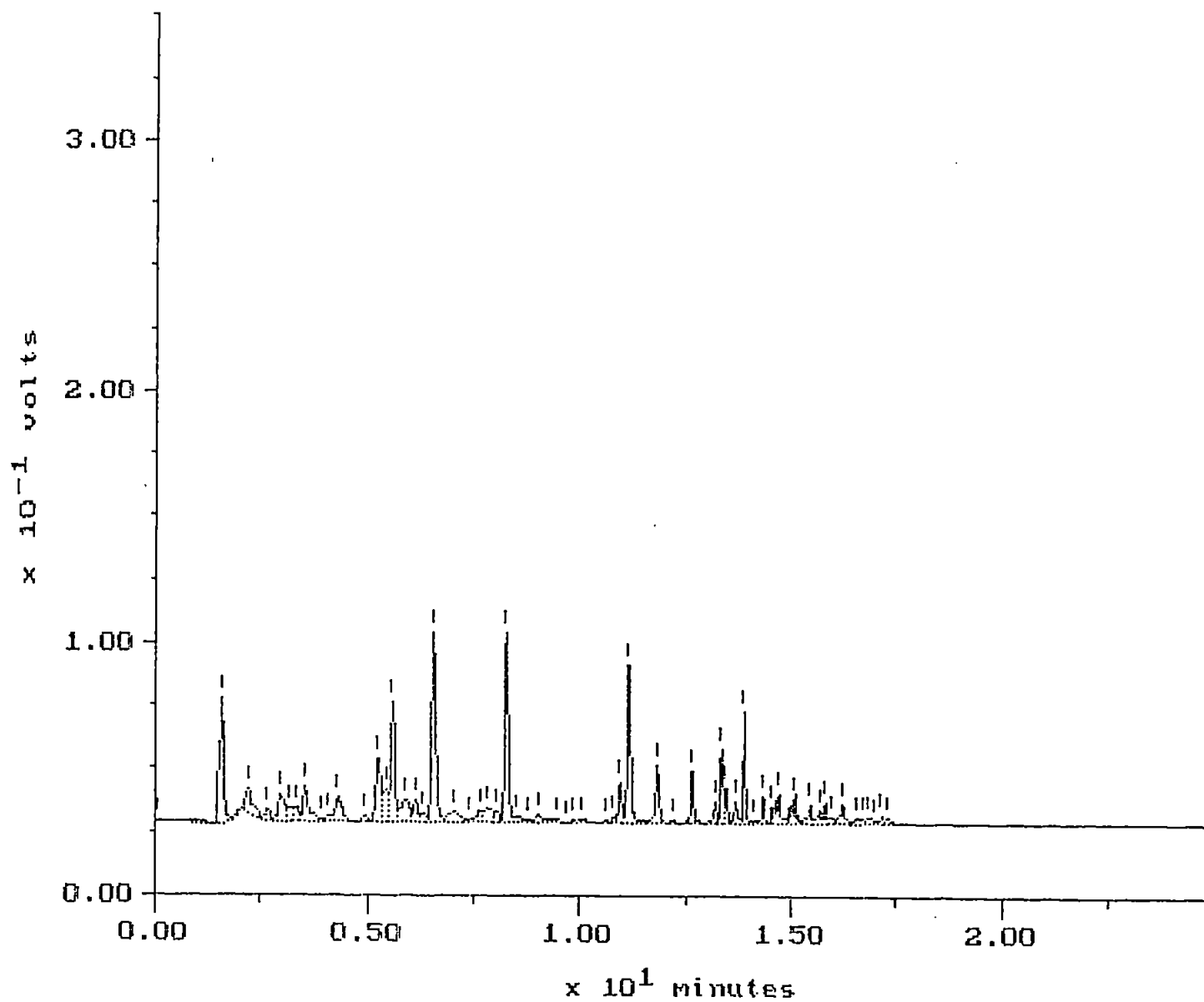


Continuing Calibration

Sample: STD-C G
Acquired: 22-FEB-94 8:02
Comments: ATI : A COMMITMENT TO QUALITY

Channel: FID
Method: F:\BRO2\MAXDATA\GLAD\022294GS

Filename: R2229601
Operator: ATI



[REDACTED]

CHAIN OF CUSTODY

No. 00234

Page 1 of 1

CONSULTANT'S NAME RZA AURA		ADDRESS 11335 NE 122nd Wy. Suite 100 Kirkland WA 98034		CITY Kirkland	STATE WA	ZIP CODE 98034
BP SITE NUMBER 11049		BP CORNER ADDRESS/CITY 100th + NE 132nd / Kirkland			CONSULTANT PROJECT NUMBER 11-9410-01	
CONSULTANT PROJECT MANAGER Bob Czajka		PHONE NUMBER (206) 820-4664		FAX NUMBER (206) 821-3914		CONSULTANT CONTRACT NUMBER Per Authorization of Peter DeSanti
BP CONTACT Peter DeSantis		BP ADDRESS 295 SW 41st St. Renton		PHONE NUMBER 251-8209		FAX NO. 251-0730
LAB CONTACT Diane Spence		LABORATORY ADDRESS 560 Naches Ave SW Renton		PHONE NUMBER 228-8335		FAX NO. 360-1742
SAMPLED BY (Please Print Name) Steve Nicholls		SAMPLED BY (Signature) Steve Nicholls		SHIPMENT DATE 2/20/94		SHIPMENT METHOD Courier

TAT: ☒ 24 Hours ☐ 48 Hours ☐ 1 Week ☐ Standard 2 Weeks

ANALYSIS REQUIRED

	AIRBILL NUMBER
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[illegible]

ADDITIONAL COMMENTS	
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RELINQUISHED BY / AFFILIATION

DATE _____

TIME

ACCEPTED BY / AFFILIATION

DATE _____

TIME

* TAT Per BP Contract
with laboratory
Dis Pb filtered by
laboratory

APPENDIX A
FIELD PROCEDURES



[REDACTED]

APPENDIX A
(11-09410-01)

FIELD PROCEDURES

Groundwater Monitoring

Depth to water measurements are taken in all wells prior to purging and sampling in order of least impacted to most impacted when this data is available. Before taking depth to water measurements, well caps are removed to allow equalization of air pressure and stabilization of the groundwater surface. Measurements are made with an interface probe for wells with liquid petroleum hydrocarbons (LPH), or with a water analyzer for wells with no free product. All instruments are decontaminated with Alconox soap and rinsed with deionized water prior to measuring groundwater levels. If LPH is detected in the well, the instruments are decontaminated using isopropyl alcohol prior to scrubbing with the Liquinox solution. Measurements are made from a marked point at the top of the well casing. If no mark is identified, the measurement is made to the highest point on the well casing.

Groundwater Sampling

Casing volumes are calculated based on the amount of standing water in the well and the diameter of the well casing. Groundwater parameters (temperature, conductivity, pH) are then monitored until stable to verify that groundwater representative of the formation is being sampled. The groundwater parameters are considered to be stable when three successive measurements are made within the following ranges: Temperature: $\pm 0.5^{\circ}\text{C}$; Conductivity: $\pm 10\%$ of scale range; and pH: ± 0.1 pH unit.

Prior to sampling the monitoring wells were purged of approximately three to five well casing volumes of groundwater using a stainless steel or PVC bailer. The bailer used for purging was decontaminated between each well by scrubbing with a stiff brush and a solution of Liquinox and potable water. After scrubbing, the bailer was rinsed with potable water followed by de-ionized water. If a sheen or LPH was observed on the purge water, the bailer was rinsed with isopropyl alcohol prior to scrubbing with the Liquinox solution. Purge water from this sampling event was transported to RZA AGRA's Kirkland, Washington facility for treatment and disposal.

A new disposable bailer was used to collect each groundwater sample. The samples were decanted from the bailers into laboratory prepared containers. Each container was labeled, placed into a chilled cooler, and transported to Analytical Technologies Inc. (ATI), of Renton, Washington be analyzed for the following compounds:

- Benzene, toluene, ethylbenzene, and total xylenes (BTEX) by EPA Method 8020;
- Gasoline range petroleum hydrocarbons ($\text{C}_7\text{-C}_{12}$) by Ecology Method WTPH-G;
- Total and Dissolved lead by EPA Method 7421; and,
- Turbidity by EPA Method 180.1.



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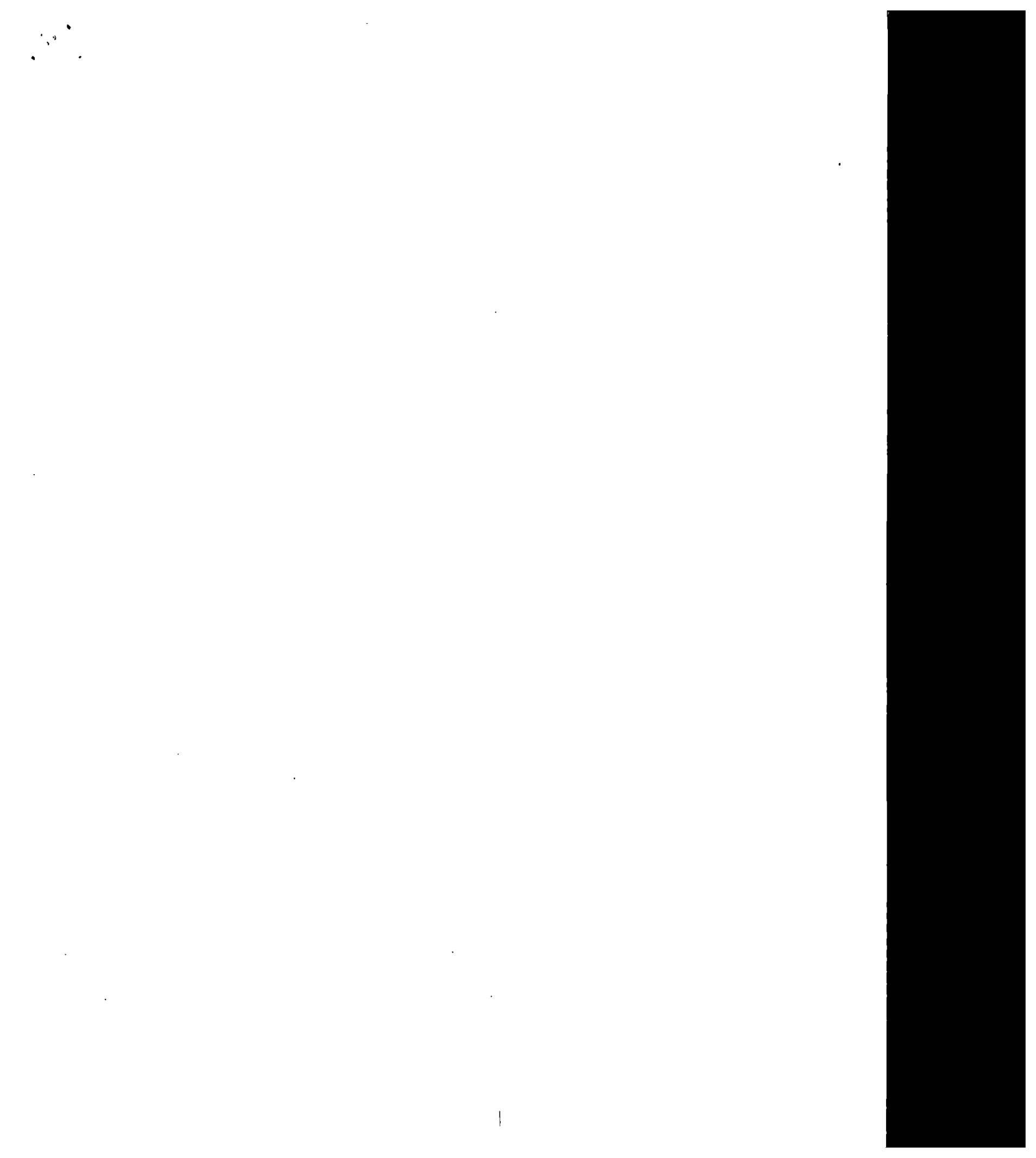
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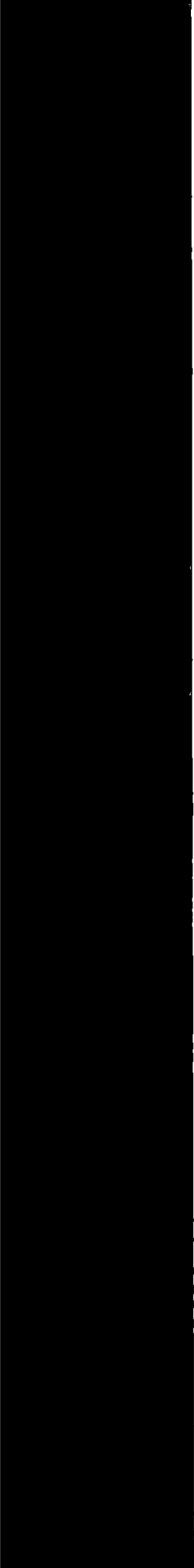
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